NATIONAL PRODUCTIVITY

HEARINGS

BEFORE THE

COMMITTEE ON GOVERNMENT OPERATIONS UNITED STATES SENATE

NINETY-THIRD CONGRESS

SECOND SESSION

ON

S. 4130

NATIONAL PRODUCTIVITY ACT OF 1974

S. 4212

NATIONAL CENTER FOR PRODUCTIVITY AND WORK QUALITY ACT

DECEMBER 16 AND 17, 1974

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COMMUNICATIONS

NATIONAL PRODUCTIVITY

MONDAY, DECEMBER 16, 1974

U.S. SENATE,
COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D.C.

The committee met, pursuant to notice, at 10:08 a.m., in room 3302, Dirksen Senate Office Building, Hon. Sam Nunn presiding.

Present: Senators Nunn, Chiles, and Percy.

Also present: W. P. Goodwin, counsel; Elizabeth A. Preast, chief clerk; and W. Thomas Foxwell, staff editor.

Senator NUNN. The Committee on Government Operations will come to order.

OPENING STATEMENT OF SENATOR NUNN

Senator Ervin, chairman of the Senate Government Operations Committee has asked me to act as chairman during these 2 days which are centered on hearings on productivity and specifically on two bills, S. 4130, the National Productivity Act of 1974, introduced by me and cosponsored by Senators Bartlett, Chiles, Domenici and Percy, and S. 4212, the National Center for Productivity and Economic Competition Act, introduced by Senator Percy and cosponsored by Senators Ribicoff, Javits, and myself.

Inflation and recession represent twin dangers to our economy and to the well-being of our citizens. According to some sources, the average worker's paycheck, after taxes and inflation were taken into account, has declined some 8 percent in real terms over the past 2 years.

The Labor Department's third quarter report also shows that productivity declined at a 3-percent annual rate during the quarter, and noted that this was a larger decline than any other quarterly period in 14 years, with the exception of the first quarter of 1974, when the annual percentage rate of decline was a record 7.1 percent.

There are those who will quickly point out that as unemployment grows and the business downturn bottoms out, productivity will tend to grow once again. However, it seems to me that we must rely on means other than unemployment to solve the problems implicit in declining productivities. All sectors need to work together to produce an economic environment that will permit the best use of available capital, the smartest use of available labor, and a more efficient use of management, and a higher quality of work in the workplace.

We also must strive to have a better application of new technology and less distortion due to Government regulation in order to achieve the rate of productivity growth necessary to provide renewed increases in real wages and a more competitive and productive economy.

Energy, environment, safety, and productivity problems are now closely related and are really interdependent. We need to develop comprehensive solutions to these problems rather than independent band-aid patches that give the illusions of solution, but in the long run produce detrimental effects and raise new problems in many cases. The key is to make use of one of our greatest national assets, our innate ingenuity, to develop the new technology and the new methods that will provide more efficient machinery, that produce less pollutants, quieter, safer, and better workplaces, and working not harder, but working smarter.

I am convinced that we must also stimulate a more imaginative management, dedicated to using available capital to invest in technology, to improve not only productivity but the quality of work and the workplace, as well as the environment as a whole. This is no small undertaking.

Increasing productivity is not a one shot proposition, but is rather a day to day, month to month, year to year continuing task. It will require Federal coordination and leadership to provide the information, the research and development and the impetus to get started and to keep moving. It will require an increased effort by the Federal Government, as well as State and local governments, and our educational institutions to increase productivity, both in the Government and in our private sector.

We tend to think of productivity only in terms of assembly line, and yet productivity in our industrial area continues to grow even though it is at a reduced rate, while in the service area, both private and public, and particularly in our governmental area, we have a sad need of improvement with respect to productivity. No large new Federal bureaucracy is needed. Rather, we must develop in my opinion, at least, a modest Federal organization which can provide the informational service, stimulate the research and development, and provide sufficient funds to be the catalyst for local and State efforts.

The bill which I introduced, S. 4130, was designed to address each of these needs. It focuses on the need to provide a strong Federal policy with respect to the desirability of sustained productivity growth. It provides as a means of enforcing this policy a requirement that each Federal agency review its laws, regulations, and procedures, to identify policies which conflict, and provide for remedial legislation to attain a proper balance between such policies.

The bill crates a small National Productivity Center, and places that center in the Commerce Department. It retains the National Commission on Productivity in a policy role.

The Commission has made some real contributions, but it lacks funds and it also lacks a statutory foundation. I am not wedded to the idea which is in my legislation of a center in the Commerce Department, nor am I wedded to the continued existence of the Commission.

Senator Percy's bill calls for the disestablishment of the Commission and the inclusion of its staff and its functions in an independent new center. I think this is an innovative suggestion and it may well prove to be the solution of the problem of both too much bureaucracy and too many fingers in the pie.

S. 4130, which is my legislation, would provide two grant programs. The first is 100 percent funded, to provide for research and development and information dissemination, and the second is based on matching funding to provide for the establishment of local centers and technical assistance services, much like the Agricultural Extension Service.

Georgia Tech in my State has been carrying out some efforts along these lines which appear both innovative and successful. We will be hearing more of these efforts during the 2 days of these hearings.

This is the type of effort I believe deserves support and assistance, and I would like to reemphasize that I do not believe the answer to every problem we have in this Nation is to create a huge new Federal bureaucracy to tell everyone what to do all the way down the line. We have existing talent in our States and our local governments, and particularly in our educational institutions. We have knowhow in both labor and industry. I think the Federal role should be to help coordinate these activities, to help stimulate these, and not to dominate the entire area.

Another area where there is a difference in approach in the two bills is that of a Federal policy on productivity. S. 4130 sets out a stated Federal policy and requires agencies to review their laws, regulations and procedures to insure that these are in conformance with the stated policy.

Senator Percy's bill also takes aim at this same problem by having the National Center develop a policy and coordinate efforts within the Federal Government, to follow that policy and identify statutory and regulatory impairments for which legislation is needed to remove such obstacles. Senator Percy's bill provides for greater emphasis on work quality and quality of the workplace. I believe this is a positive step which deserves considerable attention.

The President has indicated in his latest speech, and I quote, "increased productivity lies at the heart of the free enterprise system which made America what it is today, and I have been a firm believer in it all of my adult life."

We have before us today two bills which would create a new national effort on productivity. However, words in bills are not enough. We need action in terms of encouragement, information, research and development, delivery systems, and funds. All of these require legislation which will receive the support of Congress and the acceptance by the President, and most important, the enthusiastic support of the American people.

I believe that these two bills contain the elements, if we take the best of both, for a comprehensive new bill which can be refined and introduced in the new 94th Congress.

I am hopeful that the hearings for the next 2 days will provide the foundation for a cooperative effort to produce that legislation and to produce a positive new program to address productivity and work quality.

We have, I think, an outstanding group of witnesses that are going to be here today. Senator Percy will be joining us later in the day, and

I would like to read into the record from him a letter this morning, as follows:

Dear Mr. Chairman: I would like to express my regret to you, to the Committee, and to the witnesses, that an unavoidable schedule conflict keeps me from being present at the opening of these most important hearings. I wish to assure you that I will make every effort to participate at the earliest opportunity during the next two days and I anticipate my schedule will allow this well before the midpoint of the hearings.

Sincerely,

CHARLES H. PERCY.

We will also be getting statements and possible appearances by Senator Domenici, Senator Bartlett, Senator Chiles, who have been involved in this effort from the very beginning.

OPENING STATEMENT OF SENATOR PERCY

Senator PERCY. Mr. Chairman, I attach particular importance to the bills under consideration in these hearings, for to me the aspect of our national life with which they deal, while a vital one at any time, is now absolutely critical and will continue to be so in the months and years directly ahead of us. I speak, of course of our productivity.

If in the past, I have been an ardent supporter of productivity in our Nation, I am even more so now.

If in the past, I have championed and fought for national attention to our productivity as a Nation, I feel called upon to fight even harder now.

If in the past, I have pointed out the critical importance of productivity as a weapon with which to fight inflation domestically, and mounting competition internationally, I point out today that such matters have emerged, not receded, in critical urgency for this Nation.

Perhaps most important, if in the past a few of us have seen the importance of this issue as a national concern, today the numbers who see with us have mounted, and are mounting.

Productivity is not only becoming, it has become a matter of national urgency. Just 4 days ago, to cite only one example, the Federal Reserve Board reported the Nation's industrial output for the month of November fell another 2.3 percent for the fourth straight month of decline, and one of the largest in the last 20 years.

Let me say this. The matters with which these hearings and this legislation deal may well be as important to the welfare and indeed future of our Nation as any currently before the Congress.

There are two bills under consideration here today. One of them, S. 4212, is of my authorship. Both propose immediate, forceful, and important action toward improving the productive capacity of our great Nation—a capacity which has been sliding downward almost continuously for 10 years. Either bill would result in a vast improvement over what we have now.

The bill I have introduced has certain provisions, I feel to be of major importance in any legislation on productivity passed by the Congress. I would like to identify those provisions we consider most significant.

First, it should be lost on no one that both my proposed bill and Senator Nunn's call for the establishment of a center for productivity, not a commission. In fact, mine proposes that such a center would replace the existing National Commission on Productivity and Work Quality, which until now I have strongly supported. There is a carefully considered reason for this attention to the term "Center", as distinct from the term "Commission".

I would like to invite attention to the language of section 205 of my bill, in which we very carefully specify that it is the intent of the Congress that our proposed center maximize the active participation and expert contribution of the private sector, to the stipulated end that such a center both can and will become a tripartite labor-industry-Government effort and not be—or be considered—a Federal enforcement authority.

By definition, a national commission is solely a creature of Government; the title "Commission" implies Government direction, staffing, policymaking, and—as in the Federal Trade Commission, the Federal Communications Commission, the Interstate Commerce Commission—the implication of regulatory authority, now or later. By important contrast, the center we propose has been conceived as a service organization, a national resource supported by Federal funds for the use of all, to benefit all.

A commission can become a third party force for intervention into private affairs, which is repugnant both to labor and management. The center we propose will not. It is a service institution. A commission can become bureaucratically bogged down in Government policymaking, subject to political pressure.

The center I have called for is as free of such dangers of political or partisan intervention as we could make it; you will note that section 303 expressly calls for a minimum amount of the funds appropriated to the center to be allocated for payment of staff, and a maximum amount allocated to helping others in the private sector, to help themselves toward improved productivity.

To summarize this critically important distinction between "Center" and "Commission", it is the intent of my bill that the Federal Government be supportive, facilitative, and service-oriented. Its objective is to stimulate and encourage those individuals at the State and local levels and in the private sector who want to help themselves in our free-market system. I believe this to be wholly consistent with the concepts of decentralization and deemphasis of the current Federal giant.

Next, I should like to call attention to three specific areas of research activity proposed for the center, to which I personally attach considerable importance, and in none of which is the existing Commission active. First, S. 4212 calls expressly for study and recommendations to the President and the Congress of ways to eliminate structural legislative or regulatory blocks or barriers to economic effectiveness in every sector of the economy, public and private.

Second, it calls expressly for study and recommendations to the President and the Congress of ways to fiscally reward those unions and companies improving their productivity. Third, it calls for significant federally-supported action-research by the private sector,

and by State and local governments, in which through a series of grants, the Federal Government supports innovative Research and Development in both technological programs and social or human programs, in equal measure, which seek to increase productivity in manners useful to others.

Next, I should like to call attention to section 206(2) which calls for active assistance in efforts to promote effective labor-management cooperation and joint effort in raising productivity levels. We have the example of the extraordinary activity in our steel industry and its joint labor/management committees on employment, security, and productivity. It should again be emphasized that because such assistance would come from a tripartite center, and not a Federal Commission, the implied regulatory threat of third-party Government intervention in such efforts is eliminated.

Next, I should like to call attention to the bill's provisions for establishing a national clearinghouse of information about productivity and work quality, available to all, which exists nowhere in this country today. These hearings include testimony on the Japanese establishment, over two decades ago, of such a critical resource. Not the least of the functions of such a resource would be efforts to speed technology transfer in both technological and human areas of productivity innovation. It is high time the most powerfully productive Nation in the world have such a clearinghouse, with information immediately retrievable for all.

Next, although it receives only a simple two-line spot in the bill, I want to emphasize the bill's demand for development and implementation of a major public information program. Too few Americans know even what productivity is, let alone its critical importance for the national welfare and economic health. Too many of our workingmen and women equate it merely with speedup or automation, and fail to see its contribution to the maintenance and creation of jobs and economic dynamism. The bill's provisions for a decentralized Technical Assistance Service is conceived to help speed that information program.

Next, in my bill, the center is conceived and proposed as no more than a resource to support and encourage other Government agencies and departments in improving intragovernmental productivity. It is neither conceived nor permitted to require or demand compliance with its policies. It is a source for action-help, not an intragovernmental regulatory body.

Finally, and most importantly, I should like to call special attention to the fact that throughout S. 4212, the bill calls for equal emphasis on technological and human aspects of productivity. It is a delusion to believe that only technology and capital can improve productivity, just as it is a dilusion to believe that only human motivation can improve productivity. The steel industry has proved this. We must have more and more of both. Our programs must carefully reflect this mandatory duality of emphasis.

In addition, we must seek to improve the quality of life at work as a goal to achieve for its own sake, for the improved welfare and health of the workingmen and women of the United States and not just as a means to increase the productivity of the enterprises they

work for. If we do not, we will not gain the mandatory support of organized labor for our important efforts.

At the same time, we must have more capital, more innovative breakthrough and investment in technology of every kind, and a greatly accelerated level of technology transfer and dissemination to widen the availability of important new developments. In brief, we must develop, expand, and learn to profit from better utilization of all our resources—private and public—if we are to move into a troubled tomorrow with the combined technological and human vigor which is what productivity is all about.

Senator NUNN. Our first witness today is Mr. Stephen Gardner, who is the Deputy Secretary of the Treasury.

Mr. Gardner?

[No response.]

Senator NUNN. Is Mr. Larry here? Mr. Larry is vice president of United States Steel?

Mr. Larry, if you are prepared, we will proceed with you now.

Mr. LARRY. I do not know whether I am prepared, Mr. Chairman, but I guess I am as prepared as I am going to be.

Senator NUNN. Well, I know of the outstanding efforts your company has made in trying to put some attention within your company and also outside in this overall area of productivity.

I had the pleasure of talking to your President at the summit conference, the miniconference on inflation back in Pittsburgh. So we are delighted to have you. We would be interested in having your comments.

TESTIMONY OF R. HEATH LARRY, VICE CHAIRMAN, UNITED STATES STEEL CORP.

Mr. LARRY. Mr. Chairman, as you point out, we do have quite an interest in productivity, both in United States Steel and in the industry at large, and I would like, if I might, to have the privilege of not only filing my statement which I just had lately prepared, and copies will be along shortly, but I would also like, if I might, to share with the committee, in case they have not seen it, a compendium of the institutional advertising [1] to which we have devoted considerable effort and expense in an effort to encourage attention to the very thing which is the subject of 4130 and 4212.

I think the members of the committee will enjoy sharing what is in it, so if I may have permission, I would like to introduce that for the record.

Senator NUNN. That will be admitted to the record, and if we started a list of exhibits, that would be the first one at this point.

So without objection, it will be admitted to the record.

Mr. LARRY. Thank you very much, Mr. Chairman.

Second, I had hoped to have with me a copy of a booklet which has been developed both by the steelworkers and ourselves relating to the efforts of the productivity committees in the various plants of the steel industry, efforts which emerged from the last several labor agree-

[1] This publication may be found in the files of the Committee.

ments, and which we think are making a very good contribution. I do not have the book at the moment. I am quite certain, incidentally, that Bruce Thrasher, who I see is on your list of witnesses tomorrow, will have a copy for you and if he does not, then I would like to reserve the right to submit it because I think it is also worthwhile.

Bruce did have it, incidentally, along with Mr. Abel when we had a meeting of the Productivity Commission just last Thursday and shared them with all members of that committee, and with the President. So I think it is something, if the Chair would like, to be entered in the record. It could be either his exhibit or ours, depending on who gets it first.

Senator NUNN. Fine. It will be admitted when it is submitted.

Mr. LARRY. Thank you very much.

While I have a statement, Mr. Chairman, I think it is probably not appropriate just to read it through. I would like to call attention to what I would consider its salient point.

I want to say, in the first place, that I want to lend my wholehearted support to the several bills which have been introduced, even though not necessarily in the precise detail of each of the drafts. As you recognized yourself, there is much to be said for various points, and different approaches.

But what I do want to do is lend support to the indication of congressional and administration support for improvement of productivity in the country.

In so saying, I think it would be a mistake if any of us considered that whatever we could do in the productivity vein would be the total answer to inflation. It is not, I think, we know that, really. We know that our rate of productivity gain in this country has been on the order of 3 percent annually. If we could improve it by 50 percent, which would be a herculean approach, the impact of that kind of an improvement, up to say 4½ percent, on double digit increases in employment costs would be very slight.

Hence, it is important; but it will not, in today's context, be the solution to inflation. That does not detract from its importance. It is immensely important that we continue to have improvement in productivity in this country. It is the source out of which annual or continuing improvements in the living standards of our people can emerge, and we have become so accustomed to it in this land of ours under our economic system, I think the political and economic consequences of a surcease of that trend would be very uncomfortable indeed.

So it is indeed most important that we devote every effort and have the cooperation of Government, private industry, private people in carrying forward the effort to improve productivity in this country.

And the second thing I would like to point out is that we tend too often to relate productivity improvement only to what I might call the labor management area. I think that is unfortunate for several reasons. It tends to zero in on a very narrow focus. As a matter of fact, it tends to concentrate too much on what some people would call featherbedding, on the management side, and I guess you would call it the speedup on the union side.

The fact of the matter is that while we need cooperative working relationships in the industry plants of the country to produce the kind of an outcome that we need, the most important and necessary in-

gredient of all is new capital facilities, and I think in your opening statement, Mr. Chairman, you pointed to that very fact. We are in dire need of improved means of capital formation in this country. We are behind, as I know this committee knows; and the resources available to you also point out we are behind in the rate of personal savings. We are behind in the rate of capital formation as a percent of GNP.

It is no surprise, then, that when you compare us with Japan and with Germany and France we find that we are also very much behind the rate of annual improvement in output per annum. The two go together very, very closely.

And when you look at the problem of capital formation, then, of course, you look at two or three other things which impinge upon it, and one has been the very strong emphasis, a needed emphasis undoubtedly but perhaps too strong an emphasis on environmental improvement—at a point in time when we are so short of capital availability to continue to put the facilities of this country on a par, or at least out ahead, if you will, of major competing economies in the world.

So capital formation is important. But balancing, if you will, between the environmental impact of industrial development, and the economic impact of environmental requirements is also immensely important. I have sometimes thought it might be a great thing if the center which might be established pursuant to these bills might be the one which undertook to issue, if you will, economic impact statements which might compare with the environmental impact statements issued elsewhere, because I think both are imperative to the ongoing progress, both economically and socially, of our country.

I want to pass on to a few other things.

I point out, on pages 6 and 7 the importance of recognizing the degree of economic competition that is going on in the world today. We, as you know, in the steel industry, during part of the 1960's and early 1970's, felt the impact of such competition very strongly before exchange rates were realined, and before there was a new attitude towards trade, both here and abroad; and I am happy to say at that moment that it looks as though the domestic steel industry is competitive in terms of cost with the steel industry around the world. But you will remember that there were so many years when what I would call a shortsighted Government policy permitted the industry to the unduly harmed by what was thought to be bargain rate imports. It turned out they were not at all. What they did was really export the unemployment of other countries into our boundaries, and it precluded capital investment which would provide the facilities which would have helped to solve the shortages which have been so strongly present in our economy in the last year or year and a half.

I take great heart in the belief that we are going to have a trade bill and a better foundation for trade negotiations than we have had in the past. So I hope that this factor, namely, the importance of fair trade, shares equal billing with this very important element of productivity, recognizing what is important for the ongoing improvement and progress of our economy.

Now, on page 8, I want to point out that we have made, I think, considerable progress in our bargaining with the steelworkers. We have come to the point of having what is know as the experimental

negotiating agreement which has enabled us to proceed throughout our bargaining this past time around without the threat of a strike, and hence, without all of the economic waste attendant upon the threat of a strike, and in those negotiations we have reinforced our concern for our productivity committees, and we are dedicated to seeing to it that we maintain within our plants forums in which there can be genuine communication, both to and from management and labor, because we recognize, after our experiences the last several years, how important it is for the management to listen as well as talk once in a while. We recognize how important it is for them to be open to fair questions. We recognize how much one can gain by sharing credit for good ideas.

So we have been very, very pleased—not with what could be called universal success in all plants, because human beings are not universally all the same—but we have had, I think, excellent progress; and I know that Mr. Abel and Mr. Thrasher who will testify here tomorrow will share that belief as they did with the National Commission on Productivity the other day.

And finally, I want to point out that what we have come to in the steel industry, at the top of page 9, is really as a result of the shared disasters that we all went through while we were being undermined by unfair foreign competition. We came to the realization that we had to do everything we could on our own power, if we expected any recognition of our problems and attendance upon them by those in Government and elsewhere.

So we have reached the accomplishments that I have just mentioned.

Now, can that kind of an experience be immediately transported to all kinds of other industries? Can it be forcibly injected by a Government commission?

I know you would probably share the belief, as I do, that that kind of a thing really cannot be done. But a Government body can be a catalyst. It can be something which supplies the mood music, if you will, which encourages the activities in other areas.

So may I congratulate you again for having had the foresight to have put before the Congress bills of the nature of 4212 and 4130.

Incidentally, I do not know whether 4130 happens to have a definition of productivity growth such as 4212 does. I was caught by it as I read through it Saturday morning preparing these remarks, because it defines it as an increase in the rate of production without increasing the cost of producing such goods and services with a continuing decrease in the cost per unit produced. That is a worthy objective, but I wish I might have seen just a little of that kind of progress in the last 25 years.

I did a little bit of research, and I discovered that in only 2 of the last 23 years has this rate of increase in output per man-hour outrun the percentage rate in increase per year in employment costs per hour, with the result that of course unit labor costs have gone up every year except those two.

That is not the sole cause of our inflation, to be sure. And it is not something which can totally be overcome by improvements in productivity as long as the rates of increase are of the order that they have been in the last year or so.

But, it is a challenge, and it is a very worthy challenge, and I think one of the things which can come from the additional emphasis upon productivity improvement is the very fact that it does relate to so many things, just as you noted in your opening staetment, and just as I am trying to allude to here in these few moments. It does relate to so many things which are relevant to economic understanding in this country. And I think both in our plants and in the Nation at large, we can use a concern for improving productivity as a real foundation for some of the economic education which we have needed to have for a long time.

Mr. Chairman, I thank you for the opportunity both to file this statement and to make this brief commentary upon it.

If there are any questions which you have either now or later, I would be most happy to respond to them.

Senator NUNN. Thank you very much, Mr. Larry.

I also commend your company for taking the lead in this important area.

[The prepared statement of Mr. Larry follows:]

PREPARED STATEMENT OF R. HEATH LARRY, VICE CHAIRMAN, U.S. STEEL CORP.

Mr. Chairman, and members of the Committee, I am pleased indeed to have this opportunity to talk with you about Productivity. It is a subject about which I have been long and deeply concerned.

Both the company and the industry with which I have the privilege to be associated have shared that concern.

Recent labor agreements between the United Steelworkers of America and major steel companies—in the negotiation of which I have had some part—have addressed themselves to the importance of improving productivity through the encouragement of local plant committees of labor and management which make it their prime concern.

U.S. Steel has made the challenge and importance of improvement in productivity a matter of specific concern in its institutional advertising.

If agreeable to the Committee, I should like the privilege of furnishing for its members, and for the Committee's record, a compendium of material relating both to our productivity advertising program and to the joint effort with the United Steelworkers which has emanated from our negotiations.

You can see therefore that I find great encouragement in this indication of your concern for improving the nation's productivity. Any program which has a reasonable chance of bringing about such improvement deserves real encouragement—by the Congress—by the Administration—by all of us.

That is not to suggest that productivity improvement is or can be the answer to all of our economic problems. Particularly, I believe, we should be under no illusions that productivity improvement can be the full answer to our current inflationary problems.

Thus, I would urge that we must not let devotion to improving productivity distract us from giving attention to the wide range of factors which must have attention if the rate of inflation is to be significantly reduced.

So saying is not intended to detract from the importance of seeking productivity improvement. It is more important than ever. Permit me to recite a few of the reasons which lead me to this belief.

First, today's rate of inflation is so serious that anything that can contribute to its solution deserves very special attention. It may be that increasing our long-term rate of productivity improvement from something on the order of 3 per cent per year to something on the order of 4 per cent—an heroic accomplishment, incidentally, if it can be done—won't do much to liquidate a rate of inflation which is several times larger. Yet every little bit will help.

Second, no matter what the rate of inflation, any expectation for economic progress for the people of the country—in *real* terms—still rests squarely upon

our capacity to continue to achieve annual gains in output per manhour. History shows that the trend line of gains in real income tracks almost precisely over the years with the trend line of such gains. A reasonable basis for expectation of continuation of such progress is a very important factor from the standpoint of political and social stability.

Third, productivity connotes a much broader concept of economic efficiency than that inherent only in the narrow—albeit important—concept of "producing more." If, as some forecast, we are moving from an economy of abundance to an economy of scarcity in terms of energy and raw materials and capital availability, the emphasis of our efforts to improve productivity must certainly shift toward learning how better to husband what we have, toward making the most efficient and intelligent use of whatever is available to us—and, as well, treating with our residues in a fashion most useful to succeeding generations. This aspect of productivity will be assuming ever greater importance as the years roll by.

Fourth, any intelligent pursuit of productivity should lead right straight into a concern for the larger problem of inflation. Inflation erodes worker attitudes—just as it erodes the nation's investment in capital facilities. And neither consequence is compatible with improving productivity. As management and labor learn to share ideas on how to make progress together in achieving this needed improvement, they will have before them a marvelous opportunity to share in an improvement of their knowledge of the causes and effects of inflation, and what each can do about them. It is an opportunity which must not be missed.

This last observation leads me to point up the fact that when any of us talks or thinks about improving productivity, it seems that we think first—and sometimes almost exclusively—in terms of the labor-management relationship—in terms of removing strictures to production and efficiency which relate to our lack of ability to have the labor force used most effectively. In that context, some old terms, like featherbedding, come to some management minds—and terms like speedup—linked with disemployment—come to union minds.

Any focus on productivity would be faulty if it ignored the potential for improvement growing out of improved labor-management relationships. But any focus on that area *alone* would be equally faulty, for it would tend to put all of the blame in one place, if you will, at the risk of ignoring the challenge presented in several other most important areas.

We need to be reminded that growth in productivity—in output per manhour—never follows a perfectly smooth upward path—it rises fast at certain points—and plateaus out at others. It responds rather specifically to the rate of capital investment in production facilities and to the volume demands upon them.

Thus any concern for productivity improvement must be coupled with a tremendous concern for capital formation—and for a sufficient climate of profitability to cause that formation to occur.

And then there is the matter of assuring that we have enough energy—from alternative sources—to enable a powering of our productive facilities sufficiently to accommodate any growth.

Next, there is the matter of trying more reasonably to balance the impact of the desire for environmental improvement with availability of capital for productive facilities—and with the great costs which some environmental improvements impose in terms of additional energy requirements.

A center such as envisioned by S. 4212 could possibly make a great contribution both to the economic and social progress of the country, if it were to assume concern for economic impact statements to be laid down alongside of environmental impact statements!

And then there is the matter of conditions relating to world trade.

For a long time our government was reluctant to devalue and to force a realignment of currencies which would display the extent to which we were enjoying the illusion of a comparative standard of living in the world which we hadn't really yet earned. And when the awakening came, it had the feel of a surge of current inflation—although it was really just paying up for many earlier inflationary actions for which we ultimately owned an accounting.

Some used to think of an open door to low-price imports—regardless of what enabled them—as the surest antidote for high prices of domestic producers. We learned better. And surely we must now recognize that a fair amount of today's apparent inflation is a product of earlier reluctance of government to shield our domestic manufacturers from distress sales of the product of other countries, which thrust upon our economy the inflationary burden of financing the unemployment of foreign economies—as well as our own.

Even more importantly, that policy meant that much potential investment by domestic industries in domestic facilities was not undertaken because of inadequate prospective profits. The consequence was shortages in industry after industry—and uncomfortably low productivity.

I feel sure this Committee has available to it statistics which amply demonstrate that there prevails in the U.S. a lower rate of savings as a percent of disposable income—and a lower rate of capital formation as a percent of G.N.P.—than, for example, Japan, West Germany, or France And both ratios are lower by a very large margin. The industrialized nation most closely comparable to us is Great Britain—a comparison which should give us no comfort whatever these days.

And I know you also have available the statistics which show that rates of productivity growth in the developed countries bear a very close correlation to the two ratios I have just mentioned.

So, we have work to do, in the U.S. on many fronts—if we want to see a continuation of an improvement in productivity—if we want to see progress with stability.

It is imperative that we be be competitive with other major economies of the world—free or otherwise—in how we handle inflation—and in how we generate productivity. It is the economic field on which we are being challenged.

Hopefully, the day when major powers dispatched armies and armadas at the drop of an admiral's hat in support of their "national interest" has passed. But nationalism has not. The battle is simply on a different field. And we are engaged in battle!

Can anyone react to the growing cartelization of oil and other raw materials by the so-called developing countries without a deep appreciation of this fact?

And the impact on us as a consuming country is tremendously traumatic—I'm not sure that we yet understand its full import—or understand what may be the duration of the ensuing shock waves.

For the impact of this wave of energy revaluation which must now flow through a whole series of costs and prices serves to compound other influences—earlier mentioned—i.e., pressures for diversion of capital from production facilities to environmental improvement; a shortage of investment capital even absent environmental complications; and the slow development of new energy sources resulting from both environmental pressures and capital scarcity.

These factors could well work to produce a period of some years in which significant real economic growth may be all but impossible for the U.S. economy. We have already seen a year or two in which national productivity has shown no real growth. And if we find the trend line in decline for several additional years, it will be a real test for us—both politically and economically.

Can we face up to a period of no real growth in our income—perhaps even a period of declining national standard of living—if it occurs? This is a challenging question. Is collective bargaining attuned to such a possibility?

Even before the international oil crisis, we were already facing another one—one which I am sure all of you in this Committee have recognized—but one which probably wasn't too well recognized or understood by the general public.

Beginning a couple of years ago, some of us felt a certain euphoria over the developing military "detente" with Russia. Subsequently, many of us were inclined to translate Russian overtures on the trade front as an expansion of "detente" into the economic sphere. We were impressed with her stated belief that trade between nations should be encouraged without trying to lay down conditions which would make either trading partner over into a political or social image congenial to the other.

But what many of us didn't understand was that in Russian terms that meant no relenting whatever in her effort to bring down the "capitalist bourgeois economy" of the United States—by means of outcompeting us—by means of overcoming us economically.

Repeatedly during a visit which I had there this past summer I heard high Soviet officials brag that since *they* could control inflation, they would live to see our inability to treat with inflation become the basis for our undoing.

In short, they felt that to compete with them, we would ultimately have to forfeit our economic and political freedoms even as they have done. Many of us would say if that happens, we wouldn't any longer be competing with them—we would have joined them!

Thus the outlook is that our political economy may be in something akin to a state of permanent siege as far out as we can see. And that means that we have all got work to do in trying to make the most of whatever assets are available to us.

As a corollary, unless they want to risk forfeiting their freedoms, the parties to collective bargaining will clearly have to do better for the country—both in terms of reduced strikes and strike threats—and in terms of the economic import of their settlements. There is no alternative if we as a country are going to be able to meet the multiple challenges which now face us. In the steel industry, we have been trying.

Too often needed improvements emerge "voluntarily" only after disaster threatens. Better late than never, of course. This is what happened in steel industry bargaining. The parties both finally became convinced that unless they did something to remove even the threat of strike from the minds of steel customers, they would not be able to hang on to enough business—on a relatively constant basis—to enable the industry, and its employees—to enjoy even moderate prosperity. And thus it was that from the brink of shared disaster there emerged the widely publicized Experimental Negotiating Agreement, by which the parties agreed that if either party was sufficiently dissatisfied with negotiations, he could at a stated time invoke the arbitration process (instead of strike or lockout) to force final settlement.

One of the more constructive elements of our recent agreements with the U.S.W. has been the establishment of productivity committees in the various plants, to which I alluded at the outset. Admittedly they have not been totally unqualified successes in every plant atmosphere—but most have been very effective. And where this has happened, it has happened mainly because someone in management had the good sense to practice a couple of very old and very fundamental principles: first, that it doesn't cost much to listen; second, it doesn't hurt to respond candidly to fair questions; third, it doesn't cost much to share the credit for good ideas; and fourth, a little sharing of genuine concern goes a long way.

I have mentioned the steel experience here again briefly only by way of pointing out that in the event a governmental center is founded pursuant to S. 4212, it must distinguish carefully between trying to forceably inject solutions into situations which are not yet ready for them—and merely helping to create the "mood music" which may make for receptive situations.

I do not want to imply that a federal agency concerned with productivity cannot be useful. It can—if properly oriented. It can be particularly useful in helping to achieve greater efficiency in the vast array of federal, state, and local governmental activities which are not necessarily under the same market disciplines which tend to encourage private solutions, as industry is.

It can be helpful, if it approaches the task with sufficient breadth of concern and purpose to recognize all of the factors which contribute to productivity improvement.

And it can be helpful, if it approaches its task with a sense of realism as to what it can—and what it cannot—do regarding the total problem of inflation.

And mentioning realism brings to mind the definition of "productivity growth" which is set forth in Sec. 102(1) of the Bill. It is there defined to mean "an increase of the rate of production of goods and services, *without increasing the cost of producing* such goods or services, with a resultant *continuing decrease of the cost per unit produced.*"

An admirable definition! But one surely beyond our reach without a very major overhaul of some very fundamental institutions of contemporary society.

I call the Committee's attention to the fact that in only 2 out of the last 23 years has the rate of annual increase in employment costs been exceeded by the rate of annual increase in output per manhour. Thus unit labor costs have been pushed up year after year. And with labor costs increasing lately in double digit percentages, and with productivity now rising at even less than the long-term average of approximately 3 per cent, we have a long way to go, indeed, to get back to the point where unit labor costs are not constantly and significantly rising.

But if we succeed, the journey will surely have been worth the effort.

Senator NUNN. I have several questions on economics and I want you to educate me a little bit this morning.

If your raw materials and other costs stay pretty constant and your productivity inceases 3 percent, and yet your wages go up 7 or 8 per-

cent, what happens to the gap there? Is that passed on in terms of increased costs inevitably, or are there some other factors that are omitted?

Mr. LARRY. Well, you have to make a determination in any company, of course, as to what percentage of total costs the employment costs are, and then you have to also ask yourself whether the rate of increase is entitled to be allocated only to the output per man-hour and the employment cost per man-hour or must reflect the problems of investment cost increases as well.

I do not think I would want to attempt a precise formulation for several reasons. In the first place, it does not go the same rate year after year after year as you know. We have a tendency for productivity output per man-hour to gain rapidly when you have a period in which earlier investments in facilities come into fruition, and when there is a market which tends to raise the volume. You begin to show, at those points, a rather rapid rate of increase in output per man-hour as we did in the period from 1962 up until about 1967. Again I suspect, in the steel industry, we will have had a rapid rise in the last several years up until the time we plateaued out at the practical maximum capability to use our facilities. Meanwhile, however, we have had periods of 5, 6 years at a time in which the output per man-hour was really at a plateau.

You may remember that in just the preceding year, in our 1971 negotiations, we pointed out we had plateaued for about 3 or 4 years and had no real gain in output per man-hour, although costs had continued to increase. So those kinds of costs, you know, cannot be swallowed because of productivity. Nevertheless, we should recognize that the annual gain of output per man-hour is important, and that it tends to track along at about the same rate as real wage increases. However, I think anytime you raise employment costs above the rate of the annual rate of gain in output per man-hour, you are adding to inflationary pressures because sooner or later it's going to show up as cost. Nearly 85 percent of all costs in this United States eventually are labor, and what you do in one negotiation is going to spread throughout other places.

So I do not think you can just say, well, you have a 3-percent increase, that can swallow a 9-percent employment cost increase. It does not work that way.

Senator NUNN. What steps—I know you have them in your statement, but I want to emphasize them a little bit—what steps have you taken in the last couple of years for productivity within your plan or within your company?

Mr. LARRY. Well, of course, of you accept the fact that productivity is a many faceted concept, one thing we have tried to do is to bring into existence some capital facilities embodying the utmost and latest technology as fast as we could. For a long time, we really could not afford it at all, and as a matter of fact, during the middle or late 1960's, we began to put a lot of appropriations on the books, which, as you know, in steel, takes sometimes 5 years from when you make an appropriation until it begins to produce.

We made a lot of appropriations that have just begun to show real results around about the decade of the 1970's, and we were very happy they were there, even though it meant increasing our debt load con-

siderably to do it, since we did not have a rate of profitability which could justify any equity floating. In order to achieve funds for reinvestment, we had to resort to the debtmarket. The profits were not sufficient.

But, point one, new facilities are most important.

Second, we are always reviewing our management procedures in the hopes that we can make better use of our facilities in relation to the market and better use of our people in relation to the facilities.

Now, third, with respect to our relationships as between labor and management, we have, as I say, expanded our incentive plans within the workforce, which give added monetary results to employees when they put forth better effort. And we have also formed these productivity committees in the plants, which I mentioned earlier, in which we have taken, if you will, discussions between labor and management out of the normally relatively adversary climate of the monthly grievance committee meetings, where we have issues on which we know we have differences and therefore, one naturally inherently comes into those discussions with a wholesomely competitive attitude—on the part of both parties. But that does not lend itself to sitting down for freewheeling discussion between labor and management representatives in which the parties simply address the problem of how to do it better.

It creates an entirely different atmosphere when there is recognition and encouragement on both sides, the management of the industry and the management, if you will, of the union, to try to figure out the best ideas that the brains on both sides of the bargaining table can produce.

Now, we have had suggestion plans for years. They got a considerable impetus, as a matter of fact, when they were supplemented by the local plant productivity committees.

I think it is hard to enumerate particular things which they have done, although if it were desirable, I am sure I could go back and get a list for you. I just did not happen to bring any list today.

It is also hard to measure precisely what impact they would have had simply because whatever we do in that vein, in the labor-management area, always coincides one way or another, either with volume going up or new facilities coming in. And so, isolating what can or cannot be done by these groups is virtually impossible.

Senator NUNN. Have you reached any kind of agreement in the steel industry on strikes, to try to prevent strikes if possible?

Mr. LARRY. Yes, sir, Mr. Chairman. In my prepared statement I mention the fact that it was as a result of the shared disaster that we felt in the long continuing threat emerging from our foreign competition that we came to the point of adopting what is known as experimental negotiating agreement.

It enabled us nearly a year before the contract ran out—or at least long before the customers began their traditional buildup of inventories and began placing significant orders abroad—it enabled us to assure them that there would not be a national strike as a result of the negotiations. We agreed, if you will, to put arbitration in the place of either a strike or lockout, not that either was expected to go to arbitration; not that either of us really wanted to go to arbitration. We in effect still agreed to negotiate, but to have the chance

of one or the other being able to carry us to arbitration, being the nudge which would make our bargaining hopefully come to fruition on our own.

Senator NUNN. Arbitration replacing the strike as a major threat?

Mr. LARRY. That is right. That is right.

Senator NUNN. Who were your major competitors, not in terms of companies, but what countries outside the United States provide the most competition?

Mr. LARRY. Well, certainly Japan has long been—the community as a whole, the European community, West Germany, France, until recently Britain—maybe they will be again, not because they can compete in terms of costs, but because they are in such dire straits in terms of the foreign exchange.

You see, when we talk about competition, in the days prior to last year or year-and-a-half, the competition—in quotes—was a very unusual sort. It was very often the kind which was subsidized by government. It was at least encouraged by government, as I said earlier, because they wanted to liquidate the surpluses which they could not sell in their own market in our market, at whatever price it would take to make a sale. They were in effect moving their level of unemployment into our market, and here we were trying to subsidize not only their unemployment, but our own as well, and the result was obviously inflationary.

At the moment, I think the costs of the principal steelmaking countries have begun to come pretty close together because of the impact of the assembly costs of energy and raw materials from around the world, and other countries have had in recent times a higher rate of wage inflation than we have. So it has tended to become more competitive on an equal basis, and if we do not get locked in with unfair frozen exchange rates, if we do not find them dumping, if you will, I think the American industry can now hold its own.

Now there are some places, incidentally, where we still find a rather interesting, and I would guess explainable situation—but a new area of competition, and that is from the developing countries, who, I guess, are trying to move their product, again just to get the exchange.

Senator NUNN. What has been your experience with the National Commission on Productivity? Are you a member of that Commission?

Mr. LARRY. Yes, I am, Mr. Chairman.

Senator NUNN. What are the problems of that Commission now, and also the virtues?

Mr. LARRY. Well, for a while I guess one of the problems was, it was not very well funded. I would say, Mr. Chairman, that the Commission has had some successess, and I think they should not be overlooked. They have had successes, in an area which most lends itself to government activity, I believe, and that is in the field of government itself because we all know, with the greatly expanded role, if you will, of Federal, local, and State government in our economy, and without the same competitive disciplines upon government expenditures which exist in the private sector, it takes some doing. It takes some watching. It takes some real effort on the part of those responsible for State and local government, and too often, they have not had access to knowledge of what was being done, what was being

developed elsewhere, in the same way that managers in the private sector seem to have available to them knowledge as to what was going on in the world of technology, and in the world of new processes in the science of management. So, I think, the Commission has done quite a job in assembling quite a library of knowledge and the ways and means by which municipalities, counties, States, as well as some Federal departments can improve their productivity.

As a matter of fact, at the last meeting of the Commission just last Thursday, the deputy mayor of Los Angeles was on to give testimony to what had been able to glean from some of what had been developed as a result of the work of the staff of the Productivity Commission.

Another area where it has done, I think considerable constructive research has been in an area which is somewhat related to Government activities, namely, the railroads. There has been real research into what has brought on the tendency of a decline in the efficiencies and effectiveness of railroads, both that resulting from overregulation on the part of government and some very unfortunate regulations.

So I believe that they have been effective. The one place that I have said, Mr. Chairman, that I am not sure that they can do as much as some people would hope is to force-feed——

Senator NUNN. To what?

Mr. LARRY. To force-feed bargaining climates which are not quite ready for cooperative efforts at productivity improvement.

What I am saying by that is, I would have questioned whether, if you will, a governmental mandate to the steel union and to the steel industry to come up with something very constructive in the realm of productivity committees would have been very constructive had not the climate of relationships, the climate of relationships growing out of mutual adversity, made that bargaining climate one which would be receptive all up and down the line. And so, as I say, I think the Commission can do a lot in some fields—but not all.

In saying that, I think a center or commission ought to distinguish the areas where it can be greatly effective and these areas where it must wait and expect change to come about very gradually. We are not going to pass a law and suddenly change all of the human beings in the United States and make them suddenly gung-ho for making the most efficient use of their time, or their facilities, or the energy, or what have you. But a commission or center certainly can establish, as I said before, the mood music. It can draw attention to it. It can keep ringing before the people the importance of and remind them of the economic competition which we do face in this world of ours today.

Senator NUNN. Thank you very much. We appreciate your appearing and your frank testimony.

We hope, as we move along on this legislation in the next year, that you will continue to keep in touch with us and give us the benefit of your thoughts and ideas.

Mr. LARRY. Mr. Chairman, thank you very much for the opportunity to be here. I appreciate it very much.

Senator NUNN. Our next witness is Deputy Secretary of the Treasury, Stephen S. Gardner.

Mr. Gardner, we appreciate your being here today, and I talked to Mr. Simon about this subject several different times, and I am

sure you have conversed, and while he is not here today, I know he is very interested in the overall subject of productivity, and if you will proceed to give us your statement, we will have, I am sure, some questions afterward.

I am also glad to see the distinguished ex-Georgian with you, Mr. John Harper, who helped me struggle through law school at the university. He was working on my productivity a long time ago.

TESTIMONY OF HON. STEPHEN S. GARDNER, DEPUTY SECRETARY OF THE TREASURY ACCOMPANIED BY: JOHN HARPER, SPECIAL ASSISTANT TO THE SECRETARY OF THE TREASURY; AND SIDNEY L. JONES, COUNSELOR TO THE SECRETARY OF THE TREASURY

Mr. GARDNER. Thank you, Mr. Chairman, I am delighted to be here, and as you have indicated, Mr. Jones on my right, Mr. Harper on my left—Mr. Jones is Counselor to the Secretary, Mr. Harper is Special Assistant to the Secretary.

I am very happy to be here to make a brief statement which I will go through quickly. The subject of productivity and its relationship to our economy is something I cannot help being very positive about. The American genius for productivity is well established. We do some extraordinary things in this country. We perhaps have more business and technical educational institutions and courses than anywhere else in the world.

Our economy is large and successful. While it appears to have had less growth and productivity in recent years, I credit that in part to the fact that we have gone so far ahead of so many other nations in the world. We must sustain the tremendous success that we have had.

The Department of the Treasury is vitally interested in improving the U.S. economy. The Secretary is Chairman of the Economic Policy Board which overseas the work of the current National Commission on Productivity and Work Quality. The Nation's future economic performance will be directly affected by productivity gains. The two bills being reviewed here provide constructive suggestions for meeting that goal.

Productivity is clearly a fundamental variable in the U.S. economy, particularly at this difficult time. Improved productivity would provide major antiinflation benefits which would result in rising standards of living and more stable prices. Mr. Larry commented on that in his testimony.

Our international competitive position depends upon maintaining positive long-term trends in productivity. The preservation of the environment and the efficient allocation of valuable human and material resources is directly affected. In fact, the entire industrial relations environment, including the quality of work, will depend upon the success of programs to stimulate national productivity.

The remarkable progress of the U.S. economy has resulted from the productivity of a highly trained and educated labor force, effective managerial leadership, extensive capital investment and the application of new technology. It is, therefore, disturbing to note that the rate of productivity growth in the United States has declined in recent

years, and that for over a decade, U.S. productivity improvement has ranked well below the results reported in most other industrial nations.

It is no coincidence that the Nation's level of capital investment has also been relatively low. Part of these unfavorable comparisons may reflect cyclical conditions and the large size of our mature economy which increasingly emphasizes services and immediate consumption.

But merely recognizing the problem is an inadequate reaction. Programs to stimulate productivity are badly needed. Therefore, we commend the committee for focusing national attention on this crucial economic challenge.

ROLE OF THE PRIVATE AND PUBLIC SECTORS

The private sector in the United States has historically been responsible for most of our gains in productivity. Profit opportunities have motivated companies to invest additional capital and to press for efficient production and distribution procedures. Rising real earnings have provided strong incentives for workers, who continuously have moved into more productive jobs and occupations. American families have emphasized increased educational opportunities for their children to prepare them for these better job opportunities.

The rising standard of living resulting from this combination of circumstances has been a key factor, as I indicated, in the economic success of America. Since the actions of labor and management will continue to largely determine productivity results, public and private sector efforts should be coordinated. A major goal of any governmental program should be to gain the support of labor and management for cooperative efforts. But there is also an important role for Government programs.

(1) The productivity of the entire economy could be significantly improved by removing regulatory, legislative, and administrative barriers to improving efficiency. There are hundreds of specific governmental actions which unnecessarily waste our valuable resources.

(2) Government leadership can focus attention on long-term goals and support experimental and demonstration projects which in this burgeoning technological age are too novel for private investment or even beyond the capabilities of the private sector.

(3) The Government can increase the visibility of productivity programs and coordinate efforts throughout the private and public sectors.

(4) The Government can coordinate the efforts of diverse educational and research institutions and the activities of numerous State and local programs.

(5) The Government can develop comprehensive statistics and information and operate capital grant and technical assistance programs.

For all these reasons, the administration supported the creation of the National Commission on Productivity in 1970. The performance of that Commission during the first 3 years of its existence was restricted by funding and organizational limitations and chronic uncertainties about its future. As a result, it has been difficult to develop a sustained work program.

Nevertheless, several important research and demonstration projects are underway or have been completed. Mr. Chairman, a summary

of current activities of the National Commission on Productivity and Work Quality is attached for the record. In August of this year, the Congress acted to rejuvenate the Commission by providing a budget of $2 million for the fiscal year 1975 and a broad mandate to stimulate productivity throughout the public and private sectors of the economy.

A newly designated National Commission on Productivity and Quality of Work met with the President last Thursday and a diversified work schedule and specific goals were discussed. We believe that this strengthened organization can serve as a catalyst in coordinating labor, management, and governmental efforts to stimulate productivity.

NEW PRODUCTIVITY PROPOSALS

Many of the specific suggestions in the two Senate bills under consideration in these hearings could make significant contributions to the existing efforts of labor and management groups, the efforts of diverse Government organizations and the revived National Commission on Productivity and Quality of Work.

The proposals for establishing a national productivity center, for setting up a program of capital grants and technical assistance delivered through existing educational and research institutions and identifying a positive national policy for stimulating productivity can all contribute to the national economic goals.

Each of these proposals should receive careful consideration to see how they can be used to improve existing activities. We see nothing inconsistent with these ideas and the existing plans of the Commission. There should also be efforts to aid private sector activities whenever possible because most of the actual work must be done by labor and management groups. Government involvement is certainly desirable, but its role will be principally that of serving as a catalyst.

The Department of the Treasury particularly supports the call for removing the legislative and regulatory barriers which artificially restrict the efficient functioning of the economy. The President has requested that a National Commission on Regulatory Reform be created and we strongly support this proposal and suggest it will be an invaluable companion effort in the work of improving productivity. This Nation's economic system and our Government can no longer tolerate or condone waste and inefficiency.

SUMMARY

In summary, we commend the committee for its efforts to focus attention of the Nation on the vital subject of productivity. While there are numerous Government agencies and programs that are concerned about productivity problems, there is a need to coordinate all of these efforts and we support your suggestions for stimulating national productivity.

The future of the U.S. economy will be directly affected by the success of these efforts. We urge that immediate legislative action be undertaken to avoid the kinds of delays and uncertainties that too often have existed in the past. Thank you.

Senator NUNN. Thank you, sir.

[The following was supplied for the record by Mr. Gardner:]

SUMMARY OF CURRENT ACTIVITIES OF THE NATIONAL COMMISSION ON PRODUCTIVITY AND WORK QUALITY

The efforts of the National Commission on Productivity and Work Quality toward improving productivity fall into four different catagories:

1. Public Sector—including Federal, State and local governments;
2. Private Sector—food distribution, health care, construction and transportation industries;
3. Quality of Work—labor, management committees and behavorial science; and
4. Education.

PUBLIC SECTOR

In the public sector the NCOP and WQ has supported and encouraged the efforts of the OMB, CSC, GAO to measure and enhance Federal government productivity and is also active in a variety of projects designed for productivity improvement in state and local governments.

For Elected Officials—a guide entitled "So, Mr. Mayor, You Want to Improve Productivity" has been published and is the basis for a series of meetings with top elected officials throughout the country. Similar publications for city and county elected officials are in process, as well as a booklet on productivity improvement in state government for legislators.

For management—a program to launch twenty cities into productivity improvement programs with development of follow-up guidance during the initial months of effort.

A series of 4 Productivity Workshops is planned for state and local officials to facilitate the transfer of improved methods between jurisdictions.

Training materials, now scheduled for field testing will, if successful, be provided for internal instruction in the factors of productivity.

Incentives—a comprehensive report updating an earlier survey of personnel incentives used by public administrators is complete and scheduled for early publication. It is hoped that awareness of existing programs will stimulate further development of this topic.

Follow-ups of the successful Solid Waste and Police productivity reports are planned with publication of actual case histories of recorded improvements resulting from the reports.

PRIVATE SECTOR

In the private sector the NCOP and WQ is concentrating its activity in the fields of food distribution, health care, construction and transportation.

In food distribution the following projects are in progress:

Work with CWPS to encourage backhaul through a pamphlet on benefits and meetings with manufacturers, FTC and distributors;

Investigation of consolidated delivery systems costs and benefits to participants (with Department of Agriculture);

Enlistment of industry and Department of Commerce support for a study of costs and benefits of modularized system;

Developing awareness of technological needs by retailers through holding conferences at M.I.T., Michigan and on the West Coast;

Providing help to the industry in developing orderly manpower adjustment programs.

In health care the following projects have been undertaken to contribute to increased productivity:

Over 100 practitioners identified opportunities to increase productivity throughout the industry;

A nationwide education program on productivity for hospital administrators;

Development of a statewide productivity measurement system for national implementation;

Pooling of expertise of industry and health leaders in one state to pursue health care productivity improvement opportunities;

Removal of IRS barriers to hospital employee incentive programs;

Implementation of an in-hospital productivity improvement program.

Problems of productivity in the construction industry are being approached by:

A conference held with leading labor/management officials on common problems of productivity measurement;

A report on new labor management initiatives to improve productivity.

A labor/management subcommittee to deal with improvements in collective bargaining, productivity, and manpower issues.

In transportation the NCOP and WQ has identified freight car utilization as a control issue in the fiscal viability of a basic mode of transportation as well as providing the increased service required by the American economy.

Accordingly, work on the interchangeability of freight cars has resulted in a "clearing house" experiment designed to eliminate excessive movement of empty cars. If successful, this experiment with 3 cooperating railroads, could show substantial direct operating savings, reduced capital investment and significantly better service to shippers.

Another experiment, also in progress, is designed to reduce shortages of steel mill gondola cars.

In this field of new technology, the NCOP and WQ is encouraging railroad and automobile representatives to confer and agree on common designs as new rail cars are developed for shipment of autos.

Work is also under way on applications of both new and existing equipment for integrated shipments in a transcontinental intermodal food distribution service.

The dedicated train concept as the commission applied it in the "Fresh-from-the-West" unit train service is proving that refrigerator car cycle time can be cut by 30%—the equivalent of 900 new cars or a $40 million investment—with far better service to the consumer.

QUALITY OF WORK

As a result of its Congressional mandate the NCOP and WQ is developing material of practical help in the establishment of labor/management committees.

A booklet "Labor-Management Productivity Committees in American Industry" is being produced and material is being obtained that will result in case studies of 8–10 public sector committees.

In the plant/community level the NCOP and WQ is planning to hold five conferences in Illinois, Wisconsin and New York (with FMCS), and a statewide labor/management conference in Texas, with follow-up by State Institutes of Labor Relations.

The results of these meetings will be consolidated into a publication "Pointers for Labor-Management Committees" which should go a long way in overcoming obstacles to the formation of these committees throughout the Nation.

In the behavioral science field the Commission is evaluating the impact which two types of increasingly popular programs have on productivity.

A participatory incentive plan in a large corporation (DeSoto Paint Corporation).

Flexible working hours in a service industry (First National Bank of Boston).

Work (in cooperation with DOL) is being done to produce guides for the appropriate application of behavioral science techniques and a report will be issued on management actions taken in response to attitude surveys of 7,500 workers in five federal agencies (with CSC).

EDUCATION

To continue its efforts in technical education the Commission is at work on a series of publications that will be of value to those working on productivity programs. These include such studies as:

"The Role of Productivity in Controlling Inflation".

Productivity commissions in other countries—a comparison of objectives, programs and background.

Productivity trends and differences at the plant level:

Casebook on Company Productivity Programs with Emphasis Upon How the Companies Got Started;

Analysis of Factors Affecting Interplant Differences in Productivity in Selected Industries;

"Public Attitudes on Work-Related Matters".

The Commission has completed 16 publications and has filled a total of 227,000 requests for them. An additional 18 publications are in various stages of completion for availability during FY 1975.

The Commission also works actively with other Federal agencies on the design and implementation of research agencies.

The Public Awareness program, in cooperation with the Advertising Council, Inc., launched in the Fall of 1973, continues in operation.

Using the themes "Pride in Work" and "Productivity, the Key to Your Future" it is estimated to have made over 150 million contacts with the public. Materials have been requested and used by over:

2,500 Radio Stations	600 Magazines
1,000 TV Stations	100,000 Trains and Buses
1,000 Newspapers	3,500 Billboards

Background conferences with business, economic and labor writers and editors are being scheduled to improve general understanding of productivity.

Senator NUNN. I have a few questions, principally about the present Commission.

As I understand it, there are 27 Commission members and 5 staff people, is that correct?

Mr. JONES. The Commission, as you know, has been reorganized. I think it got as high as 25 or 27 members. The current membership is below that. The exact figures escape my mind, but I think it is more on the order of about 20 at the present time.

Senator NUNN. That is members, not staff?

Mr. JONES. Members. Now, as to staff, as you know, during the period it was attached to the Cost of Living Council as a unit of that organization, I think the staff members got down to about 10. Again, I do not know the exact number on board right now.

Senator NUNN. Has there been any effort by the Commission to develop coordinated programs with State governments or with university systems, or is it simply operating on its own?

Mr. JONES. With regard to State and local governments, I think this has been a major part of their work program. They have had quite extensive contact with mayors and with some Governors. Suggestions and demonstration projects have been prepared for State and local governments, their police forces, the garbage collection systems, and the operations and facilities.

I think there have been some consulting contracts with individual university professors and research centers, but I do not believe there has been a major program tied in with universities.

Senator NUNN. What kind of authority does the Commission now have toward making grants to universities or to other organizations, outside the Federal Government?

Mr. JONES. When the Commission was created in 1970, it had a budget of about $800,000. A very limited amount of that was committed to outside research consulting contracts. A current budget of $2 million would also have very limited outside consulting opportunities.

Senator NUNN. Are the Secretary of Commerce or Secretary of Labor on this Commission as presently structured?

Mr. GARDNER. Yes, they are, Mr. Chairman.

Senator NUNN. How many times a year does the Commission meet?

Mr. JONES. The Commission has had a very sporadic meeting schedule over the years because, as the Deputy Secretary pointed out, there were uncertainties about its future.

I think the new Commission which met with the President last Thursday, now contemplates about three meetings each year. It is also anticipated that they will create an executive committee. The executive committee would consist of the Under Secretary of Labor, Under Secretary of Commerce, the Executive Director of the Commission, Mr. John Dunlop, who serves as the coordinator of the President's Labor-Management Committee, and the chairman of the Commision.

They would meet monthly, and that would be the operating unit which would try to carry out the work program. But the Commission itself would probably meet three or four times per year.

Senator NUNN. Do you think the Commission, as presently structured and funded, can tackle the kind of job we need to do in this country on productivity?

Mr. GARDNER. Well, it can play a major role, but as I said in my testimony, Mr. Chairman, we see nothing inconsistent with this Commission and the suggestions being considered by these hearings.

Senator NUNN. So you would not object if we tried to beef it up and give it broader authority and call it a Center rather than a Commission?

Mr. GARDNER. No, sir. Mr. Chairman, you touched on something a minute ago, the service industries. This is one of the greatest opportunities we have to improve productivity. Our economy is moving more toward a larger engagement in service type industry. These are the type of industries where we have paid perhaps a good deal less attention than we have had in the manufacturing and mineral-recovery processes.

Senator NUNN. Let me ask you this question: Let us assume that for all of the assembly line industrial kind of sector the productivity were to be increased to say, 5 percent a year. The service people normally want to keep their wages at about the same rate of increase as the industrial sector. If the service industry does not increase at all in productivity, and the industrial sector does, does not this cause the huge gap that we have had for the last 10 or 15 years so, that we really pass on as tremendous inflation through this kind of cycle? One sector goes up in productivity, and the other one stays the same, and everybody wants to make at least the increases to be commensurate.

Mr. GARDNER. I think we have had sporadic gains in productivity in the service industries, and a lot of this has come from the advancing technology in the data processing.

On the other hand, you are absolutely right in my opinion, but I am not an economist, and my distinguished colleague is, and maybe he will try to——

Mr. JONES. It is true that productivity gains have been very uneven. I might comment, however, that to get productivity up to the 5-percent figure you suggested would really be a monumental task.

Senator NUNN. Well, that was just hypothetical.

Mr. JONES. These are small percentages, but when one traces them over a historical period, they are very difficult to increase.

It is also possible that we have had more productivity gains in the services categories than we recognize. For example, in Government, we assume that there is no productvity change in governmental services, whereas if one counted the work that is being undertaken by the

Federal Government, it would certainly be large and would be on a greater scale than 1969, even though the Federal work force has declined since then.

Senator NUNN. Mr. Staats, the Comptroller-General, is doing some studies on that. We are going to hear from him later on that particular point.

Mr. JONES. Certainly your assumption is correct: Productivity requires a much broader base of attention. Our economy is not the assembly line situation it once was. Services by 1976 or so will become the dominant element in our gross national product. It will be more than one-half of our gross national product at about that time.

Senator NUNN. I do not know whether you were here a minute ago for Mr. Larry's testimony—about the capital-formation part of the productivity inflation.

While we do not directly address this in this particular bill, Senator Chiles and I have introduced other legislation that perhaps addressed part of the problems in terms of trying to stimulate savings and that sort of thing. From the Treasury's point of view, what kind of program do you have in mind to increase capital formation, or do you agree that this is a major problem?

Mr. GARDNER. I think we have all seen the doomsayers projections that we are going to need an ungovernable or unimaginable amount of capital by the end of this century. At the Treasury, we are committed to preparing studies to determine how we can help improve the formulation of capital.

I am not so sure that we can increase the supply of capital to meet all of the identified needs. On the other hand, the suggestion that you are proposing and the efforts of labor and industry to increase productivity is certainly at the leading edge of the capital formation process, because it is the productivity gains expected that will inspire corporations to invest in new projects. I think if we can show productivity gains, we will be effective in directing the allocation of capital to those sectors capable of making significant gains in productivity.

In other words, we have a large capital allocation problem. We also have an outflow in a sense of capital during the energy crisis, and the questions of whether we will be able to raise sufficient capital to do all we want to do are very real.

The fact is, however, that we will probably, through the marketplace, see that capital is allocated to those processes that offer the most promise for return, so I think productivity is intimately connected with helping solve our capital-formation dilemma.

Senator NUNN. One thing I noted in your statement, which I certainly agree with, is the need to take a look at the regulations, the governmental hindrances to productivity and increases in inflation through the regulatory agencies, through governmental statutes, and so forth. Senator Percy's bill and the bill I introduced with Senator Chiles and others directs some legislative effort toward this point with different approaches.

Do you agree that we should make an all-out effort to identify these potential areas where Government really stifles productivity or rolls it back, not only in terms of what now exists but also in terms of the future?

Mr. GARDNER. I certainly do, Mr. Chairman, wholeheartedly. As you know, the President has proposed a National Commission on Regulatory Reform. Such a commission would be a valuable companion aid to the whole process that you are discussing here.

I do not think that even our tremendously strong and viable economy which is under such severe pressure today, can afford the luxury of restraints on competition and efficiency.

Senator NUNN. For those in the back, if you would like to, there are some chairs up in the front if you would like to come up. We will pause a moment and let you take a seat.

Well, there are two parts to this question, it seems to me. One is certainly addressed by the President's proposal on regulatory examination. I think we have some bills pending on that over here now; do we not, Senator Chiles? I have seen two or three on that particular subject. The other part is in the future, how do we prevent these kinds of problems from taking place. To examine what we already have that stifles productivity is one thing, to try to prevent or at least be aware of them when we go into these situations in the future, is another; and that is really what we direct our questions at.

We have got a witness in a minute, Mr. Loevinger, who is going to testify on that. He made an outstanding statement in the Pittsburgh summit conference that I happened to attend on this particular subject, and many of his ideas are incorporated in my legislation.

The question I am getting around to is this: if we had a requirement on the productivity center, that they develop a productivity impact statement, which is another way of saying economic impact statement—I suppose the two are almost synonymous—or if we had each agency before it undertook a new, significant action, put out an impact statement on productivity, and if we also required that there be some statement on congressional and administration actions, other than an awful lot of dissatisfied people in agencies, what other problems would this present?

Mr. GARDNER. The purpose is eminently sound. We ought to look at all aspects of what we are doing when we legislate, regulate or mandate.

On the other hand, we are quite conscious of the fact that we now have most of America carefully tied up in innumerable kinds of Government paperwork. If we could do this selectively and effectively with a minimum of imposition on our industries and our own agencies, I would certainly endorse the purpose.

Senator NUNN. Is that kind of impact statement important? I am not trying to measure the two. Certainly, environmental impact statements are important. We are doing that. Is it any less important to determine what actions we are taking and how they are going to affect the economy?

Mr. GARDNER. Sir, the subject is extremely important. The subjectivity of productivity statements would possibly be questioned by technical experts. It would be perhaps a little difficult to be as specific in a productivity impact statement, as you might be in a factual determination of environmental impact.

But recognizing this, I still think the purpose is eminently sound.

Senator NUNN. Well, I am not, again, wedded to the particular language in my legislation. I am sure Senator Percy is not to his. We

would like as this legislative process evolves on these two bills, we would like your thinking on that point.

Certainly, the last thing I want to do is to create additional paperwork for no useful purpose. That is a monumental problem now. But at the same time, going blindly into new legislative and administration action without any idea how it fits into the big picture is the way I observe the governmental process today. We just do not look at the big picture on the economy any more now than we looked at the environment 10 years ago.

Senator Chiles, I look forward to having your statement, but you may want to ask some questions here before we leave this witness.

Senator CHILES. Thank you, Mr. Chairman. I did want to ask a couple of questions. The President's statement, as you know, indicated that an inflation impact statement is going to be required with new Federal regulations.

Can you tell me who is going to prepare this inflation statement? Is it going to be OMB?

Mr. JONES. OMB is the coordinating agency. The individual agencies will be responsible for preparing the impact statements for those programs that impact their areas. If it were in the maritime areas, for example, it would be the Department of Commerce.

Senator CHILES. Suppose, for example, that OSHA, the Occupational Safety and Health Administration, plans to impose a regulation. Will they also prepare the impact statement or will someone else do that?

Mr. JONES. Well, again, the Office of Management and Budget, which would have oversight responsibility. They would cooperate with the Department of Labor since they would have the program responsibility.

Senator CHILES. Do you know how far this has gone, to what extent the machinery for this has been developed? Will this cover the present rules and regulations now being advertized in the Federal Register?

Mr. JONES. The Executive order has gone out and I assume—I think it went about a week ago—I assume it has an immediate effect. I do not believe it has a retroactive effect.

Senator CHILES. It is my understanding that the OSHA is now planning to implement its noise regulations. That has been advertised. I am wondering what kind of an inflation impact statement has gone forward with it.

Mr. JONES. If it came prior to the Executive order, I assume it would not have that inflation impact, if it is current. After that it would require one. We could find that out and communicate that to you.

Senator CHILES. I would like very much to have that.

Senator NUNN. If you would supply that we will make that part of the record.

Mr. JONES. All right.

[The material referred to follows:]

THE DEPUTY SECRETARY OF THE TREASURY,
Washington, D.C., December 19, 1974.

Hon. SAM J. ERVIN, Jr.,
Chairman, Government Operations Committee, U.S. Senate, Washington, D.C.

DEAR SENATOR ERVIN: At the hearing on national productivity, Senator Chiles asked me to supply, for the record, the current status of the issuance of inflation impact statements, and more particularly, whether or not the Department of

Labor would be required to issue an inflation impact statement when issuing final Occupational Safety and Health Act (OSHA) regulations on noise.

On November 27, 1974, the President issued Executive Order 11821, a copy of which is attached, which requires ". . . Major proposals for legislation, and for the promulgation of regulations or rules by any executive branch agency must be accompanied by a statement which certifies that the inflationary impact of the proposal has been evaluated . . ." Thus, all new major proposals are now required to certify that the inflation impact has been evaluated.

The Department of Labor issued proposed rulemaking on OSHA noise regulations on October 24, 1974. The comment period has been extended to January 22, 1975, and we are advised that another public hearing may be held. We have also been advised by the Department of Labor that pursuant to Executive Order 11821 they will certify that the inflationary impact of those regulations has been evaluated when final rulemaking is promulgated.

I certainly enjoyed the opportunity to appear before the Senate Government Operations Committee, and I hope that if I can supply any additional information you will let me know.

Sincerely yours,

STEPHEN C. GARDNER.

Attachment.

INFLATION IMPACT STATEMENTS

Executive Order 11821. November 27, 1974

In my address to the Congress on October 8, 1974, I announced that I would require that all major legislative proposals, regulations, and rules emanating from the executive branch of the Government include a statement certifying that the inflationary impact of such actions on the Nation has been carefully considered. I have determined that this objective can best be achieved in coordination with the budget preparation, legislative clearance, and management evaluation functions of the Director of the Office of Management and Budget.

NOW, THEREFORE, by virtue of the authority vested in me as President of the United States of America by the Constitution and laws of the United States, it is hereby ordered as follows:

SECTION 1. Major proposals for legislation, and for the promulgation of regulations or rules by any executive branch agency must be accompanied by a statement which certifies that the inflationary impact of the proposal has been evaluated. Such evaluation must be in accordance with criteria and procedures established pursuant to this order.

SEC. 2 (a) The Director of the Office of Management and Budget is designated and empowered, to the extent permitted by law, to develop criteria for the identification of major legislative proposals, regulations, and rules emanating from the executive branch which may have a significant impact upon inflation, and to prescribe procedures for their evaluation.

(b) The Director, in carrying out the provisions of this order, may delegate functions to the head of any department or agency, including the Chairman of the Council on Wage and Price Stability, when appropriate in the exercise of his responsibilities pursuant to this order.

SEC. 3. In developing criteria for identifying legislative proposals, regulations, and rules subject to this order, the Director must consider, among other things, the following general categories of significant impact:

a. cost impact on consumers, businesses, markets, or Federal, State or local government;

b. effect on productivity of wage earners, businesses or government at any level;

c. effect on competition;

d. effect on supplies of important products or services.

SEC. 4. Each Federal department and agency must, to the extent permitted by law, cooperate with the Director of the Office of Management and Budget in the performance of his functions under this order, furnish him with such information as he may request, and comply with the procedures prescribed pursuant to this order.

SEC. 5. This order expires December 31, 1976, unless extended prior to that time.

GERALD R. FORD.

The White House,
November 27, 1974.

[Filed with the Office of the Federal Register, 12:09 p.m., November 27, 1974]

Senator CHILES. That is all, Mr. Chairman.

Senator NUNN. Well, on that point, what is the real difference between an inflation impact statement, economic impact statement, or a productivity impact statement? Are we not talking about the same ballgame in all of them, generally speaking?

Mr. JONES. As an economist, I would say if you could determine the employment, productivity, and inflation statements, the entire package would make up a valuable economic impact statement. It would be highly desirable if it can meet the Deputy Secretary's proviso, that it not wrap up everybody in more paperwork.

Senator CHILES. I think what the chairman is getting at is that if the ballgame has now changed, and it is no longer inflation but it is recession, that statement is just as necessary, is it not, because we are really talking about an economic impact statement?

Mr. JONES. It should surely cover employment, productivity, and inflation, all of those variables.

Senator NUNN. If it is going to be meaningful, I think it ought to be that involved.

Do you have any other questions?

Senator CHILES. No, sir.

Senator NUNN. Thank you very much for appearing. Do you have any particular comments?

Mr. GARDNER. No, I just might add my own personal view, Mr. Chairman. We have enjoyed the benefits of tremendous productivity successes in this country and we have had very little specific recognition of this in legislation and the like. I want to commend the committee again for the two bill proposals because I think it is time we recognize this is one of our great national resources.

Senator NUNN. Well, one of the things—I agree with you completely—is we have almost done this without the people in this country realizing what has brought forth the tremendous increase in prosperity and the standard of living. Then all of a sudden our productivity ceases and we are experiencing rampant inflation. I agree with you also and the previous witness that this is not the whole problem of inflation. It is certainly not the whole problem of our economy, but it is a significant portion, and I think it needs an awful lot of attention, not just in terms of understanding but also in terms of action.

Did Mr. Harper want to make any comments or any of the other witnesses?

Mr. HARPER. No, I do not have anything. Thank you.

Senator NUNN. Thank you very much and I would appreciate it if at least one of you would stay through the next witness because he is going to be talking about his specific subject of the impact statements, and I think it is going to be very important for your Department to give us your best thinking on that subject as we develop this legislation. I know you have got busy schedules, but if somebody could stay and listen——

Mr. GARDNER. Yes, sir.

Senator NUNN. Thank you.

Mr. GARDNER. Thank you.

Senator NUNN. At this point I know Senator Chiles has a statement he would like to make. He has been one of the originators of this legis-

lation. He also has been one of the most involved Senators that I know of in the overall question of the economy, both with our problems of inflation and recession and was one of the prime authors of a resolution which brought forth the summit conference, which, while not producing all the results we would have liked, certainly put the spotlight on the economy.

So at this point, Senator Chiles, we would be glad to have whatever statement you may want to make, and I am delighted that you have helped in drafting this legislation. You have been vitally involved in it, and as one of the sponsors, I am sure you are going to continue to be involved.

STATEMENT OF SENATOR CHILES

Senator CHILES. Mr. Chairman, I welcome the opportunity to testify on S. 4130, I am pleased to be one of the cosponsors of this bill.

I want to congratulate you on introducing this bill and also for your work and your diligence in the total area of our economy. I think many of us in the Congress tend to say that this problem is so big that there is no way the Congress can tackle it, so we just sit back and take pot shots at the administration or bemoan the fact that the administration is not doing more. While it would be difficult for the 535 Members of Congress to develop a program to attack the total problems of our economy and the total problems of inflation, there are some definite things we can do.

I congratulate you on singling this out as one of the areas in which we can and should be taking the lead, and for your leadership in that regard. I am delighted to join with you. What you touched on with the last witness is so important because double-digit inflation was occurring in Europe and elsewhere long before we got involved. There must be a reason we did not get caught up in it earlier, and I think that reason is our productivity.

We were keeping ahead of it for a period of time, and I think the curves show that at the time our man-per-hour production began to decline—not in every person in every industry, certainly, but in total—at that time we began getting caught up in inflation, and our inflation curve went up as our productivity curve went down.

So I think that in this area we have something really vital we can do. This legislation would establish a clear Federal policy on productivity. It would undertake a variety of programs to promote productivity growth throughout the economy. And at a time when our economy is experiencing a period of such severe stress, this bill sets forward a program that can analyze and attack our economic problems on a very fundamental level. The changes that it would introduce are urgently needed and once implemented, would be instrumental in stimulating a tangible increase in real income for the American worker. And if we can increase our productivity at a faster rate than other nations, we will contribute to the competitiveness of our products abroad, and provide strong and sustained support for an improved U.S. trade performance.

Many of us recall having seen a recent advertisement which was directed toward increasing the public's awareness of the importance of productivity. The advertisement stated that "America only works as well as you do."

My feeling is that this is an important but an inadequate characterization of the problems we face in the area of productivity. It implies that the key to a higher rate of productivity growth is solely that each of us put our shoulders a little harder to the grindstone.

I agree that a growth in public consciousness of the importance of this area and what can be done about it certainly plays a critical role. In fact, it has been estimated that with the current rate of growth in our Gross National Product, an increase of only one-tenth of 1 percent in productivity or output per man-hour would translate into an aggregate increase in the GNP of $1.4 billion.

It is apparent that, compounded over the next decade, that kind of increase would have a significant impact on the economic health of the Nation.

It should also be pointed out that most Americans are, in fact, efficient, hard working, and conscientious about their jobs. We are a work-oriented society, thank goodness, and we have made our economy strong and resilient and the most imitated in the world. Often, our citizens are interested in making positive contributions to increasing our Nation's productivity, but they are uncertain as to what they, individually or collectively, can do.

That, it seems to me, Mr. Chairman, is the importance of this bill, because it sets forth a mechanism for identifying and dealing with the many institutional as well as personal factors that can have an impact upon our rate of productivity growth. These include such elements as investment in modern capital equipment, adoption of advanced technological processes, improvement in managerial techniques, utilization of the economies of scale, and a review of the application of governmental laws and regulations.

These are certain of the elements which are beyond the control of any single individual and which need the full and effective backing of governmental authority to stimulate and encourage change.

One of the most important features of the legislation before us is that it would channel a substantial segment of the funds to the States, municipalities, and institutions of higher learning to take advantage of their special expertise on local problems.

My experience in Florida, and I am sure that this is true throughout the Nation, is that since these institutions are already on the scene, they have a much greater appreciation of the local problems and how to solve them than if the same program was to be administered from Washington.

Mr. Chairman, I thank you for the opportunity to comment on this important piece of legislation. The need for action on productivity is clear and it is my hope that this bill will pave the way toward progress in that area. I again congratulate you on your leadership in this area and your total awareness of the economic problems we are facing.

Senator NUNN. Thank you very much, Senator Chiles.

Our next witness is Mr. Lee Loevinger, who is an outstanding lawyer here in town. I happen to have met Mr. Loevinger at the Pittsburgh summit conference, as I was relating to a little while ago, and I felt then, Mr. Loevinger, that your statement on the impact statement and your overall concept on productivity certainly was

something we wanted to have the benefit of for these hearings. Quite frankly, your grasp of the problem is what served as a catalyst to some degree at least, on my interest, and we have some of your ideas built into this legislation.

So we are delighted to have you here. We are delighted to have your statement. And I am sure that both of us will have some questions.

TESTIMONY OF LEE LOEVINGER, ATTORNEY, HOGAN & HARTSON, WASHINGTON, D.C.

Mr. LOEVINGER. Thank you very much, Senator. You are very kind. I do appear in response to the invitation of the committee and I appreciate the opportunity to present some views. Unfortunately, the invitation appeared too late to permit the preparation of a formal, written statement; however, I have only a few principal points and I am sure I can present them in about 10 minutes.

Perhaps I might mention briefly my qualifications in talking about the subject. I am a practicing lawyer with the Washington firm of Hogan & Hartson. I have had Government experience in executive, administrative, and judicial positions. I have represented both small and big business firms. I have been an amateur student of economics and law for many years and have published numerous articles on various aspects of the subject. However, I speak only for myself here today. I do not necessarily represent the views of any clients or, indeed, of my partners.

I have studied both S. 4130 and S. 4212 and have done some independent legal research into Federal statutes for relevant and analogous provisions. There are some general references in the Employment Act of 1946 and in the Economic Stabilization Act of 1971 on the subject of productivity, but there is no clear mandate or declaration of mandatory policy for Government agencies in the statute now.

I think the present challenge is to move from rhetoric to action.

I have, as I said, three points. The first is the obvious one which has already been addressed this morning. This country must increase its productivity and its economic efficiency if the Nation is to survive and if the people are to have any hope of maintaining or improving their standard of living or the quality of life.

This point has been made by you, sir, by the sponsors of the bill under consideration, Senators Percy, Bartlett, Chiles, Domenici, Javits, Ribicoff, and others. Daily headlines in the newspapers reporting current economic difficulties emphasize the urgency of these goals. I think it is unnecessary to elaborate the point.

My second point is that there is or may be a difference between productivity and efficiency. In the very simplest terms, productivity can be taken to mean to maximize output; efficiency means to minimize costs and waste. The two are related and the relationship is noted in section 102, subsection 1 of S. 4212 in the definition of productivity growth. However, the two are not necessarily identical.

In the interest of unmistakable clarity, both efficiency and productivity should be declared policy objectives by Congress.

My third point is the most important, I believe, and that is this. The most effective single action Congress can take to achieve these

objectives is to declare them to be the policy of the Federal Government and to require all Federal laws and regulations to be interpreted and administered according to such policies and all Federal agencies, including courts, to consider and apply such policies.

There has been considerable discussion recently of Federal laws, regulations and actions, that hamper production, restrict efficiency, and actually increase prices. Examples are actions that require unnecessary circuitous routing by trucks, that require empty backhauls, that prevent available and empty trucks frmo transporting supplies from warehouses to stores, that prohibit or impede the use of new technologies, that forbid producers to establish maximum prices for their own products and other similar rulings and regulations.

The major reason for such a situation is that each Federal agency has a particular field of activity, and objectives such as promoting transportation or communication, preventing deceptive advertizing, requiring full disclosure in securities, attacking restraints of trade, and so on.

Each agency sees its functions with a kind of tunnel vision so that it perceives its own specified goals and not the broader interests of society as a whole. Indeed, some even say that economic efficiency is legally irrelevant to the performance of their function.

To some extent this is due, at least in part, to failure of Congress to specify policies clearly and explicitly. When Congress does clearly and explicitly enunciate policies, such enactment has substantial effect. An example is the Environmental Protection Act, the declaration of policy in that act and the requirement for environmental impact statements.

S. 4130 has wisely been modeled after the NEPA. I believe it would have a very important and very beneficial effect on the American economy and our society as a whole. Accordingly, I believe it should be enacted. There are specific changes in draftsmanship I would suggest in S. 4130 which would appear to improve the bill and help to make it more effective to insure that efficiency, as well as productivity, is understood to be an important part of national policy.

I suggest that the term efficiency should be coupled with the term productivity and included in S. 4130 in section 101 and in section 102, subsections (1) and (3), and section 104.

Similarly, I suggest that section 103 and section 104, subsection (4) refer to the efficient allocation of capital, resources and energy, rather than merely to the efficient allocation of capital. Economists might say that the term capital is sufficiently broad to include resources and energy, but the act would be interpreted and applied by more lawyers and economists and even by some reluctant bureaucrats. And Congress cannot go wrong by making its meaning clear.

Finally, in order to insure that policies of the bill are actually considered and applied by all Federal agencies, I believe it is necessary to add a new subsection (3) to section 201, reading substantially as follows:

All courts of the Federal government shall give due consideration to the policies set forth in this Act in all cases to which such policies are relevant, and in reviewing any agency action shall give due consideration to agency compliance with the policies, procedures, and provisions of this Act.

Ultimately, what the courts do with any legislation of this kind is the cutting edge of its effectiveness. A provision of the kind suggested would make the bill more immediately effective than almost any other provision that might be included. The establishment of a national productivity center or a similar agency by whatever name will surely serve a useful purpose in carrying out the purposes of such legislation. However, it must be recognized that any new agency, no matter how established, will take time to get organized and will inevitably be burdened with a multitude of housekeeping chores.

Senator Nunn, you showed some appreciation of this in inquiring this morning as to the relationship between the size of the staff and the size of the commission and as to how often they meet. Obviously, these are matters of great importance and having to do with the effectiveness of functioning.

In any event, it will take years for any agency to make a survey or study of all rulings, regulations, and Government actions that hinder productivity or efficiency. It will take more time for such an agency to report these to the Congress, the staff of the President or the appropriate departments and agencies and to secure corrective action.

In contrast, a clear and explicit declaration of policy by Congress with a mandate to all agencies, including courts, to implement and apply the policy, will become effective at once and will begin to influence Government action quickly, perhaps the day of enactment. Consequently, if Congress is indeed serious about improving the economic productivity and efficiency in this country, I urge that it unequivocally declare that to be the national policy and mandate all agencies, including courts, to consider and apply that policy in all actions and decisions.

This can be done by enactment of S. 4130 with the additions I have suggested and I believe that this would be a great contribution to the national welfare.

Thank you, sir.

Senator NUNN. Thank you very much for a very good statement. I am going to yield to Senator Chiles on this witness and let you take first shot, if you want to go ahead.

Senator CHILES. No, that's all right.

Senator NUNN. All right, one thing, we get two criticisms on the impact statement, and I am sure these are anticipated by you. First of all, the paperwork, you heard what this would do on paperwork; and second, the question of trying to make an accurate, definitive measure of productivity and its impact.

In your opinion, is productivity impact any harder to measure than environmental?

Mr. LOEVINGER. I would think it was less so, sir. In fact, the problem with the environment has been that there was simply no way of foreseeing the problems that have arisen. Really, automobiles were not a problem 30, 40 years ago. Sewage was not a problem 30, 40 years ago. It is a combination of proliferation and increasing population. Productivity itself, the proliferation of automobiles, it is the volume of these things that has become the problem.

In contrast, there are several decades, at least, of attempts to measure productivity and efficiency. There are fields such as econometrics that are well known to statisticians and to scholars in the field.

I suggest, sir, that productivity probably can be more efficiently measured than environmental impact. As a matter of fact, let me refer to a current controversy. Today there is much discussion and there have been some recent newspaper statement about whether or not the ozone layer of the upper atmospheric envelope of the earth is or is not being depleted. There has been a suggestion that various products such as the propellants in aerosol bottles have a degenerative effect on the ozone layer. The fact is, we really do not know. At this moment scientists are saying we have got to investigate, and it will probably take 3 to 5 years to get the facts. The impact on the environment is more difficult to determine, more difficult to measure than the impact on the economy.

Furthermore, the requiring of impact statements is apparently the wish and the mood of Congress today. Within the last 2 weeks Congress has passed amendments to the antitrust laws. I happen to be familier with them because this is my field of special interest. The bill was originally sponsored by Senator Tunney in the Senate. It has now passed both houses and gone to the White House for signature. It requires that in all antitrust civil cases that are settled by so-called consent decrees, there be a competitive impact statement. This would probably occur in about 80 percent of the cases because this is the number that are historically settled.

I believe that the effect on competition is considerably less tangible and more difficult to measure than the effect upon efficiency or productivity, and I urge that efficiency and productivity in an economic impact statement would probably be one of the definitive things that Congress could require.

Senator CHILES. In that same area, I have a question if I might. You were talking about the fact that we do not want to create more paperwork and more bureaucracy, and certainly that is one of our goals. Is it not true, however, that if a Federal agency knows in advance that it is going to have to supply an economic impact statement when it issues new rules and regulations, it either may not issue them at all or at least may frame those rules in such a way as to lessen the economic impact, and that that is where you will get the real savings?

Mr. LOEVINGER. I agree completely with you, Senator, but I would go even farther than that. I believe that a multiplication of paperwork argument is a specious one for this reason:

What we are talking about here are Government decisions and Government actions, promulgations of rules, decisions of particular cases by Government agencies. These agencies cannot take such actions without issuing a statement of the reasons that impel them to take the actions. There is always a reason issued, or a decision, or an opinion, or whatever it may be called.

Now, the courts uniformly hold that upon review of such matters the agencies must adequately set forth the real reasons which impel them to take the actions. Therefore, if in fact a concern with economic efficiency and productivity is one of the elements that must be considered, under the prevailing rules in the courts today, they would be required to include a statement of that in their decision, opinion, or memorandum or whatever. It is simply a matter of requiring agencies

to broaden their vision beyond the immediate objective that each one of them is serving, and to consider the impact on economic efficiency so far as society is concerned. Once they do that, once they have made the consideration, the statement of it is not a difficult matter.

Senator NUNN. One thing, it has not come up yet, but it may well come up, there is a question of environment versus the economy and their compatibility. If we have an economic or productivity impact statement, I guess you would agree that economic impact statement and productivity impact statements are very similar; are they not?

Mr. LOEVINGER. Yes.

Senator NUNN. If we have that, do you see any real conflict? Is this going to lessen our concern with the environment, or on the other hand, would this give us a more balanced basis on which to make final decisions?

Mr. LOEVINGER. Senator, the conflict already exists. All this would do would be to require people to look at it. This would require agencies that are acting to take account of what they are doing. You will notice that the suggestions I have made in the language, I am sure you are aware, that the language of your bill does not make productivity or efficiency the only consideration or indeed the paramount consideration. I can think of many situations in which economy, for example, might well be sacrificed to other interests. Perhaps the outstanding one is airline safety. I am not at all sure I want to ride on the most economical airline in the world. I want to ride on the safest airline in the world, and if it is judged that that means the expenditure of more money, so be it. I think that the extra money should be spent. I think the same thing may be true with respect to worker safety.

Senator Chiles mentioned OSHA. Certainly the principles of that should not be compromised. However, what the proposal will do is to require that agencies consider these matters explicitly.

Senator CHILES. They just could not make their decisions in a vacuum.

Mr. LOEVINGER. Exactly, and they have not been considered up until now—indeed, there are Supreme Court decisions saying that we do not consider, in effect, we do not consider economic efficiency because it is not written into this law. That I think is foolishness when you are dealing with economic matters.

Senator NUNN. What about in the legislative arena? Is there anything we can do over here in terms of bills we may be considering to take the same kind of general considerations into account?

I hesitate to put it in legislation because I am afraid it will not pass, but that is frank. The people here, the staffs and so forth, with as many bills as we introduced, if you put it on every one it would be a real paperwork problem, but is that legitimate, or are we looking at it too much from a provincial point of view?

Mr. LOEVINGER. I hesitate to sit in judgment on Congress, Senator Nunn, even with an invitation from so distinguished a Member as yourself. It seems to me that if S. 4130 were passed, as I have urged, that the policy enunciated would be well enough known and keenly enough felt by enough Members of the Congress so that some effort would be made to evaluate economic impact with respect to proposed legislation.

Let me say in all fairness, also—and I do not think that I am being a sycophant in this—I have had a good deal of experience in watching legislation affecting various aspects of the economy over the last 10, 12 years, since I came to Washington. I would say I believe that Congress is probably more conscious of this than most of the agencies. That is, for the very reason that I mentioned earlier, most Congressmen and Senators do conceive of their job as that of being to judge the overall impact on the country of whatever legislation is before them.

Now, obviously they do not do this all the time. You do not sit and analyze and pore over each one of the tens of thousands of bills in each session because there are limitations to the span of human attention, if nothing else. But on the whole, Congress is less, I think, subject to the kind of tunnel vision that afflicts some of the Government agencies.

I would certainly start by passing this bill, and then try to reform Congress later.

Senator NUNN. Well, that is what we intend to do, and I wanted you to be frank about it.

I also think the agencies would probably start giving more at least informal opinions to Congress. They always testify on legislation so that would be a very good point for them to have input as the process moved further along.

Do you have any other particular comments that have been aroused by this question?

Mr. LOEVINGER. No, sir. I think this is an excellent inquiry. I had not anticipated that you would be able to move so rapidly to start hearings at this session. I am delighted that the matter is taken so seriously in the Congress, and I sincerely hope that action will be taken in the next Congress.

Senator NUNN. Thank you very much. We appreciate your being here.

Our next witness is Mr. Jori Arai who is going to inform us and bring us up to date on the Japanese Productivity Center.

We all know that the Japanese have had almost an unprecedented period of productivity for many years. You are a great ally and a great friend, and we hope to benefit from your experiences this morning. We hope to learn something from what you are doing in your country.

So we are delighted to have you here. Please proceed with your statement.

TESTIMONY OF JORI ARAI, JAPAN PRODUCTIVITY CENTER

Mr. ARAI. Thank you.

When the Japan Productivity Center was established 20 years ago, Japan was suffering from a chronic deficit in her balance of payments and her industries faced low productivity, numerous and long-lasting strikes. The U.S. Department of State, based on successful experiences in sponsoring productivity study teams from Great Britain and other European Countries under the Marshall plan, proposed that the Japanese Government establish a productivity center patterned after the European Productivity Agency in Paris. With a fund of

$3,000, the Japan Productivity Center was established in March 1955 as a tripartite, nonprofit, nongovernmental foundation representing management, labor and academia to promote productivity in Japan.

While most of the countries in the world now have productivity centers or institutes as Government agencies, staffed with competent and highly capable workers, they all face the serious problem of getting private industry's and labor's acceptance of their new ideas and programs.

Realizing this was a serious problem, the Center was established as a nonprofit, private foundation rather than one within the existing governmental structure, or an independent governmental agency. Being a private institution, it is imperative that we offer industry and labor our product, be it research, seminars, training courses or consulting service in which they will see either immediate or potential value for increasing productivity. In an environment where the free market principles prevail, we must constantly refine our product and introduce new ideas and methods, using marketing techniques even as a company sells its product.

Our market research keeps us abreast of the changing needs of management and labor, enabling us to offer not only acceptable but attractive programs to them.

Between 1955 and 1962, with a grant totalling $6.4 million, the Japan Productivity Center carried on its technical exchange program in cooperation with the U.S. Agency for International Development. Our function at the outset was to act as an agency to select business executives and labor leaders who are to be sent to the United States for productivity studies.

Under our international exchange program, 12,000 businessmen, labor leaders and professional men visited the United States and Europe, and over 800 reports with an average volume of 200 pages were published. The seminars, workshops, training courses and conferences which were conducted exclusively by American lecturers at the outset were gradually supplemented by Japanese experts starting in 1958. Seminars, primarily directed to senior executives, gradually shifted emphasis from management problems to social and economic issues, including such subjects as energy, pollution control, and resources conservation.

Concurrently, a series of seminars directed toward middle management, engineering, professional and labor leaders were organized and presented. New management concepts and scientific management techniques were introduced to Japan through the seminars and study tours.

Between 1957 and 1960, extensive research and studies were conducted to determine the feasibility of creating labor-management councils in each corporate structure. Encouraged by the finding of these studies, we created a labor-management consulting service to help both management and labor in establishing a cooperative relationship. Through seminars and consultations, we succeeded in convincing both labor and management that implementation of the concept was mutually beneficial. In a majority of major manufacturing companies we now see councils consisting of representatives from labor unions and corporate executives who meet often to discuss each other's problems

so as to prevent disagreement between the two parties from deteriorating to a situation which would result in a strike or a lockout.

Of 12 million organized workers, close to 8 million belong to unions subscribing to such a system. The amicable relationship existing between management and labor in Japan becomes evident when you note that the number of man-days lost to strikes in Japan is only about one-tenth of the U.S. figure.

I might also mention that our systems developing department, which was established in 1963 for the purpose of disseminating computer technology among small businesses which were unable to take advantage of new data processing equipment only available to large companies, is now playing a key role in labor negotiations of the public utility sector. At the request of all power companies and labor unions, we have placed voluminous data on macro and microeconomy, industry performance and forecasts, prevailing wages and salaries in our computer. During labor negotiations both labor and management use terminals connected to our data bank to retrieve information on the spot. This program resulted in a prompt and amicable settlement between labor and management. We are now planning to expand this service to other industries.

Every year about 40,000 business executives and labor union leaders participate in various Japan Productivity Center programs, details of which are described in the brochure I submitted to Mr. Hudec of Senator Nunn's office. The Center employs 300 professionals and clerical workers, with offices in the United States, United Kingdom, West Germany, and Italy.

Nine autonomous regional productivity centers are located throughout Japan implementing their own as well as the Japan Productivity Center sponsored programs.

Our programs and activities are self-supporting, and our operating budget has increased from $4 million in 1968 to $10 million in 1973. The efforts on the part of Japanese industries (1) to maintain an annual average of gross private investment in plants and equipment as a share of GNP at the level of 20 percent; (2) to promptly implement technological innovations; (3) to place emphasis on expansion rather than profit, so that they may use economy of scale; (4) to spend a substantial amount for training and education of employees, resulting in increased knowledge and skill of the work force; and finally, (5) to maintain amicable relations with workers resulted in an average productivity rise of 12 percent per annum in the last decade.

We cannot, however, overlook the very important role the Government played in increasing the productivity of the industrial sector. As a long-range planner of Japanese economy, the Government envisioned a restructured industrial society through the phasing out of low productivity industries with high labor content and replacing them with knowledge intensive and high technology industries which yield high value added.

Since in Japan the average net worth of a corporation is less than 20 percent, they depend heavily upon outside capital which is normally provided by a commercial bank. The bank in turn depends heavily upon the Bank of Japan, which is the financial arm of the

Japanese Government. By quietly letting the bank know which industries are to be phased out and which are to be saved, the Government plans to restructure our industrial society.

Even though there has been a decline in prductivity this year due primarily to a recession triggered by the quadruple rise in the oil prices, industrial restructuring, and high quality labor force, positive attitude by corporate management, and a great capacity for accumulating capital will enable us to maintain approximately a 7-percent annual rate of productivity increase for the next decade.

We are, however, still far behind your country in our attempt to measure and increase productivity in Government and service sectors. The very nature of our organization in that it is a private and nonprofit one, makes it impossible to study the performance of the Government. We see the urgent need in these areas and hope to learn from you.

Thank you.

Senator NUNN. Thank you very much.

We appreciate that, and also I am particularly interested in several different aspects of your program.

First of all, do you have the regional centers that operate under your parent organization, is that right?

Mr. ARAI. That's right.

Senator NUNN. Of the 300 total employees, does that include the regional centers, or is that exclusive of the regional centers?

Mr. ARAI. The 300 does not include the employees of the Regional Productivity Center.

Senator NUNN. Are regional centers funded from the same sources, and do they operate under your control?

Mr. ARAI. For some of the program they receive Government subsidy. For the other programs which they jointly conduct with us, they receive their share from us. But mostly they depend upon the revenue from their own programs and activities.

Senator NUNN. Where do you get your funds? Is it self-supporting or are there tax funds involved?

Mr. ARAI. We are a self-supporting organization. Most of our revenue we derive from fees and costs which we charge for the services rendered to the industry as well as to the labor unions.

Only about 10 percent of our revenue represents some sort of subsidy or grant from the Government.

Senator NUNN. So it is mainly through union funds and business funds that you are supported.

Mr. ARAI. Yes, primarily by those funds our programs are supported.

Senator NUNN. Do you get into areas like universities, school systems, that kind of thing? Do you get any help from the university systems?

Mr. ARAI. No, sir; we do not. We do occasionally conduct our studies and researches in cooperation with the universities and higher learning institutions in Japan, but we do not receive any funding from the universities.

Senator NUNN. When you talk about the activities of the center are you directing in recent years any attention to the so-called quality of work problem, the environment in which workers produce and that sort of thing?

Mr. ARAI. Yes, we have. We have been concentrating our effort on the study of the quality of the work environment. However, I would like to point out that the Japanese corporate managers, by the very nature of their being paternalistic, has always been very conscious of the work environment for their employees.

Senator NUNN. Your businesses, according to what I have read, and your workers, consider themselves all part of one family.

Is that a correct analysis?

Mr. ARAI. Yes. I would say that pretty well summarizes the attitude of Japanese management as well as workers.

Senator NUNN. Do you have workers who are on the management level? Do they work in connection, with the board of directors or whatever you would call it?

How much input do you have from your workers?

Mr. ARAI. Well, we do not currently implement industrial democracy as advocated by Scandinavian countries yet. However, as I mentioned to you in my statement, usually we have the labor-management council in each corporate structure where they do discuss various problems, sometimes even the issues belonging to the decisionmaking authorities of the management in this country. Therefore I will consider this management-labor council concept a sort of management participation program.

Also, I might mention the fact that on the working level, we have a movement called quality control circle. These groups of workers, the quality control circle groups, are usually found in the major manufacturing companies. Voluntarily the groups usually put in an hour or two after working hours or during lunch hours to discuss the improvement of the working stations they are assigned to. This quality control circle movement is very popular in Japan and currently I know that several American companies are looking into the possibility of adopting the Japanese system.

Usually the management goes along with the suggestion coming up to them from the lowest level employees, as well as line supervisory level people. So I would consider that also as the management participation program.

Senator NUNN. I noticed you made a statement in here about small business and your activities of helping to computerize small businesses.

Do you find that more of your activities are aimed at small business than large business because they need you more, or what is your relationship with the small business community?

Mr. ARAI. I mentioned about 10 percent revenue which we derive from the Government. Now, most of that money goes into small business programs. The position of our small business is considered to be very weak in Japan. As a matter of fact, we have what we call dual industrial structures in which the small businesses have to, in order to survive, belong to in some form or be affiliated with a large business. Most of them act as subcontractors. They do depend heavily upon the big companies for financial as well as technical assistance. This means that in time of recession they are the first ones that have to go and in the booming economy, they are the last ones to enjoy the benefit of the economy.

What we are trying to do is to improve the condition of small businesses so that they may also be able to enjoy the benefit as being en-

joyed by the big business, and also enable the employees of small business to receive salaries and wages comparable to the ones enjoyed by the workers of large businesses.

Senator NUNN. Now, the Government does not direct your activities, is that right?

Mr. ARAI. Not directly, no. They do give us a subsidy in running our small business programs.

Senator NUNN. So you are receptive to and work with the overall governmental arena?

Mr. ARAI. Yes, sir. Sometimes the Government directs us to place emphasis on certain sectors of the industry, manufacturing industry oftentimes, but that is quite limited. The extent of their voice in running our program is quite limited by virtue of the fact that the Government subsidy does not amount to more than one-tenth of our total revenue.

Senator NUNN. I believe your statement indicated that your productivity gross in recent years, averaged about 12 percent per year.

Mr. ARAI. Somewhere around there.

Senator NUNN. What were you projecting for the next 10 years?

Mr. ARAI. We generally agree that we will be able to maintain about 6 percent rise in productivity in the next decade to come. However, I must mention the fact that our productivity rates declined by 0.6 percent as of September of this year. This is the first time our productivity figure has gone down, but in 1973 the figure was 19 percent, as compared to the previous year.

Senator NUNN. Was the decline due to the energy problem?

Mr. ARAI. Yes; I believe the decline was primarily caused by the recession we are experiencing, which was brought about by the oil crisis.

Senator NUNN. What effect, overall, has the quadrupling of oil prices had on your productivity?

Mr. ARAI. As I mentioned, it brought recession to our country, and in a recession the industries cannot operate at 100 percent level of their capacity. They have to reduce their percentage of operation; therefore, their productivity has gone down.

However, our economy has been absorbing this quadruple rise in the oil prices faster than we expected. The Government planned to have the industry absorb the quadruple rise in the oil prices within a 3-year period starting 1974. In 1974, we actually had a surplus of about $4 billion, enabling us to make payment, as far as the international trade balance is concerned, without going into the deficit.

Senator NUNN. You still have a surplus in your international trade balance?

Mr. ARAI. Accumulated, yes, sir. I believe we have now $13.5 billion reserves.

Senator NUNN. What about in 1974? Was your trade balance down in 1974?

Mr. ARAI. Yes, sir. It has gone down, but we will still have the estimated surplus of $4 billion. We had a 50-percent rise in our exports during the year, fiscal year 1974. Our export revenue is estimated to be about $59 billion, and the payout, that is import, would amount to about $55 billion, leaving us a balance of $4 billion.

However, that is not the total international balance of payments. There are other outflows of capital causing us to sustain the deficit of about $3 billion or $4 billion this year, but when you are talking about trade alone, we saw an increase of 50 percent in export.

Senator NUNN. So your balance of payments is in deficit by a small figure, and your balance of trade is in surplus?

Mr. ARAI. Yes, sir.

Senator NUNN. Well, your balance of trade, as far as measuring 1973 versus 1974, has gone down. Is that right?

Mr. ARAI. That is correct, sir.

Senator NUNN. You had a very large surplus back in 1973?

Mr. ARAI. Yes, sir.

Senator NUNN. About what was that?

Mr. ARAI. I believe we had about $14 billion surplus, overall that is.

Senator NUNN. How is your productivity center working with the so-called energy crisis? Are you trying to find ways to save energy in industry?

Mr. ARAI. Yes, sir. The Government has implemented a plan to conserve energy by 10 percent. The Government has a limited success in the industrial sector. On our own, we have sponsored many seminars and study tours, placing emphasis on energy conservation.

As a matter of fact, we had this year two groups of senior executives of Japanese corporations to visit this country to study the method of conserving the energy, and we expect to have many seminars and also study groups in 1975, placing emphasis in that area.

Senator NUNN. So you are just really getting started in that area?

Mr. ARAI. When it comes to energy conservation, yes, sir.

However, our pollution control program has been very strong for the last couple or 3 years.

Senator NUNN. Do you have any other general comments? That is all the questions I have. Do you have anything else you would like to say or add?

Mr. ARAI. No, sir. I would like to mention the fact again that it was the U.S. Government that established our organization, and because of your assistance given to us that we were able to increase our productivity, and I would like to express our gratitude.

Senator NUNN. Well, we now want to find out how you have done it. We are glad we did that because we have got to try to pattern our own effort after yours.

I would perhaps like to visit your center sometime, if I am in Japan, which may be next year. Where is your main center located?

Mr. ARAI. Our office is located in downtown Tokyo. Anytime you plan to visit our center, if you let us know, we would be happy to get in touch with Tokyo and have them receive you.

Senator NUNN. Thank you very much. I would to welcome any other comments you might want to add for the record at any time.

This legislation will not be coming up for a markup or final consideration by the committee until next year, not in this session, so if you have any other ideas that you think might be of assistance, we would welcome them.

Thank you very much, Mr. Arai.

Mr. ARAI. Thank you.

Senator NUNN. The hearing will be adjourned and will come back at 2 o'clock, at which time we will hear from Mr. John Dunlop, who is chairman of the National Commission on Productivity and Work Quality.

[Whereupon, at 12:10 p.m., the committee adjourned, to reconvene at 2 p.m. the same day.]

AFTERNOON SESSION

Senator NUNN. The subcommittee will come to order. We have had one vote and the threat of about four more. I was trying to wait until such time as I could vote and come back, but it looks like I may be interrupted several times. Senator Chiles may come and may be able to help us out this afternoon, but in the event he does not, if I am interrupted, I will go vote and we will take up right where we left off when I come back.

This is the Committee on Government Operations, and I am chairing the committee at the request of Senator Ervin on what we think is a very important subject, the subject of productivity. We are delighted this afternoon to begin the afternoon session by having Dr. John T. Dunlop, chairman of the National Commission on Productivity and Work Quality. Dr. Dunlop has had a very distinguished career in this and many other top governmental posts, as well as private expertise in many other areas. Dr. Dunlop, we are delighted to have you. If you will proceed with your statement, hopefully before we vote I will get to hear all of it. If not, I would like for you to just delay until I get back, because I am very interested in what you have to say on this subject.

TESTIMONY OF JOHN T. DUNLOP, CHAIRMAN, NATIONAL COMMISSION ON PRODUCTIVITY AND WORK QUALITY; ACCOMPANIED BY GEORGE KUPER, ACTING EXECUTIVE DIRECTOR, NATIONAL COMMISSION ON PRODUCTIVITY AND WORK QUALITY

Dr. DUNLOP. Thank you, Mr. Chairman. I have a brief statement here which I will not read in its entirety, but rather excerpt.

Senator NUNN. Go head and read it, if you would like. I would like to hear all of it, if it would suit you just as well.

Dr. DUNLOP. All right, and I have a couple of additional submissions to propose in the course of that testimony for the record. I will go ahead, then. I would like to express my appreciation to the committee for this set of hearings, and the initiative they represent, and take the opportunity you have afforded me to make some comments that are intended to help maintain in your deliberations some fundamentals regarding productivity that I feel are worth the repetition they represent, and the statement is divided into four such fundamentals.

I

We all recognize that productivity is the essential ingredient to real economic growth. It is the way by which we achieve long-term stability so that the real incomes of all groups can rise. It is a critical ingredient in our capability to compete in international markets.

Improved productivity—getting the most out of our resources of manpower, capital, energy, and materials through better methods, increased skill, and improved equipment—is vital to achieving the higher standard of living we seek for all Americans. With the labor force projected to grow more slowly in the 1980's than in this decade, the extent to which we can achieve greater GNP per capita and increased leisure and quality of life will particularly depend upon how much and what we produce in the time worked. That increased output is the way we will be able to meet the demands for more and better goods and services as well as a broad set of national objectives including the quality of life and the environment.

We are also beginning to realize that we can no longer abuse our resources of energy and basic materials. The efficiency and effectiveness with which we consume these resources will to a large degree dictate the state of the world for future generations.

II

Another fundamental about productivity is that its improvement is a long term proposition. The great achievements in productivity growth in the farm sector of our economy which permits us now to feed ourselves with the output of 4 percent of the working population versus 38 percent in 1900 took place during an extended period of time. The development of technology and its application through capital investment does not take place in an unstable atmosphere or under great pressure without significant costs to the economy.

The long term nature of productivity growth is important to keep in mind when viewing the short-term fluctuations in output per man-hour. The cyclical influences on productivity should not obscure the far more essential long-term trends. For a larger discussion of this issue I would like to submit for your consideration an excellent paper—"The Role of Productivity in Controlling Inflation" that Prof. Otto Eckstein wrote for the National Commission on Productivity and Work Quality which puts this whole topic in the context of our present economic situation.

That paper also makes the point that productivity can only realistically be expected to make a limited contribution to our current efforts to restrain inflation.

III

A third fundamental to be kept in mind when discussing ways to improve productivity is the fact that virtually everything affects productivity. The traditional sources of productivity growth; the education and mobility of the labor force, technology, capital, economies of scale, indicate the generality of the factors. But the Nation's productivity is also affected by the common cold or the formation of a carpool for commuting. A program that is devoted to productivity improvement, therefore, must choose a few strategic areas in which to work recognizing that there are many other opportunities and factors outside its program.

Another indication of the breadth of the topic is reflected in an informal survey the Commission undertook in 1973 which revealed

that at least 19 agencies of the Federal Government operated some 173 programs (spending approximately $3 billion) which were felt to be directly improving productivity.

IV

The final fundamental which I think important to keep in mind is that the shift our economy has experienced from manufacturing to services and the growth of Government and nonprofit institutions, has allowed productivity to be neglected in certain areas. We have found that those sectors which are not necessarily directly exposed to the productivity improving incentives of competitive markets provide significant opportunities for productivity growth—some of which the Commission has been pursuing.

One of the areas becoming increasingly the subject of scrutiny is Government itself. The Commission has been privileged to work closely with the Comptroller General, Elmer Staats, and support financially his pioneering efforts to measure and enhance productivity in the Federal Government. The National Commission on Productivity and Work Quality has also been helping State and local Government leaders respond to the increasing demands on their limited resources.

I have taken your time today on some of these seemingly obvious points with the hope that they will be useful for you to keep in mind as you debate the elements of an approach to this complicated subject.

I should also point out that the primary responsibility for this effort rest clearly with the private sector. There are a number of new initiatives exclusive of Government leadership of which I'm sure you're aware. They range in scope from technology development to efforts to improve the collective bargaining structure and climate to improving the atmosphere in which work is conducted.

In the work of the Commission we have found an approach to be useful that involves the following elements: getting the parties to discuss their problems in a nonthreatening atmosphere and to visualize the total system and not just their own portion of the system; identifying barriers whether attitudes or restrictive Government regulations and striving to change them; stimulating industries or sectors but not encroaching on their rightful activities; and requiring industries to participate financially in the development of productivity improvement projects. None of this process should be considered the exclusive domain of Government.

I would hope legislation emanating from these and any subsequent hearings you may hold will increase the acceptance of such efforts.

In keeping with the recent mandate of the Commission "to publicize, disseminate—material and ideas relating to its objectives", I would like to make one last point. At last week's meeting of the Commission with the President, Mr. I. W. Abel, president of the United Steelworkers of America and Mr. R. Heath Larry, vice chairman, United States Steel Corp. reported on the progress of the 230 "Employment Security and Plant Productivity Committees" [1] in the basic steel industry. That report which I'm pleased to submit for your review pointed up the importance of cooperative labor management attitudes where collective bargaining exists in furthering productivity growth.

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[1] See appendix 292.

Unfortunately, as we all know, that is a phenomena impossible to legislate or dictate through Government fiat. It is the result of knowledgeable and concerned leadership on both sides of an industry dealing with a common problem in a constructive fashion. I am certain you'll agree that kind of example must be given broad exposure and I am pleased to see that you'll be getting a more in depth report from Mr. Thrasher tomorrow.

I am foregoing this opportunity to report on the activities and progress of the National Commission on Productivity and Work Quality [2] with the understanding that the administration's chief economic spokesman, Deputy Treasury Secretary Steven Gardner, has already submitted a brief statement of the Commission's current activities. Additionally, reports of the Commission have also been given to your staff. We, of course, will be happy to respond to any questions or requests for additional information.

Thank you.

Senator NUNN. Thank you, Mr. Dunlop.

We are delighted to have Senator Percy join us. We have been talking this morning about your bill, among other things.

I have a few questions. Starting with the size of your staff. I understand you have about 25 people on the Commission. How many people are on the staff?

Dr. DUNLOP. We have authorization for 20 people on the staff.

Senator NUNN. How many do you actually have now?

Dr. DUNLOP. We at the present time have 16 or 17.

Senator NUNN. 16 or 17? Are they all centered here in Washington?

Dr. DUNLOP. No. Two of them are elsewhere.

Senator NUNN. Where else are they?

Dr. DUNLOP. One in Chicago and one in Dallas, Tex.

Senator NUNN. Do you have offices in these other two cities, Dallas and Chicago?

Dr. DUNLOP. Maybe Mr. Kuper can explain that. Mr. Kuper is our acting executive director.

Mr. KUPER. Mr. Chairman, we originally had offices as prescribed in our original legislation in the cities of Chicago, Dallas and San Francisco. We no longer have an office in San Francisco, and we maintain a single individual in the cities of Chicago and Dallas, without much in the way of office support.

Dr. DUNLOP. They are a part of another agency.

Mr. KUPER. They are handled administratively by the Department of Labor. Their housekeeping is taken care of by the Department of Labor.

Senator NUNN. Mr. Dunlop, how long have you been Chairman of the Commission?

Dr. DUNLOP. I became Chairman of the Commission in April 1973, a year ago or more. I have been a member of the Commission since it was first established.

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[2] See the National Commission on Productivity and Work Quality study paper "The Role of Productivity in Controlling Inflation," in appendix, p. 295.

Senator NUNN. What do you consider your main inadequacies now, in terms of staff funding authority and so forth?

Dr. DUNLOP. Well, I think our principal problem has been, Mr. Chairman, an uncertainty as to our existence. I indicated to you that I became Chairman in April 1973. If I am not mistaken, from that very moment until June 8, 1974, I did not really know whether I was going to have a Commission authorized by the Congress or not. And it was not until August that we had any kind of appropriations—August 1974.

I also would point out that the only reason there was any continuity at all in that interim period was that, in my capacity as director of the Cost of Living Council, I used funds of the Cost of Living Council to maintain a nucleus of the staff in the hope that the Congress would in due course—as I am happy to say was the leadership of Senator Percy and others—the Congress provided the additional extension of the authorization. So the real problem, up to now, has been this question of on again, off again—the question of a clear declaration of public policy. There should be a Commission, and it should be doing its work.

Now, I put that first because, in a sense, it is hard to answer the others, because we do not have the experience to deal with it. So I think myself, in the future, the main thing is to get, as has been my advice to the administration, to get a request from the Congress, an authorization which goes beyond 1 year, and to ask for an authorization of 3—some period such that we do not have to review that question of existence each year, with all the consequent problems of holding and keeping staff, and planning that fundamental question.

Senator NUNN. I notice in your statement that you say a program that is devoted to productivity improvement must choose a few strategic areas in which to work, and I certainly agree that you cannot cover the whole waterfront, and productivity is affected by everything. Assuming the proper funding and the proper authority on a continuing basis, what are these areas that you would like to become involved in?

Dr. DUNLOP. Well, Mr. Chairman, that is, I think, a very central and critical question; and thus far, our view about the matter has been this; that first of all, we would not ourselves be involved in industries or sectors where it was clear that the private party had significant resources, and were devoting their energies to that end, such as internal productivity of the steel industry or the oil industry or the chemical industry, or something of that sort; but that rather, our function could produce big results if we would concentrate on two kinds of situations. One, where a government itself was involved, either at the State, local, or Federal level; and so a significant part of our activity in an industry or sector that has grown a great deal—and I am speaking of State and local primarily—we think there are enormous opportunities for productivity improvement. Second, there are a number of sectors which interface each other, or interface often with the government; and we think that those sectors are peculiarly ones in which a contribution can be made. By that I mean, such factors as transportation, construction, health, and food distribution particularly, that

kind of area. Those are the areas which I have felt, with a limited fund, would yield the largest dividends.

Senator NUNN. Suppose you had restructuring, and you were provided with longer range authority, a much broader mandate from Congress, and you were given a much larger staff in terms of authorization. How would you expand that kind of jurisdiction? In other words, are there some essential priorities that, given the kinds of resources you need, that come to mind, that you would get into?

Dr. DUNLOP. Well, of course, I think some of those same areas could be given more intensive work, it is clear. I have very much the feeling, Mr. Chairman, that this is a field in which the development of techniques to attract the attention and loyalty, and to stimulate parties, takes a little while to develop. And I am, so to speak, of the view that the appropriate public policy at this time in the United States, in this field, is to develop this area with modest increases in appropriation and staff over a period of years, rather than to seek to provide a very large infusion of moneys and staff; because I think there is a lot to be learned here. We do not really know all about that. Maybe I am a little bit modest about that, and somebody else may have a somewhat different view. But my experience teaches me that we need to proceed with all deliberate speed.

I suppose that the kind of gradual process—now let me take, for example, an area, Mr. Chairman, which interests me a great deal, and that is the labor-management committees. I mean, in the sense as mechanisms, in part, to improve productivity in these areas. I think at this time one might be cautious about where you go. In a world which has a great deal of unemployment, Mr. Chairman, to go to a group of workers on a broad-brush basis, and say you ought to increase your productivity and work yourself out of a job is not apt to be very appealing; and indeed, it may very well be highly counterproductive in those circumstances.

So, one must explore the targets of opportunity with great care. Where some places you can work on quality of output, you can work on a whole host of questions of that sort. One may, in some circumstances, get around this question of employment guarantees. So one may do the ground work, which can take place when output has increased, and has turned around and is increasing more. We need very much, and it is our intention, to work—particularly, to work with our various chairmen; one who comes from labor and one who comes from management, to explore carefully the various sectors and industries and situations where one can make a fruitful process.

Now, I think we ought to work hardest at, and those numbers will grow, and we can spend more money and have larger staffs in those areas. But that cannot be done quickly on a mass production basis, in my view.

Senator NUNN. Well, the thing I am particularly concerned with, and which I think you share, is that we may try to cure the problem by throwing money at it at the Federal level, and create another huge bureaucracy. That is something I do not think will work.

Dr. DUNLOP. Yes. I saw your statement.

Senator NUNN. I do believe that there is a tremendous reservoir of talent that we have utilized very successfully in the space age and in the military, for that matter, through our universities, technical

schools, and business schools, throughout our country that have never been married to doing anything about industrial production. The thing that always happens here in Washington is you end up with big business represented on any commission very heavily, and big labor represented very heavily, which is fine. But the people that are left out are the small businessmen that really cannot come to grips with productivity, because they do not have the technology. Many times, particularly in tight money markets, they do not have the capital, and then we talk about, where is the competition? Every governmental commission ever created is well represented by labor and business, big business and big labor. That is great. But the people who really need the most help are the ones that are never represented.

Now, in restructuring this Commission, I would like very much your views about, number one, bringing into it the kind of diverse grant program authority that would, instead of creating more people here in Washington—and that was the reason I asked you where these people were located; the help is needed out there in Dalton, Ga. and Gainesville, Ga. and Alberton, Ga. But where are the people? They are right here in Washington, D.C.; where we need help in productivity is in small businesses.

Now, I am not saying everybody in the Commission, the 19 or the few staff people we have, ought to be all over the country. You could not do it. So I am not in any way critiquing what you are doing now, except sort of to say it is inadequate, and I think you would agree with that. What I am suggesting, and would like your reaction to, is a program that—an unusual program, from Washington's point of view—that kept lean, the bureaucracy lean, here in Washington; that works through a grant program, certainly with criteria from here, certainly trying to establish guidelines on a Federal basis that would produce the results desired, but that would utilize the considerable talent at the State and the university levels. I would just like your reaction to that.

Dr. DUNLOP. Well, if I understand you, Mr. Chairman, you are talking about a program that is akin to that which began being developed in the country in the 1860's, of an agriculture extension service as applied to small industries, if I have correctly perceived your suggestion.

Senator NUNN. In a general sense, that is correct.

Dr. DUNLOP. Well, I think that is a good idea. I do think that somebody, for a while, has got to try that idea out on size; I mean, to begin to experiment with it, to begin to experiment with it, to begin to develop some pilot arrangements to see how that goes, either in some localities or in some smaller sectors of industry, before it can be mass-produced, I think. And within those limitations, I have no hesitation of saying I agree with you.

Senator NUNN. Well, what would it take, in terms of authority, for the Commission that we now have, which if it was called a Commission, or if it was revamped and revitalized and called a productivity center, what kind of staff would it take there?

I would ask you to furnish that for the record, because I know that it would take some time to think about.

Dr. DUNLOP. Well, I will submit to you, Mr. Chairman, a statement in that regard. My own view is that what we ought to do—somebody

ought to do; I would be willing, if you wish to see our present group undertake it, to put some people to work, or let a contract to somebody under our normal procedure to experiment with that. Take either a sector of small business or a sector of some localities in the United States, and try a couple of those things, and see how it goes, because it seems to me only in the process of real doing of that kind of activity can one get a good feel for it.

Senator NUNN. They have already started this program, to some extent, in Georgia through the Georgia Institute of Technology, and there are some representatives here today. I know both of you have a busy schedule, but if somebody from your staff could stay around and listen to that testimony, I certainly would appreciate it.

Mr. KUPER. Mr. Chairman, if you have a moment, we have already met with representatives of Georgia Tech, as well as with representatives of similar organizations in two other States. It would be our desire, as a first step, to see that these people get together and share their experience, and discuss what the common problems and obstacles they face in rendering this specific service that they are talking about producing.

Senator NUNN. OK.

One other point. When my legislation was drafted several weeks ago, the President had not indicated any revitalization: or redirection of this Commission. Frankly, I strongly considered putting this overall function in this Commission, but at that time it had no real teeth, and since that time, it looks like it is moving in a different direction. I just wanted to let you know, as I believe I told you on the phone the other day, Mr. Dunlop, that the question of where this should go is an open question in my mind. I am not locked in concrete, I want to get the job done. I do hesitate to create a new, large bureaucracy, and I know that you share that from your earlier statement. As we developed this legislation, Senator Percy introduced other legislation which is pointed in the same general direction that I am—he puts the main function in a new productivity center, which I am sure he wants to talk about. I think that has considerable merit.

But I just wanted to let you know that all of these ideas, as far as I am personally concerned, are flexible. We would like your input as we go along in developing what we all hope would be a major new thrust in the right direction.

At this time, I am sure Senator Percy has a statement and has some questions he would like to ask. I would personally appreciate very much your attendance.

Dr. DUNLOP. Thank you.

Senator PERCY. Thank you, Mr. Chairman.

I am sorry that my duties as a delegate to the United Nations kept me up in New York this morning. I am glad to join these hearings which I consider extraordinarily important. I requested the hearings because I am alarmed at the fact that this nation has now sunk to the lowest level of productivity increase of any industrialized, modern industrialized nation. We have faced slumps in the past of many kinds. We have a twin problem economically right now which we have never before faced simultaneously.

I think probably you might recall, Dr. Dunlop, in the late 1950's when we had a recession. I then talked to President Eisenhower and

told him we needed a major economic mobilization and we called an economic mobilization conference which the American Bank Association sponsored. We got 3,000 business executives there in a period of 2 weeks notice. The President came up and participated personally in that conference, and I think it was Secretary of Commerce Sinclair Weeks who said we were either perfect in our timing or that was the day the recession bottomed out, but we got this country mobilized, and I feel the same sense of urgency is needed right now. I know of no better answer to combat inflationary forces than to pick up and increase and put back to our historical levels the productivity increases that this country is capable of achieving if we have the right kind of cooperation.

I think Senator Nunn and I are convinced that we are not going to get there with the Commission. First of all, there is a deep antagonism in the Congress to commissions today. We just struggled through whether or not another Commission would be created for another purpose, and it was turned down by the Congress. They just would not let it get out of committee. Commissions have a bad name. The regulatory agencies have. The President has called for an overhaul of them, and a commission is—really the implication is it is sort of a regulatory agency. How hard we struggled to get the pitiful small funding that we did, and I think we are just both saying, on both sides of the aisle now, we have got to put a whole new look on this.

I call it a synod. It does not matter what you call it, but I think it has to be something other than a commission. It has to be looked upon as something other than just a government operation. It has to be a service oriented center that can provide a stimulus and an impact, can provide the kind of guidance and help that I think industry and labor are looking for, and they have to have a very, very strong input into it.

I would ask unanimous consent, Mr. Chairman, that my opening statement be incorporated in the record immediately following your own statement, and that if I have time sometime during the course of the hearings, I would like to read the statement. But I will furnish a copy to both Dr. Dunlop and Mr. Kuper because I very much appreciate their reactions to it, and I have tried to, as briefly as I could, put in the case for taking a whole new look at this thing, not only to get the funding and support we need, but also to recharter the effort and breathe the kind of life into it that I think we desperately need right now.

Senator NUNN. Without objection, it will be admitted to the record.

Senator PERCY. Dr. Dunlop, I know we have talked a great deal about having labor-management cooperation in the creation of committees and councils within industry and between labor and management to get them on the same side of the table with the same common objective.

I understand it was not until about a week ago that the National Commission made a concerted effort to construct a policy of labor-management collaboration with regard to improved productivity. The mandate in S. 1752, I thought, was quite strong in this regard, which reauthorized the Commission and which was enacted into law last spring.

What were the factors that caused us to not really get this effort underway until last week?

Dr. DUNLOP. Well, the problem of getting a commission appointed takes a great deal of time, and ever since the appropriation bills were passed, we, Mr. Kuper and I have been seeking to persuade people to serve and seeking to get approvals through the normal clearance processes that are required in government.

Actually I am very pleased with the fact, as my statement indicated, that that mandate which I take and took very seriously has resulted in a commission which has as one vice chairman Mr. Abel, who is a leading figure in the labor movement today, and who is strongly interested in this range of problems, as I am sure Mr. Thrasher will describe tomorrow, and on the other hand, Burnham, who is the chairman of the board of Westinghouse, one of the large corporations in the United States, and that the two of them together should be the vice chairmen of this commission carrying out, as I see it, the mandate to which you refer, and when we seek to go into situations I trust through my discussions with the two of them, that they will be able to act cooperatively and together, to be in touch with the management and labor fellows in every particular sector, or plant, or company, or industry, and urge the kind of cooperation that the statute envisages.

Now, actually, although the meeting was not until last week, we have been discussing with them many of our plans in the last several months. It was the only meeting that did not take place until last week.

Senator PERCY. Mr. Kuper, do you want to add anything as to why it was so—and when we talk about Mr. Abel, he is certainly on his own without any need to be stimulated by anyone else—he created management councils in the steel industry several years ago, and they stand out as almost the sole industry that has had this kind of assistance and help, but I would have expected long since that with the mandate in this legislation, that the commission could have started councils in other industries.

Dr. DUNLOP. Well, let me comment further on that.

I think that in one sense would be appropriate, but I would like to just take one other illustration.

Last spring I initiated the arrangements under which in the retail food industry we now have a national committee representing the three or four general presidents in that industry, namely, Mr. Fitzsimmons, Mr. Garment and Mr. Hausler, respectively the teamsters, the butchers and the clerks, and the chief executive officers of six or eight of the major chain stores in the country who are working together with Mr. Wayne Horovitz, as the chairman of that group and the principal executive officer.

The two sides put up a substantial amount of their own money to begin working on the very difficult problems of the computerization of the checkouts, the range of problems related to automated warehouses, and the cutting of meat. Now, I can tell you that it took 8 months to persuade those people to do that.

I think you must recognize that there is great hostility to the idea in the country among many labor situations, and I think one must be very careful as to how one goes into these situations, or you may very well get very negative responses; at least that is my experience as a fellow who worked in the vineyard a long time.

Senator PERCY. Dr. Dunlop, where does the negative reaction come from? Is it mainly on the side of labor, or management?

Dr. DUNLOP. Sometimes one and sometimes the other. One of the great problems on the labor side is the view of many people which reflects the rank and file view that what you mean, in these times, as I said a little moment ago, that you can go out to push committees. All you are doing, it is analogous to speedup. The term has a recognition which goes back for 80 years in the history of labor in this country, the original introduction of F. W. Taylor's approach and all that kind of thing, still carries over in the threat of the loss of jobs growing out of that is a present current impediment in many situations.

On the management side much of the problem relates to the notions of prerogatives, to the notion of interfering with management decisions of various kinds. I think myself there are only a limited number of places in the country at any one time where one can successfully introduce this.

Now, the more you get a habit, the more you get things going and show results, why, the more it is easier to do it. That is my sense of it, and therefore, one must approach these cases with great care in my opinion.

Senator PERCY. Well, I have not found this negative attitude.

Dr. DUNLOP. You have not?

Senator PERCY. I had lunch with George Meany, and I just raised the subject and he spoke eloquently, went back into history about how well councils had worked during World War II. He had been intimately involved in them. There were millions of workers involved in them. He could document with specificity and a great recall that he had as to exactly what had been done to improve output, reduced costs, improve quality, and so forth and get really a sense of participation by workers in the process.

I have talked to management and they had the same reaction we had. Obviously Mr. Abell is very much for it. But Leonard Woodcock, when I talked with him at great length, he had a very positive response to it.

Management, when you talk to them about getting workers to work with you to find ways to eliminate unnecessary scrap and rework, unnecessary absenteeism, to find a way to get away from Monday and Fridays being added weekend holidays during hunting season, and pointing out the need for people to keep going, I have found management positive in their response, but cynical that labor will cooperate with them.

So both sides are sitting there and it takes someone to put them together, and who better than the catalyst the government can provide in pointing out the national need for doing this.

So I would really urge that we staff ourselves in such a way and establish our organization and structure in such a way that we move ahead. I find the ground fertile now. People are demanding, you know, what can they do. Just as I think the administration is way behind the people in demanding and asking of people to sacrifice in the way of taxes and everything else, to meet some of our crises, we are lagging behind now in not recognizing that they want to be a part of something to pull us out of this very sad economic situation that we are in.

Senator NUNN. One thing I might want to add on that point, Senator Percy, and I agree with what you said completely, there may not have been as much of a realization about the importance of productivity when our domestic products were only facing competition from abroad. There might have been a thought that we could solve that by restricting imports on the part of a lot of people, but at this point in time it is not competition from abroad that is preventing the American products from being sold. It is the fact that they are so high priced they have met consumer resistance, and we are not going to solve that consumer resistance problem no matter what we do up here on Capitol Hill by passing legislation. We can ease some of the pain that it has brought about, and I hope we do through unemployment programs and other ways, but consumer resistance is a matter that has got to be dealt with, at least over the long haul, by increasing our productivity.

I agree with what Senator Percy said. If there is resistance, I am sure some of it is very positive resistance, we had better start getting on with the job of explaining this situation. I do not think we can say because there is resistance we should wait and go very slow over the next 10 or 15 years. I do not think our economy has got that long, and I also agree, though, that it cannot be done overnight. We had better start a massive educational program if there is that much misunderstanding about what we mean by productivity, because we do not mean workers working harder. I think the American worker already works hard. We mean working smarter. We mean using new technology. We mean matching technology with the small business desire. We need to have capital infusion into small business, and other businesses for that matter.

In fact, the head of U.S. Steel told me in Pittsburgh, if he had enough capital, he could increase productivity 35 percent with what they already know. They just do not have the capital. So we have to get this message across. We are not talking about putting another broom in somebody's hand to sweep while they are doing something else. That concept is perhaps still prevalent, but it is certainly far from what we intend with this legislation.

Senator PERCY. Well, I thank you, Mr. Chairman, and I would like to concede the point that there is a stigma attached to speed-up programs. I have had them in my industrial life. You have just got to find a semantic way to get around that, and identify the people that you are working with with how you are going about it.

One way is to try to convince them that you are trying to treat them as human beings, you are trying to capitalize on all of the experience and knowhow that you have got and make that job more interesting to them to use their brains and not just their muscles, and that gets into quality of work. We felt that emphasizing work quality would be an important ingredient in increasing output and productivity in a very basic and fundamental way, and yet there is a strong mandate in S. 1752, and I wondered if you could tell us, tell the committee what has been done by the Commission to implement that mandate.

From what we could find out in the inquiries we have made, not very much, or not enough.

Dr. DUNLOP. Well, George, why do you not mention, we have five sessions set up in the next 3 months for the various localities.

Let Mr. Kuper run through that.

Mr. KUPER. As Dr. Dunlop and Senator Nunn described, there is a certain lead time, Senator Percy, as I am sure you are well aware.

Some of the things we have done which have not surfaced as yet include a publication now at press which we hope will be out before the end of the month on the history of labor-management committees in the American economy since World War II. We are also looking into eight or ten examples of labor-management committees that are now existing in State and local and Federal Government settings with the idea that the description of their existence will stimulate others to examine the feasibility of their applying the idea.

We have also been working with schools, institutes of industrial labor relations in Illinois and New York, and put together five meetings in Decatur, Buffalo, Madison, Wis., Danville, Ill., and Appleton, Wis., with approximately 100 top company and union officials from those locales to expose them to some of the successes that other industries have experienced with the formation of labor-management committes, and to have them discuss what some of the obstacles are that they perceive, and to try and deal with those obstacles in the subsequent work of the Commission.

Senator PERCY. Well, I do hope that that area also can get the attention that I think it does require.

I would like to ask further about the new so-called reinvigorated national commission.

What is your feeling as to what actually can be accomplished by the new commission where the old commision seemingly failed in those areas?

What new ingredients have been added? Do you think it is going to attract the necessary funding and staff operating with 27 commissioners, which seems a little topheavy?

Are you able, to under the new, reinvigorated commission, to accomplish what we would hope to be a much broader mandate?

Dr. DUNLOP. Well, my comments on that are these, that if I am not mistaken, the new commission had something like 24 members, and about 8 or 10 are Government officials. The rest are outsiders. They are picked to be from these half a dozen sectors, mainly in which we are interested in working that I referred to earlier in my testimony of State and local governments, food distribution, transportation, construction, medical care, and the like. We have sought to try to provide a more vigorous program by arranging for an executive committee of the group which would include Mr. Abel and Mr. Burnham to meet monthly and thereby supervise the work of the Commission staff, and in that way get a good deal more Commission input in it; and second, to arrange for meetings of these, you might say, sectoral subcommittees of the Commission to work on a continuing basis in those separate areas. Those two changes in structure I hope would make the Commission a little more active than it has been.

We hope to get our staffing back up to 20. Frankly, I did not wish to use all of the slots in the Commission staff until the Commission had been appointed because I thought it only in fairness to the Commission who want to get their ideas of what they specifically wanted to do before one filled all the slots. It did not seem right to call the Commission together and then say we are interested in your ideas, but we have al-

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ready decided on our program and we have already decided on what kind of people we are going to hire. That does not seem to be right.

And I think now that the Commission is reformulated, that we can pursue a more vigorous policy in these areas that I have specified.

On the labor-management committee idea, as I indicated, it is my thought that particularly with a person who we will employ who has had great experience in this area, we can ask him to work with Mr. Abel and Mr. Burnham, to go around and to explore areas where new committees or revised committees can operate in a way they have not, in the future. They will provide us the entrees.

We have a man in mind who would work at this subject with the entree provided by a pair of top labor and management leaders in the United States. It seems to me that is the way in my experience to get into this thing.

Senator PERCY. Dr. Dunlop, we have now five back to back votes. It is going to take 50 minutes, but the chairman has very wisely worked out a shuttle system of having rotating shuttle chairmen coming back and forth, and I think we will be able to keep going. But I would like to say this first.

You know how important I think the function is you are performing. I think it is one of the most vital things government can do today for this whole economy.

Second, I am glad to see on page 5 that you hope that the result of these hearings will bring forth legislation that will provide greater acceptance for this effort. The very fact that the minute the concept of a center was put in we attracted powerful bipartisan support for it in the Congress is an indication, a signal. It is this idea of a commission, if we get away from that idea and create something new, I think you are just going to take our advice in this. The funding is going to be easier. It is going to be a better operation. And you will be able to get the tools that you need to work with.

So I think here it is a cooperative effort. We do not worry about pride of authorship. We can call it anything. But we just feel that we have got to somehow make it a little different to get over this resistance point we have had to date. It has been like pushing spaghetti, and we now have to have something that will go through and have some real sex appeal to it, and that will have the substance behind it, and we think it can be, and I appreciate very much your testimony, and thank you, Mr. Chairman, very much indeed.

Dr. DUNLOP. I bow to your wisdom in that area. I am sure right.

Senator NUNN. Thank you very much, Mr. Dunlop, Mr. Kuper.

Our next witnesses are from the State of Georgia, and I am particularly proud to have them here. I have been working with them for some time. They have done an excellent job, I think, of getting out front in this crucial area, and I think they have demonstrated to us here in Washington what can be done with some leadership and with some proper funding if we employ that principle at the Federal level.

I would like Mr. Rudy Yobs, who is the assistant director of the Engineering Experiment Station, Georgia Institute of Technology, and Mr. J. L. Birchfield, director of productivity program, to take a seat, and if you do not mind, I will have you joined by Mr. Barry Torrence who is with the Carpet and Rug Institute and is based here

in Washington, D.C., Mr. Alex Sessoms, Jr., Union Timber Co. in Georgia, Mr. H. E. Ruark who is Georgia Forest Research Council, Macon, Ga.

If you gentlemen would let us vote, Senator Chiles is here now and he is going to be relieving me and we are going to shuffle back and forth in an effort to increase Senatorial productivity here.

We will be back in just a moment.

Senator Chiles [presiding]. You may proceed.

TESTIMONY OF RUDY L. YOBS, ASSISTANT DIRECTOR, ENGINEERING EXPERIMENT STATION, GEORGIA INSTITUTE OF TECHNOLOGY, ACCOMPANIED BY J. L. BIRCHFIELD, DIRECTOR, PRODUCTIVITY PROGRAM, ENGINEERING EXPERIMENT STATION, GEORGIA INSTITUTE OF TECHNOLOGY; ALEX SESSOMS, JR., UNION TIMBER CO.; H. E. RUARK, GEORGIA FOREST RESEARCH COUNCIL; AND BARRY TORRENCE, CARPET AND RUG INSTITUTE

Mr. Yobs. Thank you, Mr. Chairman. We are glad to have this opportunity to present to this committee some of the experience we have gained through the productivity program of the engineering experiment station at Georgia Tech. This is in fact a program for small and medium sized businesses, and it could be described as a grassroots, nuts and bolts type program.

Mr. Birchfield and I will briefly describe our program and the other members of the panel will comment on it from their perspectives as users or potential users of our services.

The engineering experiment station is an applied research institute which has been involved for many years in industrial research and particularly in the industrial development of Georgia. Recently, we have elected to refocus some of our extension and research activities to concentrate on the problems of productivity. We have done this because we see the character and problems of economic growth changing significantly. Georgia, like many Southern States, has achieved the creation of an appreciable industrial base, yet it sees this industry confronted with serious and continuing problems such as the increasing costs of labor, energy and materials and new environmental and safety controls which have imposed additional demands on capital. If we want to continue to provide stable and growing sources of employment for our people and to carry the increased social overhead which public policy now dictates, then we believe the institutions of government in this country, as they already are in most other industrialized nations, must be more supportive of industry. Furthermore, since government itself is now such a large portion of our economic activity, then we must also look for ways to increase efficiency and reduce waste there.

Productivity is a complex subject which does not lend itself to simple treatment by any one organization. Nevertheless, we believe that an organization such as ours, although relatively small, can make a contribution. We can do this by the use of our technical competence and statewide perspective to analyze and characterize prob-

lems, formulate approaches, conduct exploratory research, and in general to stimulate action by industry and governmental organizations themselves to overcome some of the obstacles to increased productivity.

Our experience in program operations on a statewide basis has convinced us that the combination of an industrial extension service, coupled with a responsive applied research and development center is an effective mechanism for working with industry on specific inplant technical problems. University faculty members can provide valuable inputs on specific technical matters but their regular instructional responsibilities do not permit them the time required to conduct the day-to-day operations of this type of program. Experience has also shown us that there is a clear need for regional and national mechanisms to coordinate the solving of problems common to large industry groups and to facilitate exchange of technical information among research institutes, universities and exetnsion personnel. We would not want to find ourselves in the unproductive situation of reinventing the wheel in each of the 50 States. Therefore we see logic in the placement of any national program in an organization, such as the National Commission on Productivity and Work Quality, which has a primary mission for productivity and could provide the cutting edge of a national thrust. Of course, there are a number of other agencies, e.g., the Economic Development Administration and the National Science Foundation which have programs which would be supportive of a primary effort.

Our program at Georgia Tech addresses itself primarily to the technology-related aspects of productivity—it is not a panacea for all of the multifaceted economic issues of this subject. But it is a "here and now" effort capable of achieving realistic cost savings in the short run and it establishes a base for substantive work in the more complex aspects of productivity. We believe a state program of this, or similar type should be a basic component of any national productivity effort.

And now Mr. Birchfield is going to describe some of the details of our operation in our program.

Mr. BIRCHFIELD. Thank you, Rudy.

TESTIMONY OF J. L. BIRCHFIELD, DIRECTOR, PRODUCTIVITY PROGRAM, ENGINEERING EXPERIMENT STATION, GEORGIA INSTITUTE OF TECHNOLOGY

Mr. BIRCHFIELD. Mr. Chairman, the productivity program at the Engineering Experiment Station is designed to address problems affecting the productivity of Georgia's small and medium sized manufacturing industry. Within our program we are addressing three major problem areas: energy utilization and conservation; materials utilization, including uses for materials presently considered as waste; and capital diversion caused by regulation.

Our activities are directed to reducing the costs of production and thereby increasing industrial productivity. We want our program to act as a catalyst to stimulate activity by industry to take steps to improve its own productivity. We are developing a companion program to address productivity problems faced by elements of State and local government in this period of inflation and economic slowdown.

In the station program we are using the classical definition of productivity where materials, labor, and capital represent cost parameters. In our program we have broadened the definition of cost to include costs associated with shortages of energy and materials to industry, the costs associated with utilization and disposal of waste, and the costs of capital diversion caused by regulatory requirements as are encountered in the environmental and occupational health and safety areas.

This broader view of costs was taken since these factors do represent real costs to all sectors of the industrial community.

From experience with our program at the station we feel that there are at least three steps needed in any efforts to improve productivity in the industrial sector. First, there is a need to characterize production problems to define problem areas affecting productivity. In these efforts economic and technical factors must be considered very carefully.

Second, there is a need to develop solutions by utilizing existing technology where possible.

Third, there is a need to transfer the results obtained to individual companies within industry. In these efforts industry input should be solicited at each step in order to guide the program activity and to assist in transferring results to the user.

I would like to direct your attention to the first chart. Now, this chart shows how we are using inputs from several groups to accomplish our goals. We utilize the engineering experiment station's technical and field staff along with inputs from trade associations and an industrial advisory committee in our efforts to define the economic and technical factors contributing to productivity problems.

After the technical and economic constraints are defined, these problems are solved by conducting development projects with inputs from our technical and field staff. As results are obtained, the technical solutions and economic incentives involved are transferred to industrial users by our field staff and through the already existing communications channels of trade associations. Direct contact with individual companies is encouraged wherever possible.

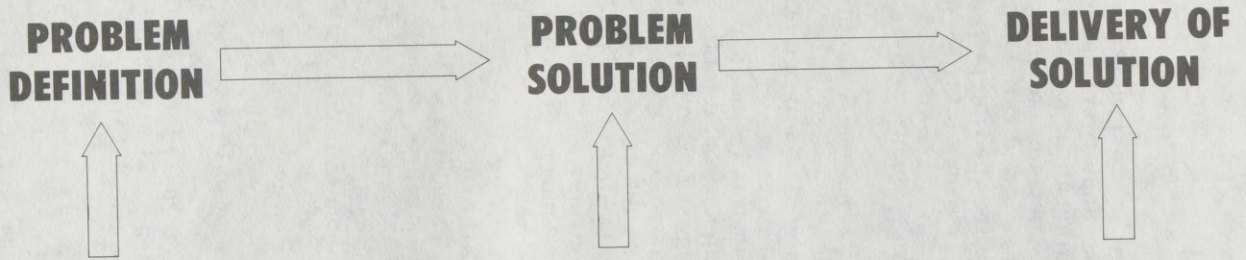
To show how this process works, I would like to describe a typical project that we are presently working on.

This chart illustrates the technique employed within our program of a typical project. A very important sector of Georgia's industry is the tufted carpet and rug industry. 57 percent of the Nation's production comes from Georgia. The industry employees in excess of 30,000 people within the State, and the value of the product produced within Georgia exceeds $1.5 billion annually.

We initiated an effort to characterize the problems affecting the productivity of the industry and found that two factors, a shortage of water and a shortage of fuel existed and that both were presently limiting production.

The national emphasis on the energy problem along with the economic factors involved influenced us to first address the energy problem. With inputs from our technical staff and industry personnel, we determined that the industry uses about 7 percent of the industrial energy in Georgia and that two processes used by the industry require about 75 percent of that energy.

PROGRAM METHODOLOGY



- INDUSTRY ADVISORS
- EES PROJECT STAFF
- EES FIELD STAFF
- TRADE ASSOCIATIONS

- EES PROJECT STAFF
- EES FIELD STAFF

- TRADE ASSOCIATIONS
- EES FIELD STAFF

EXAMPLE PROJECT

ENERGY REDUCTION IN CARPET INDUSTRY

MAJOR PROBLEM AFFECTING PRODUCTIVITY AND GROWTH OF THE INDUSTRY

- SHORTAGE OF ENERGY FOR CARPET FINISHING

PROJECTIONS

- FUEL COST WILL INCREASE FASTER THAN THE INFLATION RATE
- GROWTH OF ENERGY SUPPLY WILL BE INSUFFICIENT TO SUPPORT CONTINUED EXPANSION OF THE INDUSTRY

TECHNICAL AND ECONOMIC ANALYSIS RESULTS

- 20% REDUCTION IN PROCESS ENERGY REQUIREMENTS IS TECHNICALLY FEASIBLE WITH CURRENTLY AVAILABLE TECHNOLOGY

- MODIFICATIONS CAN BE MADE TO EXISTING PROCESS EQUIPMENT TO ACHIEVE THE 20% REDUCTION

- COST OF DEVELOPMENT AND MODIFICATION EFFORTS WILL BE REPAID IN 19 MONTHS THROUGH ENERGY COST REDUCTIONS

IMPACT OF SOLUTION

- 20% OF ENERGY CONSUMED BY CARPET INDUSTRY (1.4% OF ENERGY USED BY INDUSTRY IN GEORGIA) WILL BE AVAILABLE FOR OTHER UTILIZATION

- $7.5 MILLION REDUCTION IN OPERATING COST TO THE INDUSTRY

Studies showed that existing technology is available to save at least 20 percent of this energy, and perhaps as much as 40 percent. Economic studies showed that the modifications needed would pay for themselves within about 20 months. The savings to the industry would exceed $7½ million annually through a direct reduction in operating costs to the industry.

We are now conducting a demonstration project in which the proposed modifications are being implemented and data are being collected to support the cost-savings projected. In this project existing technology is being utilized to accomplish these energy savings. We are delivering our results to the industry by direct contact by our field personnel and through the industry trade association, the Carpet and Rug Institute.

We have presented a review of our project activities at a recent CRI sponsored technical conference. Through activities on this project we are helping the industry recognize the economic benefits of energy use reduction and are demonstrating methods whereby these savings can be accomplished.

Mr. Chairman, at this time I would like to speak a little more broadly and review the impact we feel that a program such as we have described may have.

First, we feel that there is a need at the Federal level for coordination of activities under programs such as ours with other State programs and with similar private sector programs. This coordinating role could be handled very well by the National Productivity Center proposed within both S. 4130 and S. 4212. We feel that the thrust of the Center should follow the direction that has already been established by the National Commission on Productivity and Work Quality. Since the National Commission has the ability to function in both the private and public sectors, we would suggest that this unit be given the responsibility for carrying out the requirements of the Center and that this group be given the necessary resources to accomplish the goals of the proposed National Productivity Center.

Mr. Chairman, we feel that there are several demand factors at work in our economy which dictate the need for a coordinated government program to increase productivity in both the public and private sectors. There is a continual need to main the standard of living at the highest possible level. Demands on the economy to continue to support expanding social security and minimum wage requirements exist, and there is a need to continue improvements in environmental and occupational health and safety areas. The current high inflation rate requires that we find ways to reduce costs whenever possible. Also, national objectives for maintaining our competitive posture in the world marketplace and for minimizing the impact of external decisions concerning availability of energy and materials are present.

These demand factors can best be met by making a concerted effort to improve the productivity of the industry, labor, and government of the United States. Productivity improvement programs should involve all three in order to achieve maximum benefit, but attention should be focused on finding ways to make small and medium sized fragmented industries more productive in terms of its use of resources: energy, materials and capital. The thrust of these programs should in our view be directed toward putting existing technology to work to

solve industrial productivity problems. Programs, such as ours, should be used as catalysts to focus attention on the most immediate problems and to assist industry in solving its own problems. Such programs should help to stimulate industry to define and solve——

Senator CHILES. I am going to have to interrupt you just a minute and ask for a recess. Senator Nunn should be here just momentarily, but I am going to have to leave.

Senator NUNN [presiding]. This is going to be this way for another 30 minutes, I am afraid. You all go ahead wherever you were.

Mr. BIRCHFIELD. Programs such as ours should be used as catalysts to focus attention on the most immediate problems and to assist industry in solving its own problems. Such programs should help to stimulate industry to define and solve the productivity problems facing the Nation. By proper attention and use of such programs, impact at several levels will be achieved.

Development of a successful program would impact industry at the company level to stimulate individual companies to improve their own productivity. This impact should be especially strong in small companies making up fragmented industries. Generally, these firms cannot afford extensive technical staffs to maintain current knowledge of improved techniques. Through such programs these firms will have access to information and existing technology that can be profitably employed.

A consequence of such action will be more efficient utilization of resources which in aggregate will combat inflationary pressures. By reducing the costs of manufacturing, product costs should be reduced, demand should be stimulated, and industry should continue to expand. Such a program would allow industry to respond positively toward regulations such as those affecting the environment and the quality of the workplace by helping to find cost-economics ways to meet regulations without seriously degrading productivity.

A concerted program will have a positive impact at the industry sector level by providing a vehicle for more systematically identifying, solving and stimulating adoption of solutions to productivity problems facing the sector. It should act to encourage industry groups to work to solve common problems facing it.

By establishing programs specifically directed to increasing productivity——

Senator NUNN. Jerry, could you put that mike a little bit closer to you, please?

Mr. BIRCHFIELD. By establishing programs specifically directed to increasing productivity, economic expansion will be aided. Development of ways to extend available resources will allow more production from a limited amount of energy and materials. Finding ways to reduce production costs will stimulate reduced prices and increased demand, thereby creating a larger market that must be supplied.

By more clearly identifying the needs of industry and by reducing the risks involved in development of improved techniques, private research and development groups will be stimulated to work toward ways for improving industrial productivity.

Systematic programs to increase productivity will have a direct impact by stimulating greater interaction between the research and development activities of the higher education communities and industry.

Consequently, the resources represented within the academic community will be more fully utilized. A systematic program would work to enhance the U.S. position in the world marketplace by reducing the costs of production of American products. It would counter foreign programs that have recognized the need to systematically upgrade productivity.

By making industry more cost-effective such programs would act to support the requirements of programs such as social security and minimum wage rules that seek to improve the general standard of living. Programs of this type will stimulate more efficient use of available resources including energy and will make us less dependent on the external forces now affecting our economic health. In aggregate the impact of such programs would tend to meet the demand requirements being placed on the U.S. economy during the present economic dislocation.

There is a need within the coordinated program to perform research and development. We feel strongly however that emphasis should be placed on using existing technology wherever possible to solve the productivity problems facing industry and government. We feel that a program should use this existing technology along with demonstration projects as a method for reducing the risk involved when introducing new methods into practice.

We have found, Mr. Chairman, in our program that our extension or field personnel are very valuable in our efforts to communicate our results to industrial users. By keeping these individuals closely involved with the research and development projects that we conduct we have found that they are able to clearly communicate the technical findings to industry. We have found that these individuals can contribute effectively to our program through the information they collect during their work with industry. By reviewing these data on a systematic basis our more technical oriented staff members can develop clearer perceptions of practical problems facing industry. These extension personnel serve a very useful purpose as a bridge between the practical world of industry and the more technical world of the researcher.

Although our program activities represent only one element of what is needed in a coordinated program, we feel that we have achieved some of the goals that we have established. Within Georgia we have found that our program activities are consistent with the requirements for increasing productivity within industry and government. I would like to enter into the record comments by several prominent Georgians in the private and public sectors who concur that there is a need for a coordinated program within a National Productivity Center and who support the proposed legislation.

Senator NUNN. Is that attached to your testimony?

Mr. BIRCHFIELD. It is attached to the testimony.

Senator NUNN. Without objection, these will be added to the record along with your full statement.

[That part of the Engineering Experiment Station testimony summarized by Mr. Birchfield is herein printed in full, with attachments, as follows:]

DESCRIPTION OF THE ENGINEERING EXPERIMENT STATION PRODUCTIVITY PROGRAM

Purposes and Objectives of the Program

The Productivity Program at the Engineering Experiment Station is designed to address problems affecting the productivity of Georgia's small and medium-sized manufacturing industries. (A companion effort is directed to similar problems facing local and state government.) In this program, several key areas are receiving attention. These are all directed to reducing costs of production and thereby increasing industrial productivity. Major problems considered thus far include:

(1) Industrial energy conservation;
(2) Materials utilization—including uses for materials presently considered as waste; and
(3) Capital diversion caused by regulation.

A broad objective of the program is to determine the economic impact and degree of commonality of problems facing companies and industrial sectors and the abilities of various industries to adopt common solutions. A second, and complementary objective is to develop and demonstrate technical solutions and related economic data for application to productivity problems. The goal of the program is to stimulate activity in individual firms and in industrial sectors to cause industry to address and solve problems affecting its productivity and growth. The program is intended to function as a catalyst by which existing industry can remain competitive.

The Productivity Program is an organized, multi-disciplinary approach for (1) identifying and defining problems affecting the growth and productivity of industry and government, (2) developing economic solutions to these problems, and (3) translating these solutions into use. It differs from similar programs in that the three elements are linked together such that they reinforce each other. The program encourages participation by industry and government personnel to ensure open communication between the program personnel and users of the program's output.

The thrust of the EES program is directed to solving technical problems facing industry in the areas of resource utilization and technology utilization. The program's primary concern is with finding ways to apply already existing technology to solve problems rather than the development of new technology. We are not currently involved in finding ways to motivate individual workers to improve their own productivity, although this general subject area is clearly of importance. Instead the program is intended to foster development of techniques and methods that will allow industry to continue to expand in an era of resource shortages involving energy, materials, and capital.

Productivity Definitions

In the EES Program a very broad definition of productivity is used. The classical definition of productivity as the ratio of output or product value to the input or product costs has been retained. But in this program, the cost parameters of classical productivity measurement have been expanded to include emerging cost measures such as:

(1) Costs of resource shortages;
(2) Costs of material and waste utilization; and
(3) Costs of capital diversion caused by regulations.

Addition of these parameters into the productivity equation has been motivated by in depth studies of problems facing Georgia Industry. Extrapolation of the programmatic approach to regional and national industrial sectors will in all probability introduce additional cost parameters of equal importance.

Company and Sector Level Focus

The primary focus of the EES program is directed to company and industry sector level productivity problems. Activities under the program have been applied to establishing mechanisms for working with these in the most cost effective manner. Communications links have been established between the technical and field staff of the station and industry personnel. One goal of these activities is to establish rapport between the program staff and industry to ensure that

clear definitions of the economic and technical parameters of productivity problems can be developed. The rapport is essential, especially with regard to defining economic factors relating to production costs in individual plants since this information is usually guarded by industry and because access to economic data is central to the program for establishing magnitude and priority assessments of problems.

Attention has been directed to company level productivity problems since much of Georgia industry is made up of small independent firms not having close trade associational ties. The program functions as a catalyst by reviewing the common needs of these fragmented industries, by focusing attention and effort toward solving problems shared by the majority of these, and by developing and demonstrating methods and improvements that can be implemented by individual companies. At this level of operation the program is intended to stimulate activities by individual companies to implement, in a coordinated manner and with technical guidance, solutions developed under the program.

Where stronger trade associational ties exist within industry the program is directed to involving associations in the identification and definition of problems, development projects, and delivery of results to individual companies. Association personnel have a unique ability to work in each of these three areas since they have ready access to personnel in industry and mechanisms for communicating developments to their members. Activities by associations are especially advantageous for delivering program results through written communications, seminars, briefings, and other already established information channels.

Program Organization and Methodology

The program is organized to accomplish its goals by combining the technical and management skills of the EES field and technical staff with inputs from members of the industrial and trade associational community. In the program, industrial practices in a particular sector are systematically reviewed by EES staff and industry personnel to define technical problems of common impact. During these activities inputs from trade association representatives are solicited to ensure that all views on a subject problem are available for review. An industrial advisory committee has been formed to help us obtain the inputs from industry on a systematic basis. During these activities the economic impacts of problems are ascertained by working closely with manufacturers in the industrial sector. The result of these efforts is a clear definition of the technical parameters relating to a problem along with a clear understanding of the economic constraints involved.

After reviewing and characterizing industry and defining problems affecting its growth and productivity, specific technical problems are selected for solution. These are selected on the basis of economic impact on the industry and cost of solution to the industry. Even though a problem may be having the strongest economic impact on an industry it may not be selected for attention. Instead two factors generally should be operative: (1) a problem must be having a negative impact on industry and (2) cost-economic solutions to the problem should be available. The second factor is especially important. Unless there is an economic benefit to be gained by solving a problem, industry is not going to be strongly motivated to act to implement solutions.

Upon selection of specific problems, a set of possible solutions is developed. Generally, it is necessary to prove the technical and economic feasibility of these solutions by conducting demonstration projects using equipment and procedures as similar as possible to those employed in industry. These activities are conducted by the EES technical and field staff with close coordination with industry. If possible, use of industry facilities in these projects is encouraged. Primary responsibility for conduction of feasibility demonstration projects rests with the EES technical staff. Participation in project activities by EES field representatives is strongly encouraged, however, since by close interaction these individuals will clearly understand the economic and technical rationale used in developing solutions. Since the field representatives are in continual contact with industry personnel they are able to communicate results to a wide user audience very effectively.

The use of demonstration projects to prove feasibility of proposed solutions to problems is important to program success. Such an approach, showing the economic and technical practicality of solutions, is much more effective than development of "paper" solutions to problems.

During the conduction of feasibility projects the delivery of results to the industrial user is begun. Unless the results and solutions are adopted by indus-

try, success has not been achieved. Central to this effort is the communication of results to industry in forms that will allow the results to be adopted. Thus far in the EES program several methods for delivery have been utilized. These have included use of EES field representatives in direct contact with industry personnel to explain results and solutions to industry. This is a highly effective technique since detailed discussions of project findings can take place with strong involvement of industry personnel. Trade associational vehicles have also been employed to communicate project results to industry. Presentations of project findings and activities have been made at industry technical and management meetings during which the important parameters affecting problems and their solutions have been reviewed. In the future and as program results are more fully developed, extensive use of written materials in trade association literature and general trade literature is planned.

In summary the EES productivity program is a method for (1) systematically identifying and defining technical and related economic parameters of problems of resource utilization facing industry, (2) demonstrating through the use of feasibility projects the economic and technical advantages of solutions to these problems, and (3) encouraging the adoption of these solutions by industry. EES field and technical staff are employed in conduction of these activities. Strong inputs from industry in all phases of the program are encouraged. An industrial advisory committee made up of members of industry and trade associations is utilized to assist in each phase.

Major Program Areas

As stated earlier, activities under the EES program are concentrated in three primary cost areas:

(1) Reduction of the impact of energy and materials shortages on productivity;

(2) More efficient utilization of materials, including wastes; and

(3) Reduction of capital diversion caused by regulation.

Efficient utilization of energy is of primary importance to all industry but in the EES program one specific industrial sector, carpet manufacturing, has been considered to date. The utilization of energy (primarily for heating of water and process drying) in this sector is similar to that employed in several other industry sectors including food processing, broadwoven textiles, and agricultural drying. Consequently results obtained through this work should be transferrable to a wider user group. The primary thrust of the program in this area is to apply existing technology to reduce the consumption of energy on a per unit product basis. Process modifications rather than development of new processes are being evaluated in order to minimize the need for massive capital investment in reducing the use of energy in processing. The goal in this program area is to reduce the consumption of energy so that available supplies can be extended to support further industrial expansion.

Development of alternate uses of materials is also of primary interest to industry and has received emphasis in the EES program. Program activities have included studies of materials currently considered as waste by industry to determine cost-effective ways to use these as products. Primary attention is being directed to finding uses for agricultural and fiber wastes. Natural/synthetic fiber blends are receiving special attention since the textile, apparel, and carpet industries currently generate large quantities of these materials which represent a net cost in present operations.

The third area of primary interest is the reduction of capital diversion caused by regulation. Attention here is directed to finding cost-economic ways to enable industry to comply with regulations by utilizing existing technology. Industrial noise control problems were selected for consideration initially since the imposition of regulations in this area can result in very large costs to industry both in terms of capital equipment and lowered productivity. Most industrial sectors face similar problems with respect to noise control and these activities are directed to finding solutions to common problems where possible. Activities to date have included work with the lumbering and sawmill, poultry processing, and mining industries.

Example of EES Program Methodology

In order to illustrate the methodology employed in the EES program an example of a typical project is presented below. This case shows the procedures followed to address the problem of energy utilization in manufacturing industries.

ENERGY REDUCTION IN CARPET FINISHING

Background

Manufacture of tufted carpet products represents a major component of the Georgia economy. Recent economic data show that employment in direct manufacturing activities exceeds 30,000 persons and employment in related activities increases this figure to over 50,000 persons. The dollar value of the industry's product in Georgia alone exceeds $1.5 billion. Review of problems facing the industry show that two problems, a shortage of fuel and a shortage of water are restricting the growth of the industry in Georgia. Further analysis showed that the industry consumes approximately 7% of the energy used by industry in Georgia (second largest user in the state).

Problem Definition

The two major process uses of energy in the carpet industry were found to be the dye becks used to dye carpet and the drying and laminating ovens used for drying the product after dyeing. The dye beck system is used extensively in the industry and it is not likely to be replaced in the near term (less than ten years) by newer methods since this existing equipment represents substantial capital investment. Since drying ovens are used as a consequence of the use of becks their use will also continue. It is estimated that about 75% of the energy used in the industry is a direct result of the use of the beck dye process. This percentage represents about $11 million or about 820,000 barrels of oil (#6) each year. Studies by the EES technical staff, conducted in coordination with industry personnel, indicate that at least 20% and perhaps as much as 40% of this energy can be conserved by developing modifications to the beck process. Successful development of these modifications would result in a savings of at least 300,000 barrels of oil each year by the industry.

Additional studies conducted with industry manufacturing personnel showed that the costs of these modifications on a per-beck basis would be approximately $6,000. The estimated annual savings in dollars on a per-beck basis would be $5,400 per year (at mid 1974 energy costs). The payback period for the investment to modify equipment would probably not exceed 20 months.

Feasibility Project Description

Model beck equipment was obtained from the industry to develop and demonstrate methods for energy conservation. The technical approach employed is to apply improved methods to increase the heat transfer efficiency between injected steam and the dye water in a sample beck. This work is currently underway.

Delivery of Results to Industrial Users

Progress on the feasibility project is being reported to individual firms by the EES field staff. Also, progress has been reported to the industry at a recent technical conference sponsored by the Carpet and Rug Institute during which the technical approach and results accomplished to date were reviewed.

IMPACT AND VALUES OF PRODUCTIVITY PROGRAMS

Several demand factors are working together to require improvements in productivity by industry, labor, and government. There is a continual need to maintain the standard of living at the highest possible level. Demands on the economy to continue to support expanding social security and minimum wage requirements exist and there is a need to continue improvements in environmental and occupational health and safety areas. The current high inflation rate requires that we find ways to reduce costs whenever possible. Also, national objectives for maintaining our competitive posture in the world market place and for minimizing the impact of external decisions concerning availability of energy and materials are present.

These demand factors can best be met by makig a concerted effort to improve the productivity of the industry, labor, and government of the U.S. Productivity improvement programs should involve industry, labor, and government in order to achieve maximum benefit but attention should be focused on finding ways to make industry more productive in terms of its use of resources; energy, materials, and capital. The thrust of these programs should, in our view, be directed to putting existing technology to work to solve industrial productivity problems. Programs, such as the EES productivity program, should be used as catalysts to focus attention on the most immediate problems and to assist industry in solving its own problems. Such programs should help to stimulate in-

dustry to define and solve the productivity problems facing the nation. By proper attention and use of such programs, impact at several levels will be achieved.

Company Level Impact

Development of a successful program would impact industry at the company level to stimulate individual companies to improve their own productivity. This impact should be especially strong in small companies making up fragmented industries. Generally, these firms cannot afford extensive technical staffs to maintain current knowledge of improved techniques. Through such programs these firms will have access to information and existing technology that can be profitably employed. A consequence of such action will be more efficient utilization of resources which in aggregate will combat inflationary pressures. By reducing the costs of manufacturing, product costs should be reduced, demand should be stimulated, and industry can continue to expand. Such a program would allow industry to respond positively toward regulations such as those affecting the environment and the quality of the workplace by helping to find cost-economics ways to meet regulations without seriously degrading productivity.

Sector Level Impact

A concerted program will have a positive impact at the industry sector level by providing a vehicle for more systematically identifying, solving, and stimulating adoption of solutions to productivity problems facing the sector. It should act to encourage industry groups to work to solve comment problems facing it. By focusing attention on specific problems and by providing a cohesive body of easily accessible information, such programs will encourage concerted attacks on common problems. They will result in more intense activity within industry to solve its own problems. In addition, industrial research and development activities will be aided by clearly identifying areas of need and the economic parameters involved to those working to develop improved methods and practices.

Impact on Economic Expansion

By establishing programs specifically directed to increasing productivity, economic expansion will be aided. Development of ways to extend available resources will allow more production from a limited amount of energy and materials. Finding ways to reduce production costs will stimulate reduced prices and increased demand—thereby creating a larger market that must be supplied. Development of new uses for materials presently considered as waste will stimulate the growth of new industries. By more clearly identifying the needs of industry and by reducing the risks involved in development of improved techniques private research and development groups will be stimulated to work toward ways for improving industrial productivity.

General Impact

Systematic programs to increase productivity will have a direct impact by stimulating greater interaction between the research and development activities of the higher education communities and industry. Consequently, the resources represented within the academic community will be more fully utilized. A systematic program would work to enhance the U.S. position in the world market place by reducing the costs of production of American products. It would counter foreign programs that have recognized the need to systematically upgrade productivity. By making industry more cost-effective such programs would act to support the requirements of programs such as social security and minimum wage rules that seek to improve the general standard of living. Programs of this type will stimulate more efficient use of available resources including energy and will make us less dependent on the external forces now affecting our economic health. In aggregate the impact of such programs would tend to meet the demand requirements being placed on the U.S. economy during the present economic dislocation.

BOARD OF REGENTS,
OF THE UNIVERSITY SYSTEM OF GEORGIA,
December 9, 1974.

Hon. SAM NUNN,
U.S. Senator, Georgia,
U.S. Senate, Washington, D.C.

DEAR SENATOR NUNN: I have been informed about the productivity program as a way of fighting inflation. As a business man, banker and Chairman of the

Board of Regents, I lend my support to you and through you for implementation of this plan.

It is my feeling that the expertise we have in our own University system, can be put to excellent usage in this program. We stand ready to serve—

Your friendship means much to me—I am proud of you and your ability—We are blessed in Georgia to have you in our service—With my sincere best wishes to you, I am,

Most sincerely,

CHARLES A. HARRIS.

SOUTHEASTERN LUMBER MANUFACTURERS ASSOCIATION,
College Park, Ga., December 10, 1974.

Hon. SAM NUNN,
U.S. Senate,
Washington, D.C.

DEAR SENATOR NUNN: I have learned that you are working on ways to increase productivity in industry and I agree with you that this is an area of extreme importance. As a representative of private companies producing lumber products I certainly feel that our industry needs assistance with regard to environmental, health and safety, and resource problems. In reviewing your bill to create a National Productivity Center we concur that the accumulation of regulations imposed on industry is seriously affecting productivity and we want to encourage you to work toward ways to minimize this impact.

Two aspects of your bill are of special interest to our association. Our industry is currently experiencing very slack market conditions caused by the sharp down turn in building. At the same time we are facing demands to improve working conditions in our mills, primarily with regard to noise control. Since our association is made up of a large number of relatively small, independent companies compliance with these rules is difficult. Also, since the mills that have taken steps on their own to control noise have experienced decreased production rates due to control measures, it would appear that some attention should be given to assisting our industry find ways to meet the requirements while maintaining its productivity. In my view, this could be accomplished by including within your proposed center a way to assist industries in finding cost-effective methods for meeting these regulations while not decreasing production rates.

A second area of interest in your bill deals with developing ways to better utilize waste materials. We are currently working with the Engineering Expreiment Station at Georgia Tech to find better uses for our industry's by-products. Our membership is looking into ways that will make it less dependent on market changes by developing alternate markets for its materials. Consideration is being given to establishing a pulp or pulp and paper mill that would be fed exclusively, by wood wastes. Since we do not have the marketing or technical skills needed to review all aspects of this problem we are drawing on the talents at the Station. We feel that the center that you have proposed could be helpful in working with us on similar problems in the future.

In summary I agree with your proposal as a way to solve some of the very serious problems facing our industry and we encourage you to continue to work for its creation.

Sincerely yours,

JOHN C. MILLINER, Jr.,
Executive Vice President.

BOMAC MFG. CORP.,
ENIGMA FARM SUPPLY,
Enigma, Ga.

DEAR SAM: Just a note to let you know I am in favor of your suggestion of a National Productivity Center. It would increase our nations ability to compete in the World Market.

As a small businessman I have been helped a great deal by the Engineering Experiment Station in the past. I feel the availability of technical assistance is essential to the continued growth of our type business.

I'm for you, Sam, keep up the good work.

BOBBY ROWAN.

DECEMBER 6, 1974.

Hon. SAM NUNN,
U.S. Senate,
Washington, D.C.

DEAR SENATOR NUNN: I have received a copy of your bill to create a National Productivity Center (S. 4130) and I am in favor of its adoption. As president of the American Turpentine Farmers Association (ATFA) I am very much aware of the productivity problems facing American industry. The industry that I represent is facing a severe decline caused in part by a lack of mechanization for gum production and collection and I feel that efforts should be initiated to foster increased productivity in our industry.

The ATFA is currently working with the Engineering Experiment Station at Georgia Tech to solve some of the problems facing the Gum Naval Stores Industry. The efforts are being directed initially in these specific areas:

(1) Development of a motorized gum collection vehicle,
(2) Development of an improved gum collection cup,
(3) Development of improved tools for preparation and chipping of trees.

These are focusing on ways to reduce the amount of physical labor that a worker must perform and on development of tools that will make Gum Naval Stores work more attractive to workers. Hopefully, with these new methods and tools, the production and labor force can be stabilized and the industry will grow.

Passage of the bill you have introduced should provide a better means for attacking the problems facing the industry that I represent and we look forward to working with the National Productivity Center on our productivity problems.

Sincerely yours

JIM L. GILLIS, Jr.

ALMA EXCHANGE BANK,
Alma, Ga., December 9, 1974.

Hon. SAM NUNN,
U.S. Senate,
Washington, D.C.

DEAR SENATOR NUNN: I have reviewed with interest the bill you introduced to create a National Productivity Center and concur with you that such action is necessary. As Chairman of the Board of the State Chamber of Commerce, I endorse your bill and urge you to work for its adoption.

This bill seems to speak directly to a key problem facing the industrial growth of Georgia and the nation. Without continuous increases in the productivity of industry, I do not think that we can sustain the economic expansion of the United States relative to foreign groups. Consequently, unless productivity is stimulated, we will slip in our position of technical and industrial leadership.

Senator, we appreciate you going on the Pre-Legislative Forum this year. You did a fine job. Please call on me if I can be of service to you.

Sincerely yours,

VALENE BENNETT.

CECIL HODGES LUMBER CO.,
Sandersville, Ga., December 9, 1974.

Hon. SAM NUNN,
Senate Office Building,
Washington, D.C.

DEAR SENATOR NUNN: I have followed with interest the work that the Georgia Tech Experiment Station is doing under its Productivity Program. As the owner of a company producing lumber and related wood products, I am faced with the general problems of most other independent businssmen in that the cost of doing business is increasing while profits are decreasing.

Two problems being worked on at the Experiment Station are of particular interest to me. One is the utilization of waste material generated by the lumber industry. Currently, very little opportunity for disposal of this material in a cost effective and environmentally acceptable manner is available. The productivity or profitability of my firm is dependent on the successful economic disposal of wastes and byproducts such as wood chips, bark and sawdust. I am very much interested in finding alternate ways for utilizing these byproducts that my firm generates.

The second problem of interest to me is the impact and cost of complying with Occupational Health and Safety requirements. Methods for complying with these requirements in a manner that I can afford and in a manner that will not seriously affect my currently achievable production rates must be found.

These problems are both related to the productivity of my firm and, if the proposed National Productivity Act will help in finding solutions to these or similar problems, I urge that the bill receive favorable action.

Sincerely yours,

CECIL HODGES, JR.,
President.

GEORGIA INSTITUTE OF TECHNOLOGY,
SCHOOL OF TEXTILE ENGINEERING,
Atlanta, Ga., December 13, 1974.

Hon. SAM NUNN,
U.S. Senator from Georgia, Senate Office Building,
Washington, D.C.

DEAR SENATOR NUNN: Thank you for continuing to fight the good fight for prudence in our economy. Your efforts to improve productivity and to end deficit spending and consumption of irreplaceable resources are right on target in attacking our continuing economic problems.

I support your Senate Bill S4130 to encourage productivity with the power of law. In these years of decline in the fraction of our labor force engaged in production of goods to about one third of the total employed, we must emphasize with utmost vigor the need for high and increasing productivity. In order to maintain a reasonable fraction of our affluence and comfortable life, we must encourage productivity in supplying necessary goods first and essential services as a close second.

Further, we must attack with equal vigor the nonproductive administration and bureaucracy in which we enslave ourselves. Government and to a lesser extent private organizations have placed on producers of goods and those who render essential services an intolerable load of nonproductive administrative detail. While almost all administrative requirements or compliances taken individually are worthy, in the aggregate the result is to stifle productivity and divert efforts to nonproductive administrative trivia.

I believe that the proposed National Productivity Center, the Congress, and the President should direct attention to decrease the crushing load of nonproductive administrative effort required of primary producers of goods, those who render essential services, educators, and other branches of government. If we fail to decrease our needless administrative restraints upon ourselves, our amazingly productive American agricultural and industrial complex will soon find itself like Gulliver prostrated by Lilliputian administrative restraints.

Please continue your efforts to increase our productivity.

Very truly yours,

JOHN L. LUNDBERG,
Callaway Professor.

ELBERTON GRANITE ASSOCIATION, INC.,
Elberton, Ga., December 9, 1974.

Mr. R. L. YOBS,
Assistant Director, Engineering Experiment Station,
Atlanta, Ga.

DEAR MR. YOBS: We have noted with interest that Senator Nunn has introduced Senate Bill 4130 providing for the establishment of a National Productivity Act.

In reviewing the proposed Act, we believe it could be very beneficial to the 70 member-firms of this Association who are engaged in granite quarrying and manufacturing activities. In recent years, the profits of our firms have steadily decreased; and certainly a large part of this decrease can be traced to a decline in production levels at every stage of our operations.

As you know, our trade association has undertaken various research and assistance projects with Georgia Tech over the years. The concepts of the productivity program are consistent with the way in which our organization has

tried to serve as the conduit to make the results of your work available to all of our member-firms.

Since all of our firms are engaged in the same kind of operations, productivity problems in quarrying or manufacturing techniques encountered by one firm usually are the same problems faced by its local competitors. Likewise, if solutions are found or suggestions developed to improve operations at one plant, they are generally applicable at the plants of all of our members.

We hope that the Congress will be able to give this important measure prompt attention so we can begin to implement its provisions and thereby help to improve the productivity of firms in the Granite Industry.

Sincerely yours,

WILLIAM A. KELLY, CAE,
General Manager.

GEORGIA INSTITUTE OF TECHNOLOGY,
SCHOOL OF TEXTILE ENGINEERING,
Atlanta, Ga., December 12, 1974.

Hon. Senator SAM NUNN,
U.S. Senate,
Washington, D.C.

DEAR SENATOR NUNN: I am writing in support of your productivity bill, Senate Bill No. S. 4130. From my vantage point of Director of the country's only professionally accredited college textile engineering program and as a person with fifteen years experience in textile research. I perceive the textile industry, America's largest manufacturing industry, as an industry whose very survival depends on increased productivity. Furthermore, it is apparent that achieving increased productivity will require Government assistance.

Although the textile industry is generally strong, the primary textile and apparel segments have weaknesses at present and show symptoms of serious future difficulties. They are labor intensive, profits are low, and investment in new plant and equipment is inadequate to insure their ability to compete in the world market place during the next decade. This situation is further aggravated by tax subsidy policies of foreign governments, such as Japan, that encourage their textile companies to scrap older plants and build modern facilities. In the recent past, as a consequence of these policies, the trade deficit in textiles has been as large as $2.5 billions per year.

The great danger to the future of the American textile industry is the competition of foreign technology. From a dominant technological position in textiles and fibers in 1946, we have slipped to a position considerably inferior to our combined foreign competitors in textiles and to equality in fibers. The U.S. cannot compete with lower labor cost producers with inferior or equal technology. We must make every effort to regain a technological advantage.

The textile industry should be carrying out research focusing on automated, direct fiber-to-garment and direct polymer-to-garment systems. The development of such processes will significantly increase worker productivity compared to the current manufacturing methods that literally require dozens of separate processes to produce a finished product. Direct fiber/polymer-to-garment systems will also decrease our current rate of consumption of resources. They will eliminate the fabric waste associated with current cut and sew operations, which approaches 30%. These new processes should also require less energy.

The development of direct fiber/polymer-to-garment systems is a goal that can be achieved within a decade. It was reported during the First International Conference on Garment Molding hosted by Georgia Tech this fall that the Japanese are successfully marketing molded ladies knit dresses and the Czechoslovakians have developed a process for molding mens double-knit trousers. If the American textile industry is to survive, it must initiate research in this and related areas now. However, because of fragmentation of the primary textile and apparel segments of the industry, stimulus from outside the industry is required.

The apparel segment of the industry is comprised of 26,000 companies with all but a few too small to undertake any meaningful research activity. The several large apparel manufacturers support work to automate current cut-and-sew operations; e.g., laser cutting, and ultrasonic seaming. None fund innovative, long range research programs.

The apparel machinery manufacturers state they cannot undertake long range development programs because their customers only purchase equipment that promises a five month payback. Consequently, their research is limited to minor modifications of current machines and work aids for attachment to these machines.

There are about 700 primary textile companies with only the few larger organizations supporting research. However, their emphasis is on the development of new products using current processing machinery or necessitating only small modifications to these machines. They depend on the chemical companies, synthetic fiber producers, and textile machinery manufacturers for significant developments.

The American textile machinery manufacturing industry is not strong. Their efforts for many years have been confined to speeding up current machines. All recent significant textile processing innovations have been developed overseas. Over half the new machinery purchased by the American primary textile industry is designed and manufactured overseas.

Senator Nunn, your bill focuses the Nation's attention on productivity and creates mechanisms for increasing productivity. I commend you for you insight and action.

Very truly yours,

W. D. FREESTON,
Director.

Mr. BIRCHFIELD. Mr. Chairman, at this time I would like to turn the testimony over to Mr. Barry Torrence of the Carpet and Rug Institute.

Senator NUNN. Let me just ask one or two questions because we are going to get interrupted again. I want to develop this part of the record.

I understand, I think, pretty fully what Tech is doing with the industries in Georgia. Now what specifically, and you may have covered part of this in your testimony, can be done at the Federal level to assist in this other than disseminating information from one State to the other? What role do you see as being carried out at the Federal level that would assist you and similar institutions throughout the country in bringing this kind of productivity information to industry?

Mr. YOBS. Mr. Chairman, there are two things that come to mind immediately. One is the need for a very clear-cut national policy direction for productivity. The other is an organization which in our view would be small—lean is the term that was used previously today—which would provide a coherent direction for all of the State productivity centers or regional activities so that each State has enough latitude to work on its individual problems but can interface and synchronize their effort and mesh effectively with those in other states so that economies of scale in technology can be achieved.

Jerry, you might have another comment.

Mr. BIRCHFIELD. Mr. Chairman, I have one other comment about the role of the Federal Center. I feel, and I am sure you know, that there are a multiplicity of programs and projects that are directed to work in the industry within the Department of Commerce, the National Science Foundation, and others.

I think that a National Center, as either you or Senator Percy have proposed, could be very effective in lending guidelines to that multiplicity of programs that are presently now being conducted.

Senator NUNN. Are any of those programs touching directly on productivity?

Mr. BIRCHFIELD. No. Coincidentally there is some latitude within these programs. I am speaking now specifically about some of the

regional commission programs, the Appalachianal Regional Commission, the Coastal Plains Regional Commission programs. There is some latitude within each of those. If a national emphasis and a national direction were given these programs could be directed perhaps more firmly at the problems affecting productivity.

Senator NUNN. Do you work in your program with small businessmen primarily or do you go into large businesses, too, and I mean by that—it is hard to define a small business, but what size business are you finding more receptive to your efforts?

Mr. BIRCHFIELD. We are finding fragmented industry more receptive of our efforts than we are industry who have strongly established trade association ties and are large. We do not intend to try to work with people like U.S. Steel. We work primarily with the small companies, ranging from two employees up to a couple of hundred employees. This is where we feel our program is more valuable.

Senator NUNN. Could you visualize any kind of pilot program on this national basis that your program would fit into as an experiment to see whether it could be done in other states?

Mr. BIRCHFIELD. Yes, Mr. Chairman, I could. At the risk of selling our own program a little bit, I think that a pilot program should be conducted. I think that methodology for accomplishing increases in productivity is not clearly established yet. I think there are several ways you can go about it. I think that rather than one pilot program, that there should be several pilot programs. I think each one of them should take a look at slightly different methodology. I do not think that a pilot program should be limited in time to one or two years. I think that such a program should have at least three years to prove its value.

Senator NUNN. Thank you very much. Do you want to introduce the other members of the panel now?

Mr. YOBS. Yes. Next will be Mr. Barry Torrence, director of technical services of the Carpet & Rug Institute.

Senator NUNN. Thank you, Mr. Torrence. Now you are here in Washington, is that right?

Mr. TORRENCE. Well, I am located in Dalton, but I spend a considerable amount of my time up here.

Senator NUNN. OK.

TESTIMONY OF BARRY TORRENCE, DIRECTOR OF TECHNICAL SERVICES, CARPET AND RUG INSTITUTE, WASHINGTON, D.C.

Mr. TORRENCE. Thank you, Mr. Chairman.

On behalf of the members of the Carpet & Rug Institute I thank you for the opportunity to appear here today.

All segments of the industrial community are feeling the effects of the current simultaneous inflationary and recessionary pressures in the economy but the carpet and rug industry is especially hard pressed by the continued high prices of materials, labor, and capital at a time when demand for products is diminishing. Since the health of our own industry is affected by the health of others, we are very much interested in developing coordinated measures to deal with the problems facing industry in general.

We concur with the findings presented in title I of the proposed Senate bill 4130, especially with regard to the impact of an accumulation of regulations, laws, and procedures on industry. We are presently faced with meeting staff regualtions with regard to the environment and with the quality of the workplace. Requirements on industry to comply with these must be tempered by considerations of the cost in terms of both capital and productivity. We concur that industry should advance toward achieving the goals of improving the environment and the workplace but we feel that efforts in these areas should be consistent with the resources of industry.

We concur with the finding that there has been a failure to consider the impact of proposed governmental actions on productivity and that this has contributed to declining productivity. Government should consider the impact of proposals on productivity and ensure that these are minimized. Where conflicts between regulations and productivity are inevitable, a strong stance by government should be taken to minimize the impact of the regulations. A good example of the need for such considerations is with the problem of ensuring occupational health and safety. By legislative action standards on exposure were adopted and a policy agency was created. This action fell short in that no concomitant action was taken to assist industry in making the necessary transitions to comply with the regulations. Subsequently, productivity in industry is being negatively impacted by the regulations.

We at the carpet and rug industry agree that steps need to be taken to stimulate increases in productivity and utilization of resources by industry. By concentrating these efforts under a national center, emphasis and action can be focused on solving problems affecting the national economy. By encouraging the creation of State centers, proper emphasis and action can be focused on problems facing industry on more localized issues.

Several specific problems that are currently facing our industry could be addressed by the proposed legislation. Manufacturers in the carpet and rug industry are facing continuing problems relating to energy and materials availability. Dislocations caused by the recent oil embargo are having continued effect throughout the industry.

Shortages of synthetic fiber developed and subsequently prices were forced higher. More importantly though, manufacturers in our industry were suddenly faced with locating fuel supplies and then meeting steep increases in prices for fuel. This situation was felt especially in Georgia which supplies over half the Nation's carpet and rug production and where energy was already in short supply before the embargo. As a major user of energy the industry is very much interested in taking measures to conserve our already short supply. Consequently, we are interested in seeing that steps are taken, through this or other programs, to devise practical energy conservation techniques.

The manufacturing companies in our industry are also faced by the requirements of State and Federal regulations to upgrade the environment and the quality of the workplace. Unfortunately, in many cases, technology does not exist in a form that will be useful in helping our industry meet these needs. By encouraging a systematic ap-

proach to problem solving by using existing technology while at the same time finding ways for retaining or increasing our present productivity, the proposed bill could be very helpful to the companies that belong to our organization.

In summary then the Carpet & Rug Institute supports the intent of this proposed legislation. We feel that there is a definite need for government to work toward reducing the demands of legislation and regulations that are impacting on the productivity of our industry. We also recognize the need for a balanced approach for assisting industry meet the demands created by shortages of energy, materials, and capital. By such action the currently acting inflationary pressures in our economy can be properly addressed.

Senator CHILES (presiding). Thank you, sir.

Next witness——

Mr. YOBS. Mr. Chairman, next will be Mr. Alex Sessoms, vice president of Union Timber Co.

Senator CHILES. Mr. Sessoms?

TESTIMONY OF ALEX SESSOMS, VICE PRESIDENT, UNION TIMBER CO. AND SESSOMS, INC., COGDELL, GA.

Mr. SESSOMS. Mr. Chairman, I would like to apologize for not having the copies of my statement ready for this committee, but I am vice-president of a small corporation. I arrived Sunday, or Saturday night, from Panama trying to work up a sales deal down there, and I got this invitation to appear here on Sunday. I typed out a hurried statement on Sunday morning and had it here today. However, I will see that copies are presented to this committee.

Senator CHILES. Thank you, sir.

Mr. SESSOMS. I am vice president of Union Timber Co., and Sessoms, Inc. in Cogdell, Ga., together with my father and my brother. We own and operate a lumber manufacturing plant, a wood treating facility, a pulpwood dealership, a farming and cattle feedlot operation, as well as managing several thousand acres of pine timberland in southwest Georgia.

I am here today, not only on behalf of my company, but also on behalf of all small, independent lumber manufacturers in the Southeast. We, as independent businessmen, are deeply concerned at this time, not so much for trying to operate profitably, but with trying to maintain any operations at all for ourselves and over 10,000 total employees.

As individual businesses operating in what is perhaps the only remaining true, free, and competitive market, we are very aware of the effects of productivity or the lack of it, more so than businesses who, by virtue of their size, the structure of markets, diversification of product lines, or for other reasons, can recover their losses incurred from reduced productivity.

In the lumber business, you produce and sell at the market, or you do not survive. As farmers and cattlemen, we have available through our county extension services a source of information and assistance that has enabled us to improve our productivity and efficiency. As businessmen, we have no such source.

I believe that the passage of Senate bill S. 4130 will go far toward providing the help that small businessmen such as myself need in order to achieve our goal of increased productivity.

I would like to call particular attention to sections 306 and 307 of S. 4130 since it is in these areas of the law I feel would provide the most direct and timely help for small businessmen. A prime example of the benefits available under S. 4130 could be illustrated through my recent experience with the Occupational Safety and Health Administration. On February 13, 1974, we were cited as being in violation of OSHA's standards of noise pollution. Our sawmill was making too much noise. We were given 1 year to bring our mill into the complete quiet of their standards.

We had previously consulted various consulting firms on noise and received only vague proposals, ranging in price from $20,000 to $200,000, but no assurances whatever that they would bring us into compliance.

I contacted Mr. Jerry Birchfield of the Engineering Experimenting Station at Georgia Tech to see if he could offer any help. Fortunately, he was able through a public assistance grant under which he is presently working, to add my problems to his project. He personally came to my mill and made a very complete and detailed sound level study, trying to determine not only the level of noise, but also the source of the noise and possible solution. He further made available to me the tremendous resources of the Engineering Experimenting Station, both with equipment and personnel. These resources would have been unaffordable had I attempted to purchase them from private engineering firms.

After several weeks of study and evaluation, we determined several practical approaches toward noise reduction, but nothing that would bring us into complete compliance with OSHA's regulations. We, therefore, contested the citation to the Occupational Safety and Health Review Commission and were successful in getting the citation removed.

We are yet working on solutions to this problem, but the important thing is that I was able to save money I would otherwise have spent on equipment and machinery that still would have not brought me into compliance. This savings could and was passed on to my customers in the form of lower prices.

Unfortunately, the grant under which we were working expires at the end of 1974. With the passage of S. 4130 and supporting legislation, projects such as the one I have illustrated could be continued and expanded.

We are the world's leader in productivity and efficiency in one major sector of the world's economy—agriculture. Let us expand the experiences and institutions that have made us a world leader in agriculture to encompass all sectors of our economy. A nationwide system of county agents for businessmen would, in my opinion, be the greatest single achievement that this or any other Congress has achieved in the field of economic legislation.

Thank you, Mr. Chairman.

Senator CHILES. Thank you, sir.

Mr. YOBS. Next will be Mr. H. E. Ruark, director of the Georgia Forest Research Council.

TESTIMONY OF H. E. RUARK, DIRECTOR, GEORGIA FOREST RESEARCH COUNCIL, MACON, GA.

Mr. RUARK. Mr. Chairman, I have filed a report. I have filed my statement, and I will just kind of brief it.

In my statement I have indicated about the economy and what it means and what productivity would do to enhance the economy. I would go ahead then and indicate that my experience has been in forestry and that is what I would like to address myself to at this moment.

Mr. Sessoms is just one of the people that is having problems in the forestry field, where this act that you are sponsoring would benefit.

The forest industry from the beginning at Jamestown, Va., when two men sawed logs—and this was the first sawmill—since that time there have been great improvements, and today, there are approxmately 5,000 products made from wood in America. In the paper-producing industry there are probably 100,000 different items made from paper, so we are talking about a very diversified industry.

In what we have considered in the forest—unfortunately, there is no central agency that these industries can turn to for solving these many problems that arise in the field of productivity. Now, in forestry, the Forest Products Laboratory, which is part of the Department of Agriculture and located in Madison, Wis., does do some research and development, but it does not reach out into all the areas of forestry.

In our State and in your State, in Florida, the Florida Forest Service and the Georgia Forestry Commission in Georgia are serving landowners and serving industry to some extent, but their expertise is in the biological sciences. In the physical sciences, such as people here at Georgia Tech have, there is just not that capability, and that is where the productivity in that particular produced goods is, and that is where this act will benefit, I think.

Now let me indicate some problem areas where our research council has gone also to Georgia Tech for solution, and one of them is in this noise problem. We have approached Georgia Tech on helping solve the problem. They have analyzed these noise problems at the sawmills.

In addition to the sawmills, the poultry processing plants in Georgia have been cited, as well as the granite industry, and the Georgia Tech people tell us they can do the research and development less expensively if these three industries would join together, so these three associations came to our organization with a proposal that we take it to Georgia Tech for a solution.

So this is in the mill. As far as the Georgia appropriations, we are a State agency, and we have asked for these funds.

However, as our people in Georgia look at this problem, this is a regional or national problem. It reaches beyond just the State of Georgia; you have your sawmills in Florida also getting cited, as well as elsewhere, and so our people indicate, why should we finance this research.

Another thing, it is national in scope, and it should be taken outside of Georgia, and also, this being a Federal agency that has regulated this particular thing, we think perhaps they might have something to do with it, so then we move into other areas of productivity

in which we have some common interests, Senator, and that is in the naval stores up at O Lustee, Florida, where there is a Forest Service Laboratory.

They have done a great deal of work on naval stores, but they have not done any work in making it easier for the workers. The people in Georgia Tech have gone out and analyzed the fact that the work is extremely hard, and the older workers are retiring.

They are taking their social security or taking their other benefits, and the younger people are not moving into this area, so if we can—Senator Nunn, I am Ed Ruark of the Georgia Forest Research Council. I was just describing a problem in the naval stores industry in which older workers are retiring and younger men are not coming into the industry, and Georgia Tech has analyzed this proposition and they have made a proposal that we think, if it is successful and we can get the research done, it will bring new workers into the naval stores industry.

Another area that they are working on at Georgia Tech is the slabs and edgings that used to be ground at the sawmills are now used in the chips, and the paper companies are buying these chips, but when the market gets soft, and they have to cut off their supply, usually the chips are the first thing they cut off, and these come from the independent sawmills, such as Mr. Sessoms here, and his company produce—and that is their profit, their profit in that sawmill operation is in the chips.

If they cannot sell the chips, then they do not make a profit, so the Georgia Tech people are making a feasibility study to determine whether another pulpmill in Georgia, supplied by these waste from the sawmills might be feasible.

Senator NUNN [presiding]. Say that again? I want to make sure I understand that. What are they talking about regarding the chips?

Mr. RUARK. Would you like to explain, Mr. Birchfield.

Mr. BIRCHFIELD. Mr. Chairman, the essence of the subject Ed was discussing is, we are looking into the feasibility of a pulp or papermill run exclusively from waste generated by the independent sawmill owners within the State of Georgia.

There appears to be a very large——

Senator NUNN. What form of waste are you talking about? You are not talking about the chips are you.

Mr. BIRCHFIELD. This is a material now that is presently wasted. This includes bark, side dust, shavings——

Senator NUNN. I see. I thought the chips were already used for paper production.

Mr. BIRCHFIELD. They are. As Mr. Ruark discussed, when the market gets soft, as it is now, that the chips are the first item that the existing pulp and papermills use to be cut off, and so the sawmill operators are looking for a more stable market for their product, and this represents perhaps a more stable market.

Senator NUNN. I see. But how would this new approach differ from the present papermills?

Mr. BIRCHFIELD. It would seek to include much more use of the present materials, such as bark, sawdust, shavings, that are not currently used in production of paper.

Senator NUNN. That are not used at all now?

Mr. BIRCHFIELD. That is right.

Mr. RUARK. May I add, Senator, that in the State of Georgia, there are a number of pulpmills that have also a lumber operation, and connected with that they bring in their own chips.

But Mr. Sessoms, for example, his company sells to one of the mills. If the mill itself is supplied and their sales are down and they cut back, Mr. Sessoms company is cut back, and it is one of the first ones cut because it is his product, not theirs.

Senator NUNN. You have got sawmills all over Georgia, and pulp crews and everybody else just completely shut down now, do you not?

Mr. SESSOMS. Yes, sir.

Mr. RUARK. Yes, sir.

Mr. SESSOMS. My own company being one of them.

Mr. RUARK. In closing, I would like to indicate that extension service type of approach that has been suggested here is the thing that this act should give us. There are so many problems that face this industry where they cannot turn for a solution.

In forestry, we have a good organization as far as growing trees and the managing of the resources, but utilizing this material in the forestry circles is not as fully developed as it is in the others.

Thank you so much for allowing me to come before your committee, Senator.

[The prepared statement of Mr. Ruark follows:]

PREPARED STATEMENT OF H. E. RUARK, DIRECTOR, GEORGIA FOREST RESEARCH COUNCIL, MACON, GA.

Mr. Chairman, and members of the Committee, my name is H. E. Ruark. I am Director of the Georgia Forest Research Council with headquarters in Macon, Georgia. The Council is an agency of the State of Georgia. We are responsible for coordinating, developing, implementing, and encouraging forest research in the State. It is a pleasure to appear before your Committee.

I appear before you in support of S. 4130—the National Productivity Act of 1974. I recommend to Congress that consideration of the National Productivity Act be given high priority on its calendar, that the act be passed and made operative at the earliest possible date.

The U.S.'s economy is approaching the worst recession since World War II. The unemployment rate is growing in alarming proportions. Inflation is continuing at an unhealthy pace.

The best minds of the Congress, the Administration, and business are needed to stabilize America's economy. We know that care must be exercised in adopting programs designed to bring about a recovery of the present conditions. If not, the country may see a new wage-price thrust that could cause an irreversible downturn.

The National Productivity Act of 1974 is offered at a time when every segment of the business community is searching for ways and means of stopping the recession and to gradually bring the economy back to a stable level. Of course, increased productivity is not the final answer to getting the country out of the recession. It is, however, the key to orderly growth at stable prices which is essential if the recession is to be stopped.

Economists claim that a healthy economy requires a productivity growth rate of 3½% annually. Unfortunately, productivity was down the third quarter of this year and has shown no gain for six quarters. Obviously, this is a situation that has to be reversed.

Long-term productivity gains should average 3½% yearly. Instead gains have been less than 3% per year. It is claimed that productivity growth should be at 4% annually for the next few years to offset the lagging growth of the past few years.

Many factors such as tight money high interest rates, inflation, and the accumulation of laws, regulations and procedures over the years have adversley

affected productivity growth. The National Productivity Act of 1974 will not alleviate all of the adverse affects on productivity but it will play a major role in helping to bring the productivity growth rate nearer 4% per year.

The National Productivity Act will be most beneficial to practically every business and governmental sector in America. In my testimony I shall be concerned only with the sectors that fall under forestry. This is the area where I have experience.

The first forest industry in America began in the early seventeenth century at Jamestown, Virginia where the settlers established the first sawmill. In this operation two men pulled a long steel saw through the length of a log to produce boards.

From the beginning at Jamestown, forest products manufacturing has grown until today it is one of the nation's major industries. Paper, lumber, poles and plywood are just a few of the products made from trees. It is reported that more than 5,000 products are made from wood. Paper is produced in many forms that could number up to 100,000 different items.

An outstanding fact about trees is that they are America's greatest renewable resource. Even so, the growing demand for high quality forest products has caused an increased cost to consumers. As cost of any product increases the demand for that product decreases. The rate and quality of productivity usually determines the final cost of a product.

Unfortunately there is no central agency where the forest products industry may seek assistance in solving the multiplicity of problems in productivity by an industry that is so diversified. The Forest Products Laboratory at Madison, Wisconsin plays a key role in forest products research and development but does not reach into all segments of forestry nor can it solve local productivity problems. A National Center for Productivity as advocated by S. 4130 and S. 4212 would be an asset to productivity in the forest products field.

S. 4130 provides for a State Productivity Center where technical assistance may be provided. The coordination of programs through National and State Productivity Centers should make it possible for all segments of business to benefit.

I would like to list as an illustration some problem areas in forestry that I feel could be benefited if the National Productivity Act was in operation today.

In our state the Occupational Health and Safety Administration (OSHA) has cited nine sawmills for noise. These sawmills desire to make corrections but at this time no technology is available to identify the noise problem or correct the problem. The Engineering Experiment Station at Georgia Tech has the capabilities of solving the problem if funds are made available.

The question for us is whether Georgia should finance research and development to solve a situation brough on by a federal agency. Involved also is that excessive noise at sawmills is a problem national in scope.

Another problem in the Southern region has been the rapid decline in the production of gum naval stores. At one time this industry supplied more than 50% of the world's demand for rosin and turpentine. Today America is having to import rosin from China, Portugal and Spain. The principal reason for the decline in production in the South is hard and unpleasant working conditions required under present methods of chipping and harvesting gum. The scientists at the Engineering Experiment Station, Georgia Tech has made an analysis of this industry and have offered a proposal to alleviate the laborious and unpleasant working conditions to this industry. Their proposal promises to interest young people to make a career of gum naval stores production. Even though records show that a skilled worker can make $9.00 per hour or more than $50.00 per day there are not enough young people interested in this work to take over from retiring workers. The Georgia Tech group has a practical approach to the problem if funding is provided. Again this is a regional problem that would benefit from the National Productivity Act if it were available to the industry.

For many years slabs and edgings from sawmill operations were considered waste and was burned. In recent years this material has been utilized by running it through machinery to make chips. The chips are then shipped to pulp mills to be made into paper.

The major supply of raw material to the Southern mills is round wood. When there is a softening of the market for paper and the pulp mills began reducing its need for wood the chip supply from independent sawmills is usually the first to be

reduced and, consequently, there is a back-up of material at the sawmill. This condition has caused independent sawmills in Georgia to request the Engineering Experiment Station, Georgia Tech to make a feasibility study of the construction of a pulp and paper mill in Georgia where the primary source of raw material would be supplied by chips from the sawmills. If necessary round wood would become secondary to chips in keeping the mill supplied. We feel that this situation exists throughout the region and is a problem that would be given to a regional or national Productivity Center.

Finally, we are aware that much of the old growth trees in the Pacific Northwest will be cut over or set aside in wilderness areas early after the turn of the coming century. As a result, the South will be the "woodpile" for the nation and is expected to produce over 50% of the country's needs for forest products. To do so will require a high rate of productivity in the woods and in the plant.

The National Productivity Act of 1974 promises to be of tremendous benefit to forestry in meeting national productivity goals. It is recommended that Congress approve this Act to help alleviate the low productivity level of all segments of the economy and especially of forestry.

Thank you for inviting me to appear before you.

Senator NUNN. I know you all have had to sit here all day, and I appreciate your patience, but in the course of some of the other testimony you have heard a lot of references to the day this project should proceed.

Do you think that small businesses particularly need this help? Is this consistent with your experience?

Mr. RUARK. For me, yes sir, because they have nowhere to turn. They are penalized, like OSHA has done to Mr. Sessoms and his group, and there is no place to go. Fortunately, you do know, we have Georgia Tech, but if you have a center such as described in this bill, it would come well along. As problems do develop, people would know where to turn.

Senator NUNN. What about energy? How much of the efforts of Tech go into trying to conserve energy? Is it a part of the parameters of what you look for?

Mr. BIRCHFIELD. This is really one of the central problems that we are looking at, Mr. Chairman. We feel that there are certain—well, in our experience, we have found that there are certain use patterns of energy that are similar in various industrial sectors, such as the tufted carpet industry, food processing industry, and others.

Basically, the problems are similar. You try to boil water more efficiently, or you try to take water out of materials more efficiently, so we have directed a large part of our pilot project here to looking at ways to extend the available energy that we have.

We are looking here primarily at applying existing technology to reducing consumption of energy with existing procedures. We are not suggesting new capital investment to replace processes. We are looking at ways the present processes can be modified.

As a matter of the record, I would like to enter that in the project dealing with how to dye a carpet, how to use energy more efficiently in the carpet industry, we have found that by very simple changes to the process, that between 7 and 10 percent of the energy that is required to boil the water to dye the carpet can be saved.

Senator NUNN. Now, what would it take to get that into effect. Is it going to require a huge new kind of investment by the carpet people?

Mr. BIRCHFIELD. No. Looking at the economics of the problem, we found that to modify one dye-beck to save between 20 and 40 percent

of the energy that that project or modification would cost about $6,500, the modification to the existing equipment with industrial personnel, with vice presidents of carpet manufacturing companies, the best estimate of savings per year would be between $5,400 and $6,500 a year, so that we are talking about a payback period for the investment there, to save that 20 percent of energy, of about 1 year, so there is an economic incentive for the industry to conserve the energy.

Senator NUNN. In the concept Georgia Tech is now employing, how many people do you have working on this overall?

Mr. BIRCHFIELD. We have between 10 and 15 people working on our various projects.

Senator NUNN. How many could you use, without getting into the question of growing too fast?

Mr. BIRCHFIELD. We could easily double that number of people.

Senator NUNN. Do they go out in the field? Do they go out around the State?

Mr. BIRCHFIELD. Yes, Mr. Chairman. I spoke of around 15 people directly involved. That is with the in-house effort. We have seven field offices scattered around the State of Georgia, and these people in our field offices who are technical people interface with our program. They are not directly on our program payroll, but they do interface very closely. They provide the——

Senator NUNN. Part of that job is calling on industry anyway, is it not?

Mr. BIRCHFIELD. That is right. It is not a strictly technical job. It is partially of a rapport building and technology transfer type of job.

Senator NUNN. So they define the need. They let you know when there is a need, and then you send your people in on a spot basis.

Mr. BIRCHFIELD. And with the systematic data they provide, we are able to establish trends. This is how we detected the energy problem, the waste problem, the noise problem, and so forth.

Senator NUNN. Do you have any other particular observations? This is our last vote at the present time. We may be interrupted later. I would like to make sure we get all of your observations, and I am going to wait to hear the next panel until I get back. Is there anything else anybody wants to add? I apologize for this disruption, but we have had our staff people here who have heard all of the testimony, and all of it will be in the record, and of course, I am already familiar with it.

Is there anything else you want to add?

Mr. BIRCHFIELD. One other comment, Mr. Chairman. I would like to express my opinion that there is a need for State programs under such a Federal center. I feel that the needs of Georgia and the Southeast differ very greatly from the needs of the Midwest or the West and the Northeast, so there needs to be an inclusion within this national center proposal, the availability of State programs.

Senator NUNN. Do you go along with the idea that we do not need a new, huge bureaucracy in Washington, but we need a center that would help disseminate, help coordinate, and help stimulate more effort and most of the footwork at the local and State levels, is that right?

Mr. BIRCHFIELD. That is absolutely correct. The fewer dollars we spend in Washington, the more dollars we will have to spend in the field.

Senator NUNN. I think you already talked to Mr. Dunlop and the Productivity Commission about your program, is that right? I think you testified to that.

Mr. BIRCHFIELD. Yes, we talked with Mr. Kuper on two occasions in the past.

Senator NUNN. I am going to have to leave. I do not know whether you are going to stay around or not, but if you could, we have got two more panels, and I will be back just as soon as I can.

Senator CHILES [presiding]. Thank you, Mr. Chairman.

Mr. Ruark, I just wanted to make sure that your statement was counted correctly because it is going into the record, and you were setting the first sawmill at Jamestown. We think that might have started in St. Augustine.

Mr. RUARK. Senator, I yield.

Senator CHILES. I want to thank each of you for your attendance here. I hope you will excuse our process here this afternoon, this kind of running back and forth, but we appreciate your testimony very much. I find it very interesting, especially the concept of an industrial extension service. The agricultural extension service has certainly been helpful in my state, and I do not think there is any person involved in agriculture in Florida who would not tell you how helpful it has been to our food economy. When we think of the plight of our small businesses and of our small companies that do not enjoy the use of safety engineers and other product engineers, this seems as if it would have tremendous potential.

We are delighted to have your testimony today.

Mr. YOBS. Thank you, Mr. Chairman. We are delighted to have the opportunity to be here.

Senator CHILES. I think we are going to have a statement by Barbara Fifield on behalf of Peter DiCicco, the international vice president and New England district president of the International Union of Electrical, Radio, and Machine Workers, AFL–CIO–CLC.

TESTIMONY OF PETER S. DiCICCO, INTERNATIONAL VICE-PRESIDENT AND NEW ENGLAND DISTRICT PRESIDENT OF THE INTERNATIONAL UNION OF ELECTRICAL, RADIO, AND MACHINE WORKERS, AFL–CIO–CLC, AS PRESENTED BY MS. BARBARA FIFIELD

Ms. FIFIELD. Thank you. I should say that I am available for questions in areas that are related to work quality at the regional union level, rather than "big labor" that Mr. Dunlop and others referred to earlier.

I would first like to read Mr. DiCicco's statement, and I would like to close with a comment of my own. I am an international representative of the IUE and speak to you in that capacity today.

Senator CHILES. Fine.

Ms. FIFIELD [reading]: My comments will be brief and deal principally with workers and the workplace as that subject relates to the proposed legislation before the committee. This is not to suggest any disregard for or any lack of recognition of the concern for productivity. Also—these are Mr. DiCicco's personal opinion based on his own experiences and observations.

It is clear that the intention of the legislation before the Committee is that improvements in the quality of worklife should lead to greater productivity and improved economic effectiveness. It is that dependency relationship that I wish to challenge.

It was not so many years ago that I was in the shop working within a factory system that was established over 200 years ago, a factory system that has been termed by many and which I believe to be iconoclastic. One of my jobs was to feed and unload a semiautomatic machine and rewind the magnetic tape which performed the machine functions while I stood by and watched. I was nothing more or less than an extension of that machine tool. It was boring and unchallenging.

That job is only one of hundreds of thousands of similar jobs in this country today and that number is growing. It is that condition which has led to the many problems experienced both by management and labor, problems which range from absenteeism to the general attitude of workers.

As a local union officer, I had the opportunity of participating in the development of a program intended to gain a greater machine utilization by changing the roles of workers in the workplace. That experience has convinced me that the traditional factory system, as we know it, can be changed not only for the benefit of the company and greater productivity, but also for the benefit of the worker.

I would suggest that the benefit should not be solely contingent upon improved productivity. There is a great deal that should be done for the distinct purpose of improving the workers' quality of worklife simply because there is a need for that in itself.

It would be naive of me to suggest that any progress toward humanizing the workplace can occur without projecting a result of greater capital return to the business community. However, I am convinced that Congress can define as equal objectives improved quality of worklife and productivity.

It has been suggested to me that the only way the Congress will agree to address, itself to improving the quality of worklife is by making it dependent upon, or condition to improved productivity. If that, in fact, is the case and improving the working lives of over 90 million workers in the United States cannot be established and become a defined objective of the United States Congress, then that concept should be removed in total from the legislation rather than introduced in a way that would suggest nothing less than a dependent status.

It would be a serious misjudgment to expect the cooperation of workers in the shop or their unions in a project of improving productivity if improving their workplace and their roles in the shop did not take on equal status. This becomes exceedingly important when one evaluates the degree of hesitation the labor movement has shown in becoming involved with those projects already underway.

Further, it is my sincere belief that unless equal status can be achieved, that the concerns and suspicions of many union leaders will be confirmed and the progress made in gaining labor unions' participation and support, no matter how slight, will be seriously impaired.

Relative to Senator Percy's bill, consideration was given to suggesting an amendment such as changing the term "work quality" which suggests quality of a product or service, to the term "quality of worklife." However, in reviewing the proposed legislation, amendments of that nature would not be sufficient.

In considering the time allowed for preparation, a thorough and proper presentation could not be developed for today's hearing. Indeed, if the points I have raised are not acceptable, such a presentation would be premature and presumptuous. However, if the committee determines that the concept suggested should be incorporated, let me offer any assistance and additional information that might be helpful.

There are two other areas I would like to comment on briefly. The first deals with the ongoing concern of most unions over government involvement and leverage in labor-management relations, an extremely sensitive area.

I would suggest that the proposed center not be administered by or delegated to any specific governmental department, and that the efforts of the center be directed to promoting self-involvement, without strings attached .

My understanding is that there will be other testimony in this area, so I will not comment further at this time.

Finally, I would be negligent if I did not comment on the effect experienced within our industry, the electronics industry, of exporting American technology and productivity in the world market context. All too often we have observed that once new techniques are developed here in the United States, they are relocated and applied in low-wage countries by multinational companies only to be used to compete against American industry and further against the American worker as a consumer in the world market. I offer this only as a comment without a specific suggestion and for that reason will not belabor the point.

Ms. FIFIELD. With your indulgence, I should like to close with an observation of my own. As a trade unionist by vocation, as well as by philosophy, perhaps these closing thoughts will clarify the hesitancy of organized labor to participate in these deliberations.

With full acknowledgment of our own sort of innate paranoia about "big business" and "big government," we in the union movement first have to recall devaluation of the dollar and wage controls as some of the efforts by business to hold profits steady. A fast followup with a productivity drive has to be seen by us, in the short range in which we function, as a further attempt to increase the amount of value extracted from elements of production including workers.

In that same short range, we look very cautiously at claims that productivity growth in the United States is essential for the welfare of the United States and the world. As our own members are less and less able to consume the fruits of our labor and as world inflation and other factors are limiting the world marketplace, we have these concerns especially when quality of work life is called in the proposed legislation, "utilization of human resources," because to trade unionists, that means using people.

However, we do have the sophistication within the union movement to take the longer view in an effort to secure as national policy that element which American workers have fought to secure on a piecemeal basis for two centuries, namely, human dignity in the workplace.

It is consistent for trade unionists to submit that goal as one to be placed side by side, rather than contingent upon national productivity.

Senator CHILES. Thank you very much for your statement. I want to indicate to you that the record will be open for at least a week if you have any further statement or anything you would like to add. It is a little bit hard to question you, perhaps, because part of the statement that you have read is just a little bit unclear to me. The statement says it would be naive to suggest that any progress toward humanizing the workplace could occur without projecting a greater capital return. But he feels that any definition having to do with human rights should not be dependent upon productivity or upon there being improvement in productivity.

That is conflicting to me. I do not exactly understand.

Ms. FIFIELD. The intent of the statement is probably one of clarifying our own realization that we certainly do not expect the committee to be one-sided in our favor. That is, if we are talking about working within the economic system that we share. As trade unionists we have to recognize that improvements we are seeking are certainly not going to be secured totally at the expense of business but in fact the traditional labor "give and take" has to continue. With that in mind, we will then very stubbornly take the position that our narrower view that the quality of worklife is the most important element. As the workers' advocate, that is consistent.

Senator CHILES. I see. Thank you very much. I appreciate your testimony.

Our last witness will be Mr. John Stewart, the director of McKinsey & Co.

Mr. Stewart? Mr. Stewart, if you might wait one more second before you start. Senator Nunn will be here and he will be able to accept your statement in full. This particular vote we are having is four votes in one. And so I am going to leave right now and let him take your statement.

Mr. STEWART. Yes, sir.

[A brief recess was taken.]

Senator NUNN. We are delighted to have at this point Mr. John M. Stewart, who is director of McKinsey & Co., and I believe Mr. Stewart was formerly the Director of the National Commission on Productivity.

Mr. Stewart, thank you so much for being so patient. We apologize for this, but it is not the exception. It is usually the rule down here.

TESTIMONY OF JOHN M. STEWART, DIRECTOR, McKINSEY & CO.

Mr. STEWART. Thank you, Mr. Chairman. I am pleased to testify in support of the bills introduced by you and by Senator Percy, both as a private citizen and as a former executive director of the productivity Commission.

It seems to me that these bills recognize three major and pressing needs.

First, they recognize the need for productivity efforts among governments, labor unions and management. This is especially important, I think, because individual corporations and many of the union with whom they work have been and are pursuing productivity improvement already. And to some degree individual bureaus of the Federal Government, and departments in individual cities have been and are pursuing improvement also. But many of the productivity opportunities are not within the control of these individual political or corporate units. An improvement opportunity in transportation, for example, involves many organizations—as the Productivity Commission's project on food transportation demonstrated last year. It included the Interstate Commerce Commission, fruit and vegetable cooperatives from California, four major railroads, two major unions and supermarket chains that stretched from Boston to Washington. Your emphasis on tripartite cooperation, then, is critically important.

Second, the bills balance two conflicting pressures that have bedeviled the Productivity Commission since its inception. They are the pressure to survey the economy broadly, on the one hand, versus the pressure to concentrate deeply on a few improvement projects on the other hand. Just surveying the opportunity for productivity improvement among the hundreds—440, I think, at the SIC level, and the thousands of political jurisdictions, about 89,000—is an important and full-time job for a small commission. This requires rapid examination of many economic trends, and the symptoms of economic malaise. Such an examination permits other organizations to concentrate on the most urgent and most significant productivity problems, as a result.

On the other hand, working on one or two improvement projects shows tangible results—changes in how we provide health care, conduct government or operate businesses. While these improvement projects are more satisfying to work on, and certainly more satisfying to those members of appropriation committees who fund them, they take so much effort that only a handful can be undertaken in 2 or 3 years time.

I offer from our experience on the Commission as a rough rule of thumb that it takes about for each $1 to identify a productivity problem, it takes $10 to study it, $100 to develop worthwhile solutions, and $1,000 to solve it, including capital and technology.

The emphasis in both bills on marshalling State, local, and Federal resources is commendable, and will greatly extend the productivity effort.

Third, the Center is one step toward a national productivity policy. Such a policy is essential to muster the initiative, and the financial resources that we have. Corporations have such a policy, generally. It is called improved return on investment or improved earnings per share. Unions have such a policy, either explicitly stated as in the United Automobile Workers contracts, which calls for 3 percent productivity improvement annually, or implicitly through the collective bargaining process. But the Federal Government has no policy. Without an objective, without the direction that policy provides, Federal agencies, industry associations and unions are not cooperating where they are well able to do so. Without such a policy, it is difficult to muster the interest and command the resources within the Government for improvement projects. This committee, I believe, should insist upon

a national policy at the earliest time, and a clear response from the Center and the executive branch on how that policy will be implemented.

There are three modifications that I would suggest to the existing bills for your consideration. First, the Center should encourage planning, among industries, among companies and between companies and unions, to minimize the effect of job loss on workers. This is the single biggest obstacle to productivity improvement.

Currently, in U.S. corporations, manpower planning is concentrated upon the current needs. It is not devoted toward forecasting industry needs by skill or by geographic location. It is not devoted toward the longer term dislocations that are bound to occur. Frequently, therefore, labor unions are forced to fight productivity improvements in order to provide time for their members to adjust to the change, and to find new jobs. As the president of one large service union pointed out to the Productivity Commission last year, "I can go along with all kinds of productivity improvements while my union is growing, but once our industry stops growing, and it will, I'll have to fight much harder to avoid productivity changes that come without warning and without consideration for displacement of people."

We have the skill and the knowledge to soften the hardship that productivity improvement creates for the new. The Center should organize this skill on an industry by industry basis so that individual corporations and unions can make wiser decisions regarding the future need for people, and foresee the early need to train people for new skills.

Third, the Center should encourage recognition of individuals who improve productivity, and insure that productivity improvement is well regarded by elected and appointed officials.

One of the most vexing difficulties regarding productivity in government is the rapidly changing population of appointed and elected officials. The civil service worker, who may have as many years of Government service as his appointed or elected superior has months of Government service, is often at a disadvantage when proposing productivity improvements. Most improvements require some investment this year, investment of money or of time.

But the benefit often is not evident for 2 or 3 years, after the appointed official has gone. This leads appointed official in the Federal Government and elected officials in State and local government to spend their time and influence elsewhere on more urgent and more visible projects. The Center would do a great service to taxpayers and to workers in Government by recognizing the value of actions taken this year that will affect productivity 2 or 3 years hence.

The Center should help agencies to be selective in applying their resources to productivity improvement.

It is urgent, therefore, when approaching the productivity problems of an industry or an economy, to be selective. As Dr. Dunlop pointed out, there is limited interest, effort, and resources available. Long experience in productivity improvement has taught us that 20 percent of the ideas provide 80 percent of the gain we can achieve.

For example: 20 percent of the ideas for improving food production, transportation, and distribution provided 80 percent of the sav-

ings identified by a labor management task force 2 years ago for the Commission; and 20 percent of the capital investment projects in most corporations provide 80 percent of the productivity improvement; and 20 percent of ideas for repairing locomotives in West Virginia provided 80 percent of the improvement; and 20 percent of the projects for improving garbage collection in New York City provided 80 percent of the improvement.

With limited resource, it is important that the Center itself, and the Government as a whole spend them on the 20 percent of the ideas that make 80 percent of the improvement.

Mr. Chairman, I appreciate this opportunity to express support for your efforts concerning productivity. Thank you very much.

[The following was supplied by Mr. Stewart:]

SPECIFIC SUGGESTIONS CONCERNING A NATIONAL CENTER FOR PRODUCTIVITY AND ECONOMIC COMPETITION

Energy productivity.—Preliminary calculations by the Productivity Commission indicate that energy productivity has declined during the past ten years. In our complex society, energy productivity must increase each year. The Center ought to devote some effort to this alarming problem.

Productivity at zero population growth.—Industry growth has been predicated on population growth plus productivity growth for decades. As population stabilizes, gains in real per capita wealth will come only from productivity improvement. This should be examined by the Center and its implications made explicit in national policy.

Leisure.—Productivity has provided not only goods and services but also leisure to American workers. Americans work shorter weeks, start work at a later age, and retire earlier than in other industrial nations. This is an important goal in collective bargaining and should be recognized in any national policy.

No sweeping answers.—There are no shortcuts to productivity improvement. By nature, improvement is a diverse phenomenon. In capital spending alone, if each decision was for $1,000,000 (and each decision is for a much smaller amount), there would be more than 100,000 different decisions concerning capital investments each year in the U.S. The approaches taken by the Center, therefore, must be flexible and tailored to each industry or governmental service.

Chairman's term.—Two years is too short a time for a Chairman to be effective. The term should be 3 years or longer.

Commerce Department.—Placing the Center in any department will decrease its effectiveness. The people with whom the Center must work throughout the economy include both supporters and detractors of many government departments. An independent center helps achieve the objective of a nonpolitical catalytic organization.

Existing governmental efforts.—In the Federal Government, there are some efforts that deserve strong support from the Center. One of these is the Joint Financial Management Program's effort to measure Federal Government productivity, and the sponsorship of that effort by GAO Comptroller General Elmer Staats and Assistant Comptroller General Thomas Morris. Others are the Bureau of Labor Statistics Productivity Measurement Program, the GSA productivity unit, and the Civil Service Commission's effort. In addition, there are improvement projects in the Departments of Treasury, Defense, Commerce, and HUD that deserve support. The Committee would do well to ensure that these efforts receive attention and resources from the Center.

Senator NUNN (presiding). Thank you, Mr. Stewart.

One particular point I am interested in, how would you go about planning in a long range to prevent job loss from productivity? I think this is one of the most important facets to try to come to some conclusion on. As we progress through this legislation I would like very much to have it incorporated in the bill. Aside from saying it in the bill, how does the Productivity Commission go about it?

Mr. STEWART. I do not believe, sir, that the Productivity Commission by itself can. But each corporation is able to develop some notion of its needs for people and a mix of skills in the short term.

The same people in these corporations, with some urging should be able to work with others in their industry to develop some notion of what numbers and kinds of skills, would be required for the next five to ten years. A 5- to 10-year plan for a single industry, considering the rate of growth of the industry, and subtracting the rate of productivity growth, gives some idea of the total numbers needed. We should not prevent industries from losing people, but we should plan for industries losing people. We need to plan upgrades in skills.

There are individual corporations that do some of that now. IBM, for more than 20 years has been upgrading their work force from card punching equipment to vacuum tube equipment onto transistors and on again to solid state circuitry.

There is the embryo skill for planning manpower in most corporations but there is no coordinating organization such as the Center could be for pulling together that skill that knowledge—industry-by-industry planning—for a mix of skills and a quantity of skills.

Senator NUNN. Should this not also be coordinated with our educational institutions in terms of their training?

Mr. STEWART. Very much so. One of the greatest advantages this country has is the enormous amount of skill at the technician level. Many of our junior colleges and our universities are capable of retaining people in industries that are obsolete.

But there is no central notion or idea of the quantities of skills needed. Those universities and junior colleges could be an excellent source for retraining.

Senator NUNN. What about stability at the Commission? Do you think stability in terms of being in existence for a long period of time and knowing the existence is going to be stable, is going to do anything dramatic with the present Commission?

Mr. STEWART. Stability would be an enormous boost to any organization, such as the Commission. In private industry when we talk about productivity improvement, we usually assume that in the first year we are not going to get any real gain, that the gain will come in the second or third year.

So we assume we have to invest in the first year. My own experience was such that the longest time we knew that the Commission would be in existence was 11 months. Thereafter, we knew that we would exist for 60 days, then 90 days, a second 90 days, 30 days, a second 30 days and 4 months. That makes it very difficult.

Senator NUNN. Was that because you did not have appropriations or was that because it was not created by statute?

Mr. STEWART. There were questions both of appropriations and authorization.

Senator NUNN. I was under the impression that the original creation was done by Presidential Executive orders. Was it done by statute to begin with?

Mr. STEWART. Yes, sir. The Commission was authorized in section 4 to the amendments to the Stabilization Act in December of 1971 by statute.

Senator NUNN. But not long range, just for a short period?

Mr. STEWART. It was unfortunately very short range and therefore, highly disruptive.

Senator NUNN. Where does your Executive order come in, what has it done? Has the President before this recent action taken any real interest in the Productivity Commission?

Mr. STEWART. If I remember correctly, we have never had an Executive Order as such. The Commission was combined with the Cost of Living Council as a productivity unit at one time. I left the Commission in March 1st of this year, so I really cannot comment on any of the present Administration policies.

Senator NUNN. What do you think of having, instead of a Commission, of having a Center—as we have talked about in both pieces of legislation?

Mr. STEWART. I think it is an excellent idea to have a Center that has three years of life, as has been proposed. Some sense of stability would be excellent.

I think that is preferable not to locate the Center in a single Government department. If you locate it in Commerce, then many of the Labor people, down-the-line Labor people, and people in the Labor Department will not cooperate as much. If you locate it in the Labor Department, unfortunately some of the Commerce and Business people will not cooperate as much. So independence is an enormously useful attribute.

Senator NUNN. I agree with you generally on that. The problem was my legislation was drawn long before the President began giving a whole lot of emphasis to productivity. I am delighted to see that, and if it is going to be emphasized, if this Commission is going to become the Center and be beefed up, then I would look at it with considerable flexibility.

Mr. STEWART. I think your original thought of having Commerce heavily involved is a good one because the Commerce Department should take an increasingly active role.

Senator NUNN. The labor Department would have to become involved too.

Mr. STEWART. Yes.

Senator NUNN. The only problem is, as I have already said today, I certainly hope we do not concentrate this at the Washington level like most other agencies, and particularly, an independent agency. They feel they have to get a tremendous size and all of their growth usually centers in Washington to begin with. It is going to be awfully hard to not get the standard bureaucratic organization if you do not guard it closely.

Of course, that is my philosophy. Let me ask you yours. What do you think about the idea of trying to have this Center really be just that, a coordinating point rather than an entity that carries out all of the functions?

Mr. STEWART. I agree. It is costly to implement at the grass roots levels, which is where most productivity change really occurs. No government organization could be large enough to make a real impression on productivity if it chose to center in Washington and have all of its staff here and try to solve problems across the country. It

can do a useful job of selecting those areas that make the most difference, the 20 percent that make 80 percent in difference. But the actual change has to occur in the states, in the cities, in the towns, and in the factories.

I think the committee would do well to make sure that as little as possible of that implementation takes place in Washington and as much as possible takes place where the work is.

Senator NUNN. The energy productivity area, I do not know whether you touched on that in your statement or not. According to my understanding of the energy productivity—in terms of efficiency, might be a better way to express it—not much has really been done in recent years.

Do you see these two things, energy productivity or energy conservation going together with the productivity we have been discussing?

Mr. STEWART. Yes, sir, I do. About a year ago we tried to determine whether we as a nation were using more or less energy for each unit of goods and service that we produced year to year. We asked whether, if we make the same amount of goods and provide the same amount of services next year as we do this year, will we use more or less energy? And we found, much to our dismay, that we would use more energy year to year to produce the same amount of goods and services.

That has been true since 1965. In other words, we are wasting more and more energy. We have "reversed learning" taking place on energy and we have had for almost the past 10 years.

The more we think about conservation of energy, the more we need to turn that trend around. I believe the gentleman from Georgia Tech commented on their effort to do this. We should be able to use energy with a higher and higher productivity rate each year and not a lower and lower one.

So that is a very important subject.

Senator NUNN. Are there any other comments that you have, Mr. Stewart?

Mr. STEWART. No, sir, I have none.

Senator NUNN. We hope you will follow this legislation and continue to let us be the beneficiaries of your counsel and guidance. I know you have a lot of experience in this and we would like for you to feel free to comment at any point because we will be introducing new legislation next year with the ideas that we have developed today and tomorrow and, hopefully, we will make some improvements but we are still going to be looking for any kind of changes that will make it more effective.

Mr. STEWART. Thank you, sir.

Senator NUNN. Thank you, sir.

The committee will be adjourned until tomorrow morning at 10. The first witness tomorrow morning will be Commerce Secretary Dent.

I appreciate all of your patience again for those of you who have sat here so long. We apologize for the interruptions, which were unavoidable but regrettable.

[Whereupon, at 4:54 p.m., the committee adjourned, to reconvene on Tuesday, December 17, 1974, at 10 a.m.]

NATIONAL PRODUCTIVITY

TUESDAY, DECEMBER 17, 1974

U.S. SENATE,
COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D.C.

The committee met, pursuant to notice, at 10:12 a.m., in room 3302, Dirksen Senate Office Building, Hon. Sam Nunn presiding.

Present: Senators Nunn and Percy.

Also present: W. P. Goodwin, counsel; Elizabeth A. Preast, chief clerk; and W. Thomas Foxwell, staff editor.

OPENING STATEMENT OF SENATOR NUNN

Senator NUNN. The committee will come to order.

This is the second day of 2 days of hearings by the Senate Government Operations Committee on productivity. Senator Ervin has been kind enough to ask me to preside over these hearings. The primary focus during these 2 days is on two bills: S. 4130, which I introduced, which is called the National Productivity Act of 1974. The cosponsors are Senators Bartlett, Chiles, Domenici, and Senator Percy; and S. 4212, the National Center for Productivity and Economic Competition Act, introduced by Senator Percy and cosponsored by Senators Ribicoff, Javits, and myself. Senator Ervin, the chairman of the committee, has designated me, for the purpose of this hearing on this particular subject, to chair there hearings.

Yesterday, we heard from a variety of Government, industry, labor, and academic representatives. The primary issues centered on the need to stimulate productivity, the problems, regulations and regulatory agencies, pose for business, the usefulness of a local industrial extension service, the special needs of small businesses, the performance and organization of the present National Commission on Productivity and Work Quality, the usefulness of a productivity impact statement throughout the Federal Government, and the need to establish a new productivity center.

Today, we shall continue to explore these issues, and also to hear in some detail testimony on current Federal Government activities with respect to productivity both in the private sector as well as the public sector.

It is clear to me, based on yesterday's testimony and previous knowledge, that our present efforts as a nation are not sufficient, particularly in light of today's economic conditions and declining productivity; and that we need to initiate a bold new effort to stimulate productivity growth. I am hopeful that today's witnesses will add to the knowledge

gleaned yesterday, and that we can build a record which will provide the basic foundation, together with the best of the two bills we have before us for that new initiative, in the early part of the next session of Congress.

We have an impressive group of witnesses today, starting with Secretary of Commerce Fred Dent. I am delighted particularly that the Secretary is here. He has been a real leader in this field. He has talked about it on numerous occasions. He has done what he can through the Federal Government to stimulate productivity through his activities at the Commerce Department. He did an excellent job in helping with the economic summit conference. He chaired the session at Pittsburgh, where I gained many of my ideas regarding this legislation. Secretary Dent, we are pleased to have you. We would be delighted if you would take the witness stand, and give us your comments. I am certain that we will have some questions after that.

You can also bring anyone that you have with you, and we would be glad to hear from them, if they so choose.

TESTIMONY OF HON. FREDERICK DENT, SECRETARY OF COMMERCE OF THE UNITED STATES; ACCOMPANIED BY ROBERT MILLIGAN, DIRECTOR, OFFICE OF POLICY DEVELOPMENT

Secretary DENT. Thank you, Mr. Chairman. I have with me Robert Milligan, who is Director of our Office of Policy Development in the Commerce Department. I want to express appreciation for your warm welcome. I thank you and members of the committee for this opportunity to comment on some of the broader issues involved in productivity, as well as the two Senate bills now being considered by the committee: S. 4130, the National Productivity Act of 1974, and S. 4212, the National Center for Productivity and Economic Competition Act.

First of all, I strongly share the concerns expressed in the remarks introducing S. 4212. It is clear that the future growth of productivity in the United States will fundamentally affect our abilities to compete in domestic and international markets, to cope with constraints on the availability of critical raw materials, and to sustain and improve our standards of living and quality of life.

The basic questions we now face are, how can we, as a nation, best achieve an adequate rate of productivity growth in the future, and what is the proper role of Government in this regard.

Our future productivity growth in the private sector will be essentially a function of the economic incentives for such growth. In a free society, the basic and most powerful incentive for businesses to improve their effectiveness, through new technologies, processes, or procedures, will continue to be the profit motive under competitive conditions.

In most cases, there can be no more effective stimulus to assure that business enterprises adopt those productivity improvements that are practical and applicable for their individual circumstances. It is the same stimulus that has traditionally motivated the aggressive marketing of new equipment and processes to potential users, as well as the marketing of a vast range of consultative services to businesses of all sizes. Since there are more than 12 million business proprietorships,

partnerships, and corporations in our private sector, I believe the wisest and mose effective Government role is to see that the free enterprise strengths of our system are not eroded and the profit motive continues to be a viable incentive for productivity growth in this sector. This would include actions to insure that restraints to competition are minimized consistent with the best public interest.

With respect to Government services, the absence of the profit motive and competition as such suggests that special programs to examine and improve productivity in this sector are not only desirable, but are essential. However, because of the extent and diversity of governmental activities, practical productivity efforts in this area must not ignore nor weaken the inherent responsibilities of managers at all levels for productivity improvement.

Strengthening the functions and programs of the existing National Commission on Productivity, rather than establishing an additional agency, appears appropriate. While many of the accomplishments of the Commission have been notable, it seems clear that more can be done, particularly in coordinating Federal productivity efforts and initiatives.

State and local activities to stimulate productivity growth should be encouraged; however, the costs of such programs should be shared essentially by sponsors and participants on the basis of realistic appraisals of expected utility. Limited Federal support would be appropriate for selected demonstration projects which appear to have high potential for wide application.

Effective labor-management cooperation will be essential if we are to fully realize the potential strength of our American economic system. Such cooperation, however, must be voluntary, and directed toward common interests. This cooperation must be encouraged by Federal productivity programs; it should not, and cannot, be mandated.

With regard to Federal research and development efforts relating to productivity, increased effort should be directed at the collection and dissemination of information on specific and outstanding accomplishments in both the public and private sectors.

S. 4130 reflects a commendable concern over the need to strengthen the Federal productivity program. However, it appears to duplicate some responsibilities of existing agencies.

Since a number of the basic and desirable objectives of this bill are also reflected in the second bill, S. 4212, the National Center for Productivity and Economic Competition Act, I will limit my specific comments to this latter bill. S. 4212; the concerns reflected in the proposed legislation over structural economic imbalances which act to inhibit the growth of productivity in both the public and private sectors, are most appropriate at this time. Over the years, we as a nation have knowingly, or unknowingly, adopted many governmental regulations, as well as practices by both business and labor, without proper awareness or consideration of their possible inhibiting impacts on national productivity growth. In today's environment of keen international economic competition, energy restraints, and recurring shortages of certain material resources, we can no longer afford the luxury of legislated or contrived inefficiencies in the production of goods and serv-

ices. Corrective efforts in this area will also have significant impact in relieving long-term inflationary pressures.

However, the responsibility cited in section 103(2) and relating to structural imbalances constitutes an exceptionally broad mandate in a particularly complex and often controversial area. The scope of this responsibility should be revised so as to not duplicate responsibilities contained in the administration's proposed bill to establish a national commission on regulatory reform.

For the same reason, I also suggest that the wording of the beginning of section 103—"to consolidate in one government unit the responsibility * * *"—be revised so that it does not inadvertently detract from the basic principle that productivity improvement is an inherent responsibility of managers at all levels of government. Furthermore, the effective impact of a national productivity effort will, in the final analysis, hinge largely on the exent to which individuals in all walks of life recognize the potential value and implications of national productivity improvement with respect to their own long-term interests, and their own opportunities and responsibilities in this regard. The point is that improved performance should be a basic commitment of every individual who aspires to a better standard of living.

Section 206(9), specifying the function of the center "* * * to initiate, develop, and implement a national, regional and local technical assistance, referral and extension service * * *", seems too broad. This provision should be modified, limiting this function to one of supporting only selected demonstration efforts, as previously suggested in my comments on assistance to State and local activities.

The wording of section 207 should also be revised to delete blanket support for almost any agency or organization boosting productivity and the exemption of Center grants and contracts from the provision of Federal procurement statutes and regulations. These special authorities do not appear justified by the nature of the proposed Center's responsibilities.

Unless the authorization levels reflected in section 304 are intended to support all special productivity activities of the Federal Government, they appear excessive for the type of role envisioned for the Center.

In conclusion, I endorse the basic objective sought in both S. 4130 and S. 4212. The Department of Commerce would be pleased to work with the Congress in further developing some of the issues I have raised regarding S. 4212. I commend the members of the committee for their initiatives and efforts in developing the legislation being discussed and for conducting these hearings. Increasing national productivity is not a quick, simple, or easy process. However, it is one sure way that we can all contribute to a better future for America.

Thank you, Mr. Chairman.

Senator NUNN. Thank you, Mr. Secretary. Senator Bartlett is here, and we are going to get to his statement in just a few minutes.

I would like to ask you a few questions on what I consider to be very constructive comments about both these pieces of legislation. When you talk about the wording of section 207, when you talk about blanket support for almost any agency boosting productivity, I tend to agree with that analysis. But do you have any suggestion about

how you can limit that? Are you talking about limiting it to nonprofit organizations, or are you talking about including possible grants to State and local governments, university systems, profitmaking organizations, business, labor? I do not know where you cut it off.

Secretary DENT. Well, it does seem to me there has to be certain standards established, which would affect the extent to which the grants would involve a broad sector of the economy, as differentiated from a rather narrow center. Emphasis should be put on broadening the impact of such grants and efforts insofar as possible and practical. It does seem to me, as we have discussed, where the private sector is able under the profit incentive to undertake their efforts, they should be given free rein to do so.

However, one can readily identify limited special circumstances where support would be warranted: because of depressed or changing conditions, international competition, and other factors. But I think that a major thrust should be in the governmental area. As you know, as a percent of total employment in this country, State and local employment has doubled since 1950; whereas on a percentage basis, Federal employment levels have remained relatively stable.

Senator NUNN. One of the things I emphasized yesterday, and I would like to get your reaction—we have utilized successfully at the Federal level our university systems and the technical knowledge that is housed in those systems throughout our country, in both the space effort and the military effort, through research and development, and many other innovative projects that have been undertaken through our university systems. I know we have almost neglected—or at least, to my knowledge, and you may be able to add to this—we have almost neglected using these universities, and the huge reservoir of knowledge located there, in trying to help our business segment. I am thinking particularly of smaller businesses that do not have the in-house capability nor the resources to hire huge consulting firms or to have that in-house ability.

Would you like to comment on that general observation?

Secretary DENT. Yes; I thoroughly agree with you, Mr. Chairman, and I do believe that your comments reflect a direction that the President gave to the Secretaries of Commerce, Labor, and HEW in a speech which he gave August 30 at Ohio State; where we were asked to prepare for him a report on how the world of work and the world of education might be better assimilated. I think that not only does your concept of utilizing the resources of a university hold a potential for aiding business, but if we can introduce the concept of productivity into the educational system, we will be turning out students who are far better adapted to increase productivity in their working lives; and one of the problems which you described has come to pass; in my judgment, it is that we have compartmentalized lives. The first 20 or so years are for education, and then the period following that to retirement is for work. And too often, the universities do not have relevance in education, and I am not talking just about vocational education. Even those who take liberal arts should be made familiar with some of the principles and the challenges that they will meet in the working life, and the development of productivity efforts at the university level would contribute to this, in my judgment.

Senator NUNN. I would think that there would be a twin opportunity here in the energy field. From what I have learned from the Georgia Tech experience, when they are looking for ways to increase productivity out in the field, which they are doing very successfully—you and I have talked about that, I believe, before—they are going out and calling on specific industries like the granite industry, the food processing industry, the poultry industry. They bring back to the institution, where they have the resources and the capability, the problem they have diagnosed; and then they try to develop solutions to the problem. Of course, it would be up to industry to implement it. These solutions have been of tremendous help, as we heard yesterday in testimony from the forest industry, the poultry industry, the granite industry, and the carpet industry. One of the side benefits that might be just as important to productivity, and I think interrelates, is the question of being able to utilize existing energy sources with a whole lot more efficiency. For instance, they found a 10-percent reduction in the carpet industry's use of energy could be achieved—that would be a huge amount in the State of Georgia, and probably throughout the country—by just a relatively inexpensive—I believe $9,000—expenditure at each plant.

This is a side benefit, but I feel strongly that we should not create a new, huge Federal bureaucracy up here. We had testimony yesterday that right now, the National Commission on Productivity—I know they have been understaffed and so forth—has all of their people sitting right here in Washington, D.C. Now, what kind of productivity are you going to increase in Washington, D.C.? You have got to get out in the field where the people are. I do not think we are going to solve our productivity problems, or even begin to, by creating a Washington-based bureaucracy that will become very much like the others.

I would appreciate your comments on that rather sweeping generalization.

Secretary DENT. Well, I think you are right, Senator, and I do believe that here in Washington, we can do a tremendous amount about productivity across the Nation; and that is, recognizing that productivity is going to come largely through incentives, incentives for those businesses out in the country to utilize the knowledge which can be provided through the university system and the rest of it. But as long as we discourage that type of approach, a lot of which has emanated from Washington, I think that we are going to be retarded.

Senator NUNN. Mr. Secretary, two other questions. I agree with the new effort that the President has expressed in several pieces of legislation dealing with the inhibitions of the regulatory agencies, and the effect of those regulations on business. I certainly think this needs another look. In S. 4130, which I introduced, and I think also S. 4212, Senator Percy's bill, we both tried to get at this general problem. I think there is some duplication here. But it seems to me we have two problems in terms of Federal regulation and the effect on productivity. No. 1, how do you go about sweeping the house clean of those regulations already existing? Now, that seems to me what the President has been talking about and what the legislation is aimed at—looking at the present structural imbalances is, I think, one way of expressing it.

The second part, and perhaps even more important in my mind, is how do we prevent the recurring of these in our actions, both legis-

latively and administratively? I do not know, but I would suggest to you that we are probably creating more of these every day. We are going to be like running on the carpet that is moving if we do not have some way of addressing point 2. I think what we ought to aim at in this legislation, is some way of having an impact statement. That is, of course, what I require in my legislation; an impact statement by governmental agencies on productivity and the effect of certain administrative action, hopefully spreading to the legislative arena the effect of these regulations on productivity.

Now, how are we going to deal with that second question, and how are we going to deal with the first?

Secretary DENT. Well, first the President's proposal, which you described accurately, relates to those agencies presently in effect; and as you know, the proposal is a joint congressional-executive branch commission to review the standards, the regulations that these agencies have promulgated, to develop recommendations for modification if they are found to be contrary to the concept of anti-inflation, increasing productivity.

Now, with respect to new legislation that is created, and from today forward——

Senator NUNN. And new administrative action.

Secretary DENT. Right—as far as legislation is concerned, we, in the Department of Commerce, intend, in making comments at hearings such as this before committees of the Congress on new proposals, to report our judgment as to the effect that this proposed legislation would have on productivity in the Nation, and to call this to the attention of those who are considering it. I think beyond that, of course, the interest which you and other members of the committee have shown will certainly be reflected in the debates on the floor of the Senate as they come forward, as well as in the committee meetings.

When it comes to the regulatory regulations, we intend also, where asked in advance to provide comment, to include productivity observations. But as you know, agencies are independent. Sometimes they consult, sometimes they issue regulations without consultation.

Senator NUNN. Well, that is exactly what we are aiming at here. This kind of provision would require an impact statement on productivity, which I think is synonymous with an impact statement on the economy—the effect on the economy of every administrative action. This would be a substantial action. I know that there is going to be an awful lot of objections by the agencies, but in your mind, is this not on an equal plane of importance with environmental impact statements?

Secretary DENT. Environmental impact statements, of course, reflect the policy established by the Congress, and as such are part and parcel of the law. Now, we have been beset with an inflationary period that has been the most stringent in the history of this country. Some of it relates to regulations, and these sort of things. In order to avoid inflationary burdens in the future, certainly, we should consider the impact of regulations on productivity.

Senator NUNN. Now, what the President said, is it not, is that we ought to consider inflation. We ought to have inflationary impact statements. Is that not what he said, pretty much?

Secretary DENT. That is correct.

Senator NUNN. Is that throughout all of the Government, from this point on?

Secretary DENT. That is correct.

Senator NUNN. Well, should we not make that a little broader, because inflation is not our only economic problem; although it might not have an immediate inflationary effect, we also have recession. It seems to me we need a broader mandate. We need an economic impact statement that would embrace both productivity, efficiency, and inflationary effects.

Secretary DENT. Well, it does seem to me that if you discuss the anti-inflationary aspects, or inflationary aspects, of a piece of legislation, that it is logical that this same line of thought would lead to a discussion of productivity. Because it is the decline of productivity which creates inflationary pressures.

Senator NUNN. Well, that kind of mandate, if we can refine the language and make it realistic, would not be in your opinion inconsistent, then? It would be more of a complementary step with what the President is already attempting to get it.

Secretary DENT. If it can be folded into that overall concept, I think it is absolutely right. We talk about building bureauracies. I hate to have one item on the environmental impact, another on the inflationary, another on productivity. I think when you talk about the inflationary aspects, productivity should be folded into that, under the general title.

Senator NUNN. Well, I agree with that. They should be all part of one. They should not to be separate.

Secretary DENT. Yes, sir.

Senator NUNN. I would hope the effect of this would not create more paperwork. If it does, that means we have many departments that are not thinking about the impact they are having now on the economy. We had testimony yesterday that I tend to agree with. It said most administrative agencies and most regulatory agencies have tunnel vision in terms of looking at their own programs. Certainly, that is what they are supposed to do, but not without taking a look at the broader picture of economic impact.

Secretary DENT. I think that that is absolutely correct. But the tunnel vision is basically developed by the mandate which the Congress gives to these creatures that they have established. And I think the whole concept that you are holding these hearings on now needs to become part of the mandate to agencies not only in existence, but new ones that are created.

Senator NUNN. I agree; I appreciate that. One other question, and I know Senator Bartlett has a tight schedule, and he may want to ask some questions before his statement. But on S. 4130, you mentioned duplications with existing authority I would ask you, if you do know what those duplications are, to enumerate them.

Secretary DENT. In S. 4130, the proposed National Productivity Center would appear to duplicate the functions of the present National Commission on Productivity and Work Quality. The requirements for productivity impact statements would in effect partially duplicate the provisions of Executive Order 11821, dated November 27, 1974, which requires inflation impact statements for all legislative

proposals, regulations, and rules emanating from the executive branch of the Government. The Executive order specifically identifies "effect on productivity" as one criterion for determining those matters which would be subject to the order. The proposed review by all agencies of the Federal Government of their present statutory authority, administrative regulations, and current policies and procedures which adversely affect productivity would seem to preempt responsibilities envisioned for the proposed National Commission on Regulatory Reform (S. 4145). Executive Order 11809, establishing the President's Labor-Management Committee, provides that this committee shall make recommendations to the President on policies for promoting increased productivity. As illustrated by these examples, it is suggested that new legislation designed to strengthen the national productivity program should emphasize better coordination between such activities at the Federal level and avoid to the extent possible the establishment of duplicatory responsibilities.

Senator NUNN. We certainly want to eliminate any duplications. What I foresee on this legislation is some merger of these two bills, trying to take the best points of each, and to certainly get your comments on the specifics as we move along.

Mr. MILLIGAN. One example, Mr. Chairman; as you know, we in the Department of Commerce have been working closely with Rudy Yobs down at Georgia Tech Engineering Experimental Station, On some of the work that you have discussed previously. EDA, Economic Development Administration—currently has authority to fund these types of pilot projects. We are concerned that there may be a new agency coming into existence that might duplicate these efforts. We seek to avoid any duplication on that type of activity.

Senator NUNN. I would certainly agree with that. I do believe we have got to bring a focal point, through, on the productivity effort, and we may have to pull some other functions into this to eliminate duplication. I think the productivity effort, though, of the Federal Government—if we are going to have a Center, wherever it is located—needs to be centered here as much as possible.

I have a lot of other questions, but I will defer those at this point. Senator Bartlett has been a real leader in this legislation in helping draft the legislation and discussing it at length over the last several months. We have had numerous meetings on it. He also is one of our leaders in focusing on the economy, not just when we are in a crisis, as we are in now, but on a constant, day-to-day basis. So I am delighted to have my colleague here, and if you have any questions that have been stimulated by this dialog, we would be glad to have those. If not, we would be glad to have any statement you have on this legislation.

Senator BARTLETT. Mr. Chairman, I am very happy to be here and to hear the testimony and comments from Secretary Dent and from you.

I always enjoy hearing my good friend, the Secretary of Commerce, but I have no questions, so if you would like me to present my testimony, I will at your pleasure.

Senator NUNN. That would be fine. Mr. Secretary, I know you are on a very busy schedule, and I am not going to detain you longer. We appreciate your appearing, and as we progress in this legislation,

hopefully, during the first part of the next session, we hope you will keep abreast and give us your constructive comment as we move along.

Secretary DENT. Thank you.

Senator NUNN. Thank you very much.

Mr. Bartlett?

TESTIMONY OF HON. DEWEY F. BARTLETT, A U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator BARTLETT. Mr. Chairman, I appreciate very much the opportunity of appearing before you and this committee to testify on behalf of Senate bill 4130, the National Productivity Act.

For many years we in the United States have prided ourselves on the productivity of our people. The tremendous success of our economy has, in large part, been due to our ever-increasing productivity. Our farmers, ranchers, laborers, and businessmen have continually strived to increase their output.

This has been part of the American way of life. Our success has been phenomenal. Since World War II, our national productivity has almost doubled. Since 1950 the average farmer has increased his output by over 41 percent. With the boom in productivity has come an escalating standard of living for all Americans.

Due to America's ability to produce, virtually every family lives better with more opportunity for success than was dreamed possible 25 years ago. As a result of our growth, most of us accept improvement and progress as a fact of life. However, there are ominous signs which may indicate a slowdown or even a reversal in our Nation's ability to produce.

After averaging more than a 3-percent annual growth rate since 1947 to 1973, production slowed and even declined. This trend has continued and worsened in 1974.

Obviously, there are many factors which are ingredients in the decline of the last 2 years. I am most concerned about Government interference in our ability to produce. Every year for the last 45 years, the Government has passed laws, rules, and regulations, which in some manner deter our ability to produce and to sell products.

Obviously, many and probably most of the Government edicts were enacted for intended good reason. However, with the massive growth of the Federal Government and the concomitant growth of Federal involvement in the private sector, we should be militant to eliminate unnecessary Government controls which serve only to stifle our ability to produce.

Examples of unnecessary Government interference are rife. Our experience with the wage and price controls and its ultimate effect on inflation and our productivity is an obvious example. The Federal regulation of natural gas has drastically limited our ability to produce our cleanest, most efficient fuel.

This, Mr. Chairman, is probably the best example, because the control of the price of natural gas has existed since 1954, and I would bring your attention to an article on the front page of the section C1 of the Washington Post this morning, which has a lead on it saying Georgetown University shifts from gas to oil heat, and it brings out

that this is going to increase their costs $2,000 every single day. It also points out that they are just one of 259 customers of the Washington Gas Light Co. who must shift from natural gas to oil.

Washington Gas Light had its amount of gas reduced by 18 percent, and so these customers, who are known as interruptable customers, will have to shift over to oil, which will produce dirty smoke because gas does not produce any dirty smoke and will produce more soot while burning so it does pollute.

One of the gentlemen, a plant supervisor for Georgetown, Edward Liberatore, said, first we were told the interruption would last until March, but now the gas people say it will be permanent.

Well, this again is an example of what price controls do. There have been recent increases in the price of natural gas so that the average today per cubic foot is about 28 cents per thousand, and if you equate that, Mr. Chairman, to Btu equivalency of oil, you would get a price for a barrel of oil which would amount to $1.68, and if you looked at the new price that a person drilling in the Outer Continental Shelf would hope to receive for gas that he might find as an incentive for drilling there, that is 50 cents a thousand cubic feet, which equates to $3 a barrel for oil.

To put that in some kind of perspective, we are now importing oil at approximately $12.50 a barrel because of our inability to produce enough gas, but we are only offering as an incentive to those who would seek to find gas to fill the lines at Georgetown University and Washington Gas Light Co.—we are only providing them $3 oil price for gas, rather than $12.50 we are very willing to pay to people in other countries.

So, I think, this is one of the areas that we want to look very closely. Also, I think, our ability to have our productivity over the years correspond pretty much with our growth in energy shows that the two are tied together; and certainly our future productivity as a nation is tied to our ability to produce energy and to produce it at a reasonable price.

So the restrictions that we now have on oil as well as gas, price restrictions, deter our ability to be as productive as we otherwise would be.

While big business can pass on the cost of occupational safety and health requirements, many small businesses have closed their doors or not expanded because of the cost and confusion of complying with this act, and I think this act, and perhaps many others, Mr. Chairman, point out that big business and big labor, through their capabilities of lobbying can in addition to other contacts that they might have with Congressmen and Senators, convey their point of view on particular legislation rather effectively, whereas the small businessman or the individual farmer must rely pretty much on a one-to-one basis with their Congressman or their two Senators; and so, I think, this brings out a responsibility for those in Congress and the Senate that perhaps has not been discharged as effectively as it might have in the past.

Federal law prohibits the interstate shipment of State-inspected meat, even though reports of the Federal Government show that the State inspection is equal to or in some cases even better than the Federal inspection, and yet a small business is stifled in its ability to pro-

duce and to compete. It has a more restricted market because of the action and pressures of big business and big labor.

So here are laws that are rather confining in their nature and in their effect on the little man and his ability to compete.

Now, medical doctors are now of necessity spending a significant portion of their otherwise productive time filling out medicare and medicaid forms. This is another example where productives could be increased by a more meaningful way of achieving the same goal. Until now, productivity has not been a primary consideration. As Federal bureaucracy has spread like Topsy through the land, we have assumed that regardless of the Federal Government, ability to increase productivity would continue.

Regrettably, we are being proved wrong. I am always hesitant to recommend another Federal agency. With proliferation of Federal agencies, departments, and bureaucrats as part of the problem of which we speak.

However, John Stewart, form Director of the National Commission on Productivity has said, among the 2½ million civilian employees within the Federal Government, there is no department or person with any responsibility for evaluating or even monitoring the effect of Federal action upon the ability of the U.S. private sector to create wealth, let alone upon productivity improvement or a climate to facilitate the creation of wealth.

Mr. Chairman, I strongly support the concept of the National Productivity Center. I suggest its first and ongoing responsibility should be to monitor the Federal Government to insure that it serves rather than deters the productivity of the Nation.

I suggest that Congress as well as the various Federal agencies consider a productivity impact statement before passing any additional laws, rules, regulations, which would further deter our Nation's ability to produce.

Mr. Chairman, I would think that a productivity impact statement should also be required of all departments and agencies concerning all existing laws and programs. I think it would be very interesting if this were done. This is somewhat consistent with a program that I believe the chairman is familiar with that I have tried to advance to the administration of what we in our State call the management study of State government, which would be an efficiency study, not only of the actions and responsibilities of the Federal Government as an administrator, but also of Congress and the Federal Government as far as creating programs.

Senator Barry Goldwater once said that the role of Government should be to repeal some old laws rather than constantly seek to pass new ones. I can think of no more appropriate manner in which to assist the private sector in regaining its productivity momentum than repealing some of the unnecessary provisions of our laws which now strangle our economy.

Mr. Chairman, I wish to compliment you for your leadership in this area, and I wish you good luck in your endeavors because our lack of ability to increase our productivity will be a great deterrent to this country, not only from an economic point of view, but I think just from having a feeling of satisfaction that Americans have had in their ability to continue to progress and to provide a higher standard of living for more and more American citizens.

Senator NUNN. Thank you very much, Senator Bartlett, for that excellent statement.

Our next witness is Mr. Bruce Thrasher. Mr. Thrasher, is he here? Mr. Thrasher, come on up and take a seat.

Mr. Thrasher is assistant to the president of the United Steelworkers of America. The United Steelworkers, as we heard yesterday, is one of our leading unions in the Nation in understanding and talking about the importance of productivity to labor. I believe Mr. Thrasher is in charge of the Employment Security and Productivity Committee for the union, and he will, I am sure, tell us about them. It is my understanding that a joint labor-management committee was created in 1971, and many people feel they were a major factor in creating the great improvement in American steel productivity. We heard about that to some degree from Mr. Larry yesterday.

He and many others throughout our country are very complimentary of both you and your efforts, and Mr. Abel's efforts and your union, so we are delighted to have you with us to comment on this overall subject matter.

TESTIMONY OF BRUCE THRASHER, ASSISTANT TO THE PRESIDENT, UNITED STEELWORKERS OF AMERICA

Mr. THRASHER. Thank you very much, Mr. Chairman.

The development and implementation of an effective and constructive Federal productivity policy is one of the most important and difficult challenges facing our Nation and the Congress today. I am grateful to this commitee for the opportunity to share with you our joint concern on this important subject on behalf of the United Steelworkers of America, AFL–CIO.

While we fully support the committee's effort to establish a Federal productivity policy, we do have serious concerns as to what agency or department of Government will be responsible for implementing such policy.

Undoubtedly, this Nation's lack of a Federal productivity policy has placed the American worker, the American consumer, American business—in fact, the whole American industrial society—in deep economic trouble.

Our No. 1 economic problem today—standing alone at the top of the list and underlying most of our economic ills—is our declining rate of productivity growth.

For example, in the first quarter of 1974, productivity in the Nation declined 7.1 percent, the largest drop in our country's history.

An analysis of the Nation's productivity performance indicates that our productivity rate since 1965 had an annual average of only 2.5 percent. This is a decline from an average of 3.2 percent between 1950 and 1965.

So against this growing background of potential economic disaster for the Nation, the United Steelworkers of America does not feel that we are being an alarmist when we say, the Congress must move quickly and decisively to establish and implement a Federal productivity policy designed ot cure this growing economic ailment.

To fail in this recommended action will, in our opinion, assure the decline of the standard of living which has made America the world's

foremost industrial and economic power, and reduce this Nation to a fourth-rate industrial power. Due to the extreme urgency of this problem——

Senator NUNN. Mr. Thrasher, would you pull that mike up a little bit. I am sure the people back in the back want to hear this testimony. I am not sure they can.

Mr. THRASHER [continuing]. Due to the extreme urgency of this problem, coupled with the rising cost of Government operations, it is our considered opinion that a Federal policy on productivity sound be implemented through the now-existing National Commission on Productivity and Work Quality.

At present, the National Commission on Productivity and Work Quality has the following significant responsibilities with respect to productivity annd growth: its objectives, to increase the productivity of the American economy and help improve the moral and quality of work of the American worker.

Its functions are to encourage and assist the organization and work of labor and management committees on a plant, community, regional, and industry basis; to publicize, disseminate ideas related to its objectives; to advise the President and Congress with respect to Government policy affecting productivity and the quality of work; and to coordinate, promote, and provide research and technical assistance regarding productivity.

Having worked with the Commission, we support its objectives and functions, particularly with respect to its encouraging and assisting in the organization and the work of labor-management committees on a plant, community, regional, and industry basis. We belive that this function is a fundamental principle that should be incorporated in any national effort to improve productivity, since the direct responsibility for improving productivity in the private or public sectors rests with those sectors and is not, and should not be, the direct responsibility of the Federal Government. Unless responsibility is assumed by the private or public sectors in this effort to improve productivity, no amount of Government legislation can do that job for them.

Therefore, what our nation needs and needs urgently is not the establishment of yet another new Government agency to deal with the Nation's problems of productivity, but instead a pledge of full support for the National Commission on Productivity and Work Quality from the executive branch and the Congress in the form of a long-term authorization with adequate funding and staffing that will enable the Commission to handle the important job for which it was initially mandated.

The National Commission on Productivity was created by the President in June 1970, to insure a new national concern with the importance of continued productivity improvement to our economic strength. At the time he announced formation of the Commission, the President outlined his challenge as follows:

> In order to achieve price stability, health growth, and a rising standard of living, we must find ways of restoring growth to productivity. The task of this Commission is to point the way toward this growth in 1970 and in the years ahead.

Now, in the face of this initially stated governmental concern with the problem of improving our Nation's productivity, we now find today that the National Commission on Productivity was allowed to wither on the vine due to a lack of support from the executive branch and the Congress.

As a result, our country, the largest industrial power on Earth, now has only the underfinanced, understaffed National Commission on Productivity and Work Quality concerning itself with the problems of improving our Nation's productivity.

Therefore, it is our view that if the problem of improving our Nation's productivity is to be resolved, it must now be resolved by the Congress breathing new life into the National Commission on Productivity and Work Quality and let it get on with the important task for which it was established.

And we of the United Steelworkers of America made this critical observation because we are not strangers to the world of lagging productivity. Our members have had first-hand experience, disastrous experience in too many cases, with the effects of declining productivity.

It should be alarming to every American—and particularly those who are experts in productivity matters—that this Nation's productivity improvement since 1965 has been the lowest of any free-world nation. America's once clear lead in technology and productivity has rapidly declined, and when you go looking for reasons, it is incredible to discover that it is only during the past few years that some limited attention has been devoted in this country to this most crucial problem.

The United Steelworkers of America has sought to point out for some time what has been happening, but we found few listeners. Repeatedly, in the early days of our Union, our first president, Philip Murray, urged establishment of what he called industry councils, and through these industry councils, the workers and their union, along with representatives of the public, would constructive suggestions and advice to management on production problems, economic problems of the industry, and other related matters.

We not only had few listeners at that time, but those who did listen told us we were wrong, that the productivity problems we were talking about did not exist, and if they did exist, they were not doing any real damage.

Now, let me cite an example that shows we were not wrong. In 1971 the once-mighty steel industry which supplies much of the base for America's climb to a $1 trillion economy had all the earmarks of a sick industry: sluggish growth, stagnating profits, chronic overcapacity and labor costs that the industry insisted were at least twice as high as its chief foreign competition.

Thus, steel's waning vitality led some economists to ask in 1971 whether the United States, with its high cost structure, could afford to have a domestic steel industry at all—and steel men themselves were frankly saying they were unable to compete under the present system at that time.

In the 1971 basic steel negotiations, the steel industry brought to the attention of President I. W. Abel of the United Steelworkers of America their concern with the problem of improving productivity,

and because of a joint obvious conviction that productivity must be improved, the union joined with the industry and negotiated the first contract provision between a major industry and a major union which established joint advisory committees on productivity at each plant of the industry.

Three years have passed since the establishment of these joint plant productivity committees, and present economic reports now indicate that the basic steel industry is more stable, more secure, and its future economic outlook is healthy and is likely to remain so for on indefinite period of time.

While this economic progress report is encouraging, if the American steel industry is to remain the No. 1 steel industry in the world, the union and the industry must continue to strengthen and improve its competitive position in the world market.

We do not take any gratification in the fact that there is now wide recognition that the worsening productivity problem we sought to alert the Nation to does indeed exist.

Even though the basic steel industry and the United Steelworkers of America, by choice, established and have conducted their joint productivity improvement program without Government participation, we in the Steelworkers are nevertheless concerned about the future of the National Commission on Productivity and Work Quality.

It is our position that a proposal to establish a new Government agency with all of the recycled phrases, concepts, and cliches does nothing more than delay our Nation's efforts to come to grips with this vexing problem. It is our judgment it is time to stop debate and go to work.

For the Congress to talk and act as though the establishment of yet another agency will somehow solve our productivity problem is to ignore the painful lessons of this world of the 1970's. It just is not so.

Our Government has marched down similar routes before, only to find other nations are using a different roadmap. It is time we learned something from those nations which have managed to come to grips with their own productivity improvement problems. The best lesson to be learned is from the old saying, "Do not change horses in the middle of the stream."

In closing, we believe that instead of a new agency, a well-financed, well-staffed National Commission on Productivity and Work Quality can be an important asset to the American workers, the American consumer, and American business in meeting this national challenge which in turn will benefit our economy and society.

We believe that if this task is given to the National Commission on Productivity and Work Quality, it will be a giant step toward restoring America's economic health. Thank you.

Senator NUNN. Thank you very much, Mr. Thrasher. This is certainly one of the strongest statements I have seen on productivity from anybody, and I particularly appreciate your frankness here, and your candor in dealing with this subject.

I also completely agree with you that the last thing we need is a new Federal bureaucracy. We need to take the start that has been made and try to do our best to restructure and to beef it up so it has enough staff.

Frankly, when this legislation was introduced 6 or 7 weeks ago, there was absolutely no interest in productivity anywhere. I am sure the

Commission itself—the staff, the members, and so forth—were interested, but until we got this momentum going, there was really virtually no attempt at the executive level to build up the staff or to request restructing. All of this has taken place really in the past several weeks. So I think you have to get the spotlight on it before there is really any action. I believe we have an opportunity now to take the existing Commission and to make it a vital part of our overall productivity effort.

I believe we may want to do some considerable beefing up in terms of staff. We want to certainly get the concept a little broader so that we use our people in private enterprise, our unions, our university systems, and our State and local government so it can be a national program with a center here rather than another huge Federal bureauracy that will have everyone in Washington when the real problems are in Atlanta, Pittsburgh, and other cities throughout our country.

I think we are beginning to all aim in the same direction. I am very hopeful that the best parts of the two bills that have been introduced, plus the suggestions we are gaining here during these 2 days, can be merged at the beginning of the next Congress.

I want to ask you a couple of questions. One thing we ran into yesterday, I believe Dr. Dunlop testified that the word "productivity" when you are talking to labor union officials throughout the country, and talking to working people, has a kind of a connotation that frightens them. I assume he is talking about the old concept of when you talk about productivity, you are trying to get the worker to work harder for no more reward.

How do we get over that kind of stigma, and how do we talk in terms of the real meaning of productivity so that we get the cooperation of labor, which I think is absolutely essential if we are going to make the right steps?

Mr. THRASHER. Well, I think—I agree with what you say, and first I want to state to you that I appreciate the efforts of the committee to put the spotlight on this problem that faces the Nation today, and I think the results of the efforts of the two bills, however we may be guided in the future, is going to be of benefit to the country, regardless of whatever we come out with. We can do nothing but good, and we support that.

As to the matter of the question of productivity, unfortunately, throughout this country over the years we have only had one measurement of productivity, which is being used by the Federal Government, and that is the man-hour contribution per ton, and that is the only definition that the average worker understands. That is obviously an incorrect definition of the word "productivity" because the man-hour contribution per ton makes up only one-seventh of the total residuals for his contribution. There are other things such as research and development, worker mobility, worker training, and all of these factors go into the total contribution. But unfortunately, our historical definition has zeroed in on the individual and his contribution.

So when you talk in terms of productivity, it is equated in the work place by meaning a speedup, crew cuts, job eliminations, and job combinations, and I can assure you that that was the greatest barrier we had to overcome in trying to get to where we are with our committees today. In fact, our original definition in 1971 was the Joint Committees on Productivity, and I must say that we got in some very difficult situations with that, but we changed that definition in 1974, spring of

this year, to entitle it "Employment Security and Productivity Committees," which gives it an even balance, where the employee knows his security is going to be protected concurrently with his efforts to increase productivity, and I am happy to say that that has been received throughout the basic steel industry as being a real indication, because the worker does not want to believe that he is the sole individual responsible for the problems of productivity. He would hope that other factors have to be considered as well.

And we think that definition gets us to that point.

Senator NUNN. It is kind of like the farmer. Historically every time we have a great campaign to have the farmers produce more, they find that when they respond, they produce themselves right out of a price that they can live with.

Mr. THRASHER. That is exactly right.

Senator NUNN. The worker is worrying about the productivity really lessening his job security.

Mr. THRASHER. Right.

Senator NUNN. I would like very much if you could submit for the record—we will keep the record open at least until the opening of the next session—if you could submit for us your experience with the definition itself, because this is conceptual and symbolic in nature, it is very, very important as we try to get this new legislation which will be introduced next Congress structured. So if you could submit your experience with the definition and your suggestions about the definitions we incorporate in this legislation, it would be very helpful.

Mr. THRASHER. I would be most happy to do that.

[The information referred to follows:]

UNITED STEELWORKERS OF AMERICA,
Pittsburgh, Pa., December 20, 1974.

Hon. SAM NUNN,
U.S. Senator, Committee on Government Operations, U.S. Senate,
Washington, D.C.

DEAR SENATOR NUNN: I want to thank you for your invitation to submit additional comments on proposed legislation for a Federal productivity policy. Initially, however, I want to take this opportunity to express to you my sincere appreciation for the opportunity to appear in behalf of the United Steelworkers of America before the Committee on Government Operations.

As to our position on the matter of Federal productivity policy, I would like to address my comments to the labor-management sector, a sector with which I have most familiarity. Such comments, however, could have possible application in other sectors of the economy.

From our viewpoint it would appear that with the opening of the hearings of your Committee we have passed a crucial point in focusing attention for the need of a National standardized productivity policy. As pointed out in testimony before your Committee the accomplishments that we have made in the basic steel industry with productivity improvement only serve as an illustration of how far we still have to go—not only in that industry but in the Nation. Even with a Federal productivity policy, our Government's role must be a limited one. While there is a need for Government-supported initiatives to encourage productivity improvement, the final responsibility must lay with the private and public sectors. Therefore the success of any industry joint productivity improvement program will depend upon labor and management support at all levels, but such a program will only be successful, in our judgment, in an environment that is receptive to a higher degree of labor-management cooperation.

In many instances the issue of productivity improvement to labor and management in a number of industries is both real and serious. It is at the heart of the security and well-being of union members and the industries for whom they work. Therefore it is not susceptible to solution by resort to atmospherics.

It does, however, require a concrete understanding between labor and management on these important problems. Such an understanding can only be obtained by a careful and painstaking effort by both parties. Any joint labor-management program would require the need to recognize and accept the legitimate interests of the other in the productivity improvement area.

In order to secure this objective, labor-management productivity improvement programs should be jointly developed, using the following three basic criteria:

1. Productivity matters should be pursued in a logical and practical manner,
2. Always with the objective of seeking tangible and significant improvement, and
3. While not infringing on the contractual rights, benefits and protections of the workers and management.

Such a joint endeavor between labor and management will be a critical test of their individual leadership and it will be based on the reaction of workers to the mutual objectives of any program of productivity improvement. This will not be an easy test. The objections and instinctive reaction of many workers will be one of suspicion and distrust. There are many who believe, and with ample justification, that productivity improvement programs are an excuse to cut crews, eliminate jobs, combine jobs and induce work speedups. Labor-management committees can overcome such concern if they give a priority to creating a climate for the workers to understand the problems relating to productivity and provide for them reasonable recommendations for their solution.

The first and most important thing is to have a clear definition of what is meant by "increased productivity" or "productivity improvement." One fundamental problem that must be faced in this Nation is that the current definition of "productivity" tends to over-simplify the complex productivity system in the United States. This present definition of "productivity" tends to isolate important forces at work in the productivity area—efficiency, maintenance, quality, eliminating waste—and show how they contribute to improved productivity, but, as we are frequently reminded, the map is not the territory. Thus the definition of productivity is not productivity itself. The objectives that we seek under the present "productivity" definition can be overridden by forces at work in the productivity area of our economy which this normal definition does not take into account. To tackle this problem we feel that any Federal productivity policy must carry an analysis of productivity improvement much further than has presently been undertaken. In our opinion one of the objectives should be to identify factors in addition to manhours that have generated productivity growth and see how much each contributed. What this amounts to is an effort to identify residuals in the total productivity contribution. Such residuals might include improved allocation of resources, changes in the utilization of capacity, an intangible investment such as money spent on education, research and development, training, safety and health and worker mobility. The task of a Federal productivity policy would be to identify these factors and learn how they work and how they may or may not be affected by various economic stresses. To do this we must start pulling the aggregates apart, examining the motivation and responses of various industries in this County whose separate activities compose our total productivity growth effort.

It is our belief that the path of better forecasting of how productivity can be improved in the Nation lies in a better understanding of what an individual industry will do in a specific situation. The traditional tools in the Government for measuring productivity growth no longer seem to produce predictable results. Better methods of measuring output in productivity should be developed for the Nation. Any realistic estimates of the prospects for improving our Nation's productivity must be based, we believe, on the awareness of certain pressures that will continue to work to limit normal productivity gains. One pressure arises simply from the fact that the average worker or citizen does not understand the meaning of the term "productivity" or "productivity improvement."

In order to gain worker confidence in the labor-management area, I would respectfully suggest that the proposed name for any National productivity center be entitled, "The National Center for Productivity, Work Quality and Employment Security." Such a definition would instill confidence in those workers who believe that efforts to improve our Nation's productivity is simply a threat to their individual job security.

In conclusion, I have attempted in this letter to give you some of my general observations and conclusions on the matter of productivity improvement. While

my observations and conclusions are not specific in detail in all respect. I sincerely hope that they might provide some guidance in helping your Committee to evaluate this problem. If you feel there is any merit to these recommendations, I would appreciate an opportunity to develop a more formal program for the Committee's consideration.

Very truly yours,

BRUCE THRASHER,
Assistant to the President.

Senator NUNN. We talked yesterday, and I really do not recall which witness brought this out, but I thought it was a very good point and I think it is right on what you are talking about, job security. One of our fundamental problems is we do not do any planning whatsoever about long-range job opportunities, long-range shifts in employment. That is to say, as we see trends which are inevitably going to cost people jobs in certain areas, we do not make any effort to look for retaining opportunities 5 or 6 or 7 years down the road before this happens.

The suggestion was that part of the Productivity Center's task should be to forecast, look for increased job opportunities down the road 6, 7, 8 years, and anticipate any kind of productivity increases that could in reality threaten job security. At the very beginning, while you are increasing that productivity, to also insure the people in the job, that they are being taken care of down the road. I thought that was an interesting kind of concept about the broadness with which this Commission is going to have to operate, or I would rather call it Center. I like the word "Center" better than "Commission." Every commission we have had up here has become something somewhat distasteful in one respect or another with a lot of people. So we are talking about using the word "Center" in the future.

Mr. THRASHER. If I might comment, Senator, I think we have built that concept really into our program in basic steel industry with a long term look at future job security.

I might add, though, that I think one of the greatest benefits derived from our committees beyond their efforts to improve productivity, was its contribution to industrial peace in the basic steel industry, in which we were able to negotiate the experimental negotiating agreement, which prevents the strikes and work stoppages and lockouts in the basic steel industry, and we are assured of that industrial peace until 1980, by agreement with the steel industry, with voluntary arbitration.

Senator NUNN. I think this is an excellent step. We had testimony yesterday from the Japanese representative of a Japanese productivity center. He was talking then about how little waste there is in Japan as opposed to this country in terms of walkouts, shutdowns, and those sort of things. He developed the theme, and I think it is the path you are going down now that the committees meet in Japan between labor and industry when there was not a confrontation, when there was not an essential negotiation, but in an atmosphere of calmness, talking about the future, without being in the midst of a bargaining kind of confrontation.

So what you do here is going to become, hopefully, an example throughout the country. I know it is going to have to vary from industry to industry, but I commend you on that.

Mr. THRASHER. Thank you.

Senator NUNN. Have you studied the Japanese approach, not just to productivity but the general labor-management relationship?

Mr. THRASHER. Yes.

Senator NUNN. It is different from us; is it not?

Mr. THRASHER. Well, it is different because of the inherent nature of the Japanese that is different from ours. I do not believe that their concepts and their ideas would accommodate our society in what I call the free enterprise society, and I do not believe it is conductive to the kind of goals we are seeking. I just can never conceive of an American worker getting up and taking gymnastics before his machine before he goes to work in the morning, or singing the company song. I just do not envision that in the American scene, and that is the difference between the American worker and the Japanese worker.

Senator NUNN. But there is more dialogue between labor and management generally speaking.

Mr. THRASHER. Right, there is dialogue.

Senator NUNN. That feature I would think is something we would need.

Mr. THRASHER. I think that is great, and I think the dialog we establish and the lines of communication in our productivity committees was the foundation of agreeing to the experimental negotiating agreement. I think without that we would not have gotten that far.

Senator NUNN. Well, it really is interesting to me, and I agree we are not going to go completely in that direction. But the whole Japanese productivity effort was started with an American aid program grant, and they sent 12,000 business and labor leaders over here to this country years ago to look at our system. They have modeled their system after ours, and yet we do not really even have anything. Ours was taken sort of for granted.

I do think we have some things we can learn from their efforts.

One thing that is also apparent, as you say so well in your testimony, they recognize the principle that no governmental legislation is going to solve productivity problems, instead it is a private enterprise responsibility with primarily labor and management.

This leads me to one other crucial area we tend to forget. Do you have any observations on this? Our service sector is growing by leaps and bounds, and all of our productivity efforts in the past have been aimed at the assembly line kind of productivity, or the industrial, yet service is becoming rapidly, almost 50 percent of our gross national product.

How are we going to take service industries like government, State, local and Federal, like education, real estate, insurance, and others, and begin to emphasize productivity in these segments?

Mr. THRASHER. Well, I think that there are ongoing programs now with the National Commission on Productivity and Work Quality, in which I participated in, advised and consulted with. For example, they have a great study in the food industry of this country, a great study in the health field, a great study for the fishing industries, and began to work in the State and local areas of government. In fact, one of their better studies had to do with garbage disposal, the efficiency of municipalities in handling garbage disposal.

Senator NUNN. Is this information being dispersed?

Mr. THRASHER. Yes.

Senator NUNN. We have so many reservoirs of information that never get to the right places.

Mr. THRASHER. Yes.

Senator NUNN. Is your present staff capable of carrying out that dispersal of knowledge?

Mr. THRASHER. We do not really have any staff other than just a few people over there. Of course, I do not work for the Commission. I just happen to like to assist in any way I can, but I am appalled at the lack of staff that they have, and I commend them for the work they have done on the limited budget that they were operating on. I really do.

Senator NUNN. So you could, if the staff was beefed up, you could do a lot more in terms of communicating this information.

Mr. THRASHER. In my judgment, if the staff was beefed up, and I think you would have to have some additional qualified people, obviously, to work in the program, I think that they could expand their activities and be very responsive to the problems of this country, I really do.

Senator NUNN. Well, I would like to go on to other matters as I believe that we have covered most of the essentials, and we have other witnesses.

Again, let me thank you and thank Mr. Abell and members of your organization for your efforts and your appearance here. I would like to ask you to continue to help us and work with us on this legislation as it develops over the next year.

Mr. THRASHER. I can assure you, Mr. Chairman, anything we could do we would be most happy to do.

Thank you very much.

Senator NUNN. Thank you, sir.

Our next witness is Mr. Basil Whiting, program officer of the Ford Foundation, and I believe you have with you, Mr. Whiting. Is Mr. Ted Mills also with you?

Mr. WHITING. Yes, sir.

Senator NUNN. Mr. Ted Mills, director of the national quality of work program. I have heard a lot about the work both of you have done, and this quality of work is an essential ingredient in the overall legislation we are trying to develop.

We are pleased to have you to hear from you on these subjects.

TESTIMONY OF BASIL J. WHITING, PROGRAM OFFICER, DIVISION OF NATIONAL AFFAIRS, THE FORD FOUNDATION; ACCOMPANIED BY TED MILLS, DIRECTOR, NATIONAL QUALITY OF WORK PROGRAM

Mr. WHITING. Thank you, Senator Nunn.

I will confine my remarks this morning to the human side of productivity because there is an important Federal role to be played in this area, a role that present Federal agencies have been unwilling or unable to play fully.

My remarks and recommendations derive from my work as a staff officer of the Ford Foundation's working class program. Attached to my written statement is a partial list of the grants made under this program for the committee's information.

Some of the projects that we have supported directly and peripherally involve labor-management cooperation and job reorganization; and they hold great promise for gains in both productivity and the quality of working life.

My central purpose here this morning is to recommend that the Federal Government mount a program in the area of improving both work productivity and the quality of working life, in tandem.

Reducing the personnel problems associated with the introduction of new technology is one reason why it is necessary to devote attention to the human side of productivity. Another reason about which we have heard a great deal recently is the need to reduce such problems as absenteeism, turnover, rejects, sabotage, scrap and other results of human behavior that have adverse effects on productivity.

But there is also a more positive rationale that needs to be addressed, and that is the extraordinary increase in the educational levels of the adult labor force. Now, there is a great deal more to say about this, and indeeed the data are voluminous; but the point to make in these hearings is to emphasize the enormous potential for increased productivity represented by the underutilized energies and talents of this increasingly educated work force. This is the most compelling reason for attention to the human side of productivity.

Ways must be found and promulgated to mobilize these resources, and efforts to this end should be emphasized in the legislation emerging from this committee.

Now, in mobilizing human resources, we are mainly concerned with improving labor-management cooperation, as Mr. Thrasher has indicated, and individual worker motivation and involvement. There is a literature on this in the social sciences, and there is general agreement that cooperation, motivation and involvement seem to depend heavily on decent working conditions, on sympathetic management, on a degree of worker participation and control of their own jobs, and on the nature and structure of the work itself—factors that may be summarized under the heading of the "quality of working life."

There is a body of experimentation in Europe and in the United States involving cooperative efforts by labor and management to redesign and enrich jobs along these participatory lines. As I mentioned earlier, some of these efforts have resulted in quite startling increases in productivity and the quality of working life, along with sharp reductions in absenteeism, turnover, rejects, scrap and the like.

I ought to mention here, Senator Nunn, that one of the most interesting experiments of this nature that I have seen is in your own State of Georgia. It is a small box-making plant owned by the Meade Corporation in Covington. You might very much enjoy a visit to that plant where there are no supervisors, no managers, and the workers run that plant virtually themselves.

Now, having said this about the need for work and human productivity, we encounter a set of issues that attend any national effort in this area. The first one is one Mr. Thrasher discussed a few moments ago, and we see surprisingly little explicit attention to it in public discussions. This is the fact that productivity is a good term to some people in this society, but to others it is a concept stimulating fear and concern. To most top public policymakers, business leaders, and economists, increased productivity is a good thing meaning efficiency and

an offset to inflation and a weapon against foreign competition. I think most workers and their leaders understand this; but to them, in immediate and personal terms, increased productivity can also symbolize speed-up and lay-off. To be sure, a few unions are openly embracing productivity improvement efforts; like the steel workers, and also some local public sector unions facing taxpayer outrage at poor services and resistance to further wage and benefit increases. Such efforts may well effect some improvements in scheduling and working conditions, but their results may be limited unless they are accompanied by persuasive promises of job security as well as a willingness to share the financial benefits of improved productivity with workers. Workers are not likely to be motivated into activities that appear threatening or that seem to have little to offer to them.

What this means, Senator Nunn and the committee, is that many workers and their representatives are unlikely to show great interest in programs aimed solely at improving productivity. Workers are interested in job security, improved wages, and better working conditions; and those who have been in carefully organized job enrichment situations seem to prefer them. But these improvements in the quality of working life are desired for their own sake and should be sought for their own sake as well as for their possible impact on productivity. I will not dwell on these matters since I understand Mr. Peter DiCico of the IUE presented these points far more persuasively than I.

But I might note here, as did you, Senator Nunn, that there is a problem with the use of the term "work quality" in the title of the present Commission. Even though some of us might thing it means the quality of working life, it comes across to many people, and I think many labor people, as having to do with the quality of the product, the quality of the service, the scraps, the rejects, the efficiency. It really almost sounds redundant in relation to productivity itself.

Now, these considerations suggest an important principle that should guide national policy formulation in this area, and that is the following: Improvements in the quality of working life are desirable for their own sake, and improvements in the human side of productivity in the long run are probably heavily dependent on improvements in the quality of working life.

Following up on this principle, I recommend that any national effort in this area pursue dual goals of equal importance: improvement in productivity and improvement in the quality of working life.

The juxtaposition of productivity and the quality of working life is not so odd as it might at first appear to American eyes. First of all, like it or not, these two concepts will interact anyway, whether we do anything about it or not. Secondly, a couple of years ago I visited a number of the European nations about whose workplace experiments we have recently heard so much; and in many of these, especially in Scandinavia, both workers and management stated that they were pursuing these dual goals as a joint effort. Not surprisingly, management personnel were primarily concerned with productivity and union personnel with improvements in wages, benefits, and other aspects of the quality of working life. But usually both were concerned to varying degrees with pursuing improvements in both areas at once. Both often agreed that they would not ben enthusiastic about a joint effort

aimed at one of these goals alone, but in tandem the joint interests made sense and secured their joint involvement in sometimes difficult experimental efforts.

I should also point out that it cannot be guaranteed that improvements in the quality of working life will always lead to improvements in productivity, though what evidence we have suggests that this is often the case. What we need as national policy is a pursuit of both goals with the purpose of learning more about the conditions under which improvements in both can be attained.

Now, I wanted to touch on a somewhat difficult point here. I say and emphasize that we do not need additional psychological and sociological studies of worker motivation, job satisfaction, and the like. The literature of social science is full of them, and they tell us some useful things, but the researcher's questionnaire does not tell us how to stimulate change in organizations, how to redesign jobs, and how to foster a spirit of labor-management cooperation. The things we need to know now to improve the human side of productivity and to improve the quality of working life can best be learned through an action-oriented approach involving closely evaluated experimentation with joint labor-management efforts to redesign jobs and organizations. This is exactly what was undertaken in the management initiative in Georgia. This approach is sometimes called action-research, an apt name that distinguishes the more standard social science from the pragmatic, real-life effort that is needed here.

Another major question is whether there is a proper role for the Federal Government in fostering this sort of experimentation.

I think a Federal role is important in this area for the following reasons. First, management and labor are often locked into adversarial positions, and a technical assistant, consultant, or action-researcher under neutral and nonprofit auspices is frequently needed to facilitate and catalyze their joint efforts; in other words, in getting them together.

Second, management could, and in various instances has, funded its own change efforts. Sometimes they have been successful, but because they are solely management initiated and funded, they are frequently seen by workers as "management gimmicks" and viewed with suspicion. The involvement of a third party with a degree of neutral funding can legitimate the activity to labor and help secure fuller cooperation in joint efforts.

These two rationales have been behind some of the successful experiment around this country and in Europe.

Third, such involvement by an external third party and a degree of external funding is necessary to gain access to the results of a change effort for broader public consumption. Existing experimentation within companies is often held in confidence, partially for proprietary reasons and partially because companies feel little incentive to make such information public; and of course, such information may also reflect embarrassing failures.

Fourth, there is no present source of funding for such neutral efforts other than the small amounts that have been brought to bear by the Ford Foundation and the alert people in the technical assistance program of the Economic Development Administration which is part

of the Department of Commerce. The needs in this area, however, are much greater than these two funding sources can meet at present within their budgets. But I do want to emphasize that the amounts needed for this sort of experimentation are not in themselves large. For perhaps $2 million or $3 million a year over a 5- to 7-year period for a total of $10 to $15 million, 20 or 30 closely and publicly evaluated experiments could be undertaken, and these would be the most significant set of labor-management experiments in history. This is a very small amount of money compared to the billions of dollars we spend in research and development activities in technology. There is very little money available in the public or private sectors for experimentation on the organization and nature of work.

Fifth and finally, there is much that is already known that is not being applied adequately in American government and industry. There is thus a clear need for technical assistance, educational activities, and information dissemination. Roughly $2 or $3 or $4 million per year, again a small amount, could mount an adequate beginning effort in these areas, and this technical assistance program would also serve as a vehicle for the later dissemination of the newer lessons to be learned from experimentation.

I do want to emphasize here, however, Senator, that the most salient need regarding efforts to improve both productivity and the quality of work life is a national strategy of research, demonstration, and development. Such a strategy would concentrate now on the kind of action oriented experimentation that would produce the lessons needed for wide application once the present recession ends.

I might close now with a few remarks as to the nature and structure of such a Federal program, especially its location and operating policies. My own view is the program deserves independent and fairly long term status within the executive branch. Such an effort depends for its success on the joint support and cooperation of American employers and labor; it should not be located in either the Commerce or Labor Departments, which are regarded as beholden to the interests of their named constituencies. In addition, and more importantly, these agencies have regulatory and other responsibilities that might limit the acceptability of their efforts to either labor or management. And HEW has no competence to deal with technological or other productivity matters.

Separate status as a center, commission, or institute seems appropriate.

With respect to the operating policies of such an agency, there are two matters of overriding importance.

First, in its efforts to improve the human side of productivity and the quality of working life, this Federal agency should not undertake direct operations itself, especially with respect to the technical assistance and action-research or experimentation aspects of its program. These are matters of intimate concern to labor and management; and under our system of government, Federal agents, who may too frequently be perceived as playing a political role, are simply inappropriate to perform these functions. Further, the role need here is not that of arbitration, which sometimes occurs under Government auspices, but with technical assistance and advice.

Instead of doing this itself, the agency should function through grants to universities and other nonprofit institutions with competence to provide technical assistance or to stimulate, advise, and evaluaute this sort of labor-management experimentation. Grants should also be made to such agencies for informational and educational activities.

A second major point is the following: notwithstanding the fact that only a minority of the American labor force is unionized, this program should concentrate its efforts primarily on unionized workplaces where both labor and management agree to engage in such joint efforts. There is a serious danger that such job enrichment and other changes in workplaces will be seen as either a union-busting, antilabor device, or a management gimmick, what Peter Drucker has called a form of enlightened psychological despotism. The best way to prevent either of these concerns from emerging is to insure that unions are involved from the very beginning in all of these efforts.

I think I have probably talked long enough, Senator.

I have other specific comments on the legislation, especially the bill that you and Senator Percy jointly wrote, which I will submit to the committee.

Thank you.

Senator NUNN. We will admit your entire testimony. We have it here, and your appendix. I assume that includes all of that.

Mr. WHITING. Yes, sir.

[The prepared statement of Mr. Whiting, with attachments, follows:]

PREPARED STATEMENT OF BASIL WHITING, PROGRAM OFFICER DIVISION OF NATIONAL AFFAIRS, THE FORD FOUNDATION

THE HUMAN SIDE OF PRODUCTIVITY

Organizational Effectiveness and the Quality of Working Life: The Need to Mount an Effort to Improve Both

I am pleased to appear before the Committee this morning in response to its invitation to discuss some of the broader issues associated with the important problem of this nation's lagging productivity. I will confine my remarks primarily to the human side of productivity for two reasons: first, I am not a student of the technical and financial aspects of productivity; second, there is a modest but important Federal role to be played on the human side of productivity, a role that present Federal agencies have been unable or unwilling to play fully.

These remarks are derived from my experience as a staff officer for the Ford Foundation's Working Class Program (and are offered as my views only, not those of the Foundation, which takes no position on legislation). This approximately $1.0 million per year program began in the fall of 1970. Roughly half of those funds each year have supported community activities in working class neighborhoods in the East and Middle-West. The remainder has supported action and research projects aimed at enhancing the quality of working life. A partial listing of grants made under this program is attached as Appendix I. Some of these projects involving labor-management cooperation in job reorganization hold great promise for gains both in productivity and in the quality of work life. Attached as Appendix II is a brief statement discussing these matters in further detail.

There is little doubt that significant advances in productivity can be obtained by removing regulatory and other impediments to efficiency; by improving the communication, cooperation, and interaction between the various segments and sectors of the economy; and by fostering the development and more effective use of improved technology. These approaches often have the virtue of costing relatively little and of producing sizable gains in productivity in a relatively short

period of time. Some of the most creative and important work of our present grossly underfunded and understaffed National Commission on Productivity and Work Quality has been in these areas, and the bills before this Committee wisely call for the continuation of these activities in one form or another.

These approaches, however, also have built-in limitations. Some have something of a "one-shot" character, ratcheting us upwards to a new plateau of performance but not resulting in continuous growth in productivity. Others, such as some changes in technology, can have limited or even negative overall effects unless they are designed to mesh well with the nature and needs of the workers who will utilize such equipment.

Reducing the problems associated with the introduction of new technology is one reason why it is necessary to devote attention to the human side of productivity. But there is a more positive potential that also needs to be addressed, and that is the extraordinary increase in the educational levels of the adult labor force. In the mere quarter century from 1960 to 1985 (of which we are just past mid-point) the Labor Department projects that the proportion of high school graduates in the adult civilian labor force will increase by *50 percent* (from 27.8 percent to 41.3 percent). Further, the proportion of the adult work force with at least four years of college will *more than double* (from 10.2 percent to 21.2 percent of the labor force) ; and those with at least one year of college experience (and this includes most junior and community college graduates) will *also double* (from 18.6 percent of the adult labor force to 36.4 percent).

As a consequence, more people are bringing higher educational qualifications to their jobs than ever before. Dr. Ivar Berg, a sociologist at Columbia University, is attempting to document the "underutilization of manpower that has resulted as a biproduct of stability in the occupational structure and the significant increases in the proportions of high school and college graduates." Berg's research, as well as that by other social scientists in the Bureau of Labor Statistics, the Russell Sage Foundation, and the Carnegie Commission on Education, suggests that roughly 2.5 million college graduates during the 1970's will be unable to find college level jobs. This is over and above the number of college graduates required to replace those leaving college level jobs and to fill the expected growth in such jobs.

The significance of this, however, is much larger than a couple of million "excessive" college graduates and lies in the fact that they will start a "bumping" phenomenon. These college graduates will presumably find work, probably at the top of the scale of "non-college level" employment, thereby displacing a like number of non-college graduates who would otherwise have held those jobs. Thus we may have millions of workers throughout the job and age spectrum displaced downwards into jobs that has previously been held by people with lower educational levels. Or, stated more positively, the general educational levels throughout the occupational hierarchy are and will be increasingly higher.

On the one hand this phenomenon can result in problems involving frustration, "over qualification," and so-called changes in the "work ethic" (a complex set of issues that has probably received too much of the wrong kind of attention in recent years). The main point to make in these hearings, however, is to emphasize the enormous potential for increased productivity represented by the underutilized energies and talents of this increasingly educated work force. This is the most compelling reason for attention to the human side of productivity: ways must be found and promulgated to mobilize these resources, and efforts to this end should be emphasized in any legislation emerging from this committee.

To a considerable extent, of course, human resources can be more effectively utilized by improving the coordinating and organizing functions of management. Managerial deficiencies to this kind are common in both the private and, especially, the public sectors. But it should also be clear that in mobilizing human resources we are mainly concerned with improving labor-management cooperation and individual worker "motivation" or "involvement." These is a large literature on these subjects and general agreement that workers do not "cooperate" or become "motivated" by abusive and authoritarian supervision, by exhortation, or by old-fashioned "scientific management." Rather, cooperation, motivation, and involvement seem to depend heavily on decent working conditions, sympathetic management, a degree of worker participation and control of their own jobs, and the nature and structure of the work itself—factors that may be summarized under the heading of the "quality of working life."

There is a body of experimentation in Europe and in the United States involving cooperative efforts by labor and management to redesign and enrich

jobs along these participatory lines. Some of these efforts have resulted in quite startling increases in productivity and quality along with sharp reductions in absenteeism, turnover, rejects, scrap, etc. (This experimentation has not, however, been adequately reported. The Committee could serve a useful educational and informational purpose if it were to hold hearings in which American companies and unions that have undertaken successful job enrichment and other changes in the way work is organized could make their experiences known.)

Having said this, we must then confront a set of important issues that attend any national effort to improve productivity by the better motivation and utilization of human resources.

1. The first such issue is one that receives surprisingly little explicit attention in public discussions of "productivity." This is the fact that "productivity" is a "good" term to some people in this society but to others it is a concept stimulating fear and concern. To most top public policy-makers, business leaders, and economists, "increased productivity" is a "good thing" meaning efficiency and an offset to inflation. Most workers and their leaders understand this, but to them, in immediate and personal terms, "increased productivity" can also symbolize "speed-up" and "lay-off". To be sure, a few unions are openly embracing productivity improvement efforts, mostly a major private sector union whose industry faces severe foreign competition and those local public sector unions facing taxpayer outrage at poor services and resistance to further wage and benefit increases. Such efforts may well effect some improvements in scheduling and working conditions, but their results may be limited unless they are accompanied by persuasive promises of job security as well as a willingness to share the financial benefits of improved productivity with workers. Workers are not likely to be "motivated" into activities that appear threatening or that seem to have little to offer to them.

What this means, Senator Nunn and the committee, is that many workers and their representatives are unlikely to show great interest in programs aimed solely at improving productivity. Workers are interested in job security, improved wages, and better working conditions; and those who have been in carefully organized "job enrichment" situations seem to prefer them. But these improvements in the quality of working life are desired for their own sake and should be sought for their own sake as well as for their possible impact on productivity. I won't dwell on these matters since I am sure that the labor leaders who will appear before you will present the case for improvements in these areas far more persuasively than can I. These considerations, however, do suggest an important principle that should guide national policy formulation in this area: "Improvements in the quality of working life are desirable for their own sake, and improvements in the human side of productivity in the long run are probably heavily dependent on improvements in the quality of working life."

Following up on this principle I recommend that any national effort in this area pursue dual goals of equal importance: improvement in productivity and improvement in the quality of working life.

First, the juxtaposition of productivity and the quality of working life is not so odd as it might at first appear to American eyes. A couple of years ago I visited a number of the European nations about whose workplace experiments we have recently heard so much; and in many of these, especially in Scandinavia, both workers and management stated that they were pursuing these dual goals. Not surprisingly, management personnel were primarily concerned with productivity and union personnel with improvements in wages, benefits, and other aspects of the quality of working life. But usually, both were concerned to varying degrees with pursuing improvements in both areas at once. Both often agreed that they would not be enthusiastic about a joint effort aimed at one of these goals alone, but in tandem the joint interests made sense and secured their joint involvement in sometimes difficult experimental efforts. (There were, of course, significant differences in culture, political ideology, labor market conditions, and economic circumstances between these nations and the United States, but the principle stated above still holds.)

Second, it cannot be guaranteed that improvements in the quality of working life will always lead to improvements in productivity, though what evidence we have suggests that this is often the case. What we need as national policy is a pursuit of both goals with the purpose of learning more about the conditions under which improvements in both can be attained.

I want to emphasize at this point that we do not need additional psychological and sociological studies of worker "motivation," "job satisfaction," and the like. The literature of social science is full of them and they tell us some useful things, but the researcher's questionnaire does not tell us *how* to stimulate change in organizations, how to redesign jobs, and how to foster a spirit of labor-management cooperation. The things we need to know now to improve the human side of productivity and to improve the quality of working life can best be learned through an action-oriented approach involving closely evaluated experimentation with joint labor-management efforts to redesign jobs and organizations. This approach is sometimes called "action-research," an apt name that distinguishes the more standard "social science" from the pragmatic, real-life effort that is needed here.

2. A second major issue that must be addressed is the question of whether there is a proper role for the Federal government in fostering such experimentation in the private sector (or, for that matter, in state and local government). Should not the Federal government concentrate its efforts on research, educational, and informational activities? After all, employers are responsible for bearing managerial costs; they can hire their own consultants and technical assistance. Perhaps the Federal government should not be involved in activities that assist private, profit-making organizations in this way.

This very issue is one of the reasons why at least one Federal agency is not supporting technical assistance and action research of the kind that is badly needed. But these objections are relatively easy to answer and the case for a strong (though modest) Federal role is clear. The national interest in improving productivity and various aspects of worklife has been stated many times over the years by both the executive and legislative branches. The issue is one of means, and a Federal role in technical assistance and action research is needed for the following reasons:

Management and labor are often locked into adversarial positions and a third-party technical assistant, consultant, or action-researcher under neutral auspices is frequently needed to facilitate and catalyze joint cooperative efforts.

Management could—and in various instances has—funded its own change efforts. Sometimes they have been successful, but because they are solely management initiated and funded, they are frequently seen by workers as "management gimmicks" and viewed with suspicion. The involvement of a third party with a degree of neutral funding can legitimate the activity to labor and help secure fuller cooperation in joint efforts.

Third party involvement and a degree of external funding is necessary to gain access to the results of the change effort for broader public consumption. Existing experimentation within companies is often held in confidence, partially for proprietary reasons and partially because companies feel little incentive to make such information public, and, of course, such information may also reflect embarrassing failures.

There is no present source of funding for such neutral efforts other than the small amounts that have been brought to bear by the Ford Foundation and the small technical assistance program of the Economic Development Administration. The needs in this area, however, are much greater than these two funding sources can meet. But I want to emphasize that the amounts are not in themselves large. For perhaps $2 million per year over a five to seven year period (or, a total of $10 million) twenty or thirty closely and publicly evaluated experiments could be undertaken—and these would be the most significant set of labor management experiments in history. As is indicated above, such experimentation is needed to enable us to learn more about the techniques of change and the conditions under which both productivity and the quality of working life can be improved.

At the same time, however, much that is already known is not being applied adequately in American government and industry. There is thus a clear need for technical assistance, educational activities, and information dissemination Roughly two to four million dollars per year could mount and adequate beginning effort in these areas—and this technical assistance program would also serve as the vehicle for the later dissemination of the newer lessons to be learned from experimentation.

3. A third major issue involves the question of timing and the so-called "law of parsimony," which says that public efforts in this and other areas should seek the "biggest bang for the buck"—or in economists jargon, public funds should be devoted to those activities having the greatest "marginal return." It might be said, for instance, that now is precisely the wrong time to mount a national effort to improve the human side of productivity. Productivity is usually down during

the low points in the business cycle, and at these times people are worried about having a job, never mind its quality. It would be folly to expect workers to respond to such a program at a time when unemployment is threatening to reach eight percent, according to some economists. Further, shouldn't scarce Federal dollars be concentrated on technical and managerial improvements where the returns might be clear, large, and more immediate, rather than in this relatively uncertain area of human productivity?

It is true, of course, that the technical and other work of the present Productivity Commission should be continued and expanded; and it is also true that no sweeping improvements in human productivity should be expected in the present economic climate. But this is a large country and the impact of the recession is checkered; some sectors and firms have not been adversely effected and others are doing quite well. Even under present conditions a technical assistance and informational effort could be useful in selected locales (including some local government jurisdictions where unions are interested in productivity improvements despite substantial layoffs).

More important however are long-run considerations that can be forfeited by concentrating solely on efforts that will provide the "biggest and quickest bang for the buck." As I have tried to argue above and in Appendix II, the most salient need regarding efforts to improve both the human side of productivity and the quality of working life is a research and development strategy. Such a strategy would concentrate now on the kind of action-oriented experimentation that can produce the lessons needed for wider application once the present recession ends. In this respect, now is a good time to undertake a careful program of research and development centered on action-research.

4. The question now arises as to the nature and structure of such a Federal program: its budget, location, operating policies. Both of the bills before the committee offer authorizations beginning at $10 million per annum and increasing thereafter. This seems a reasonable beginning funding level, though it is dwarfed by the national Japanese productivity efforts and though the new West German program of research on workplace organization and worker problems is beginning with twice that amount. There is no doubt that the work of the present Productivity Commission has been severely limited by its miniscule appropriations. Complaints about the Commission's work too often fail to take this into account.

The location of the program presents a different question. One bill proposes to upgrade the present Commission, moving it out of the Executive Office of the President into more independent status within the Executive Branch. The other bill proposes to establish a Center within the Commerce Department.

One might also argue that the kind of joint productivity/quality of working life effort I am proposing be located in HEW, which produced the well-known "Work in America" report, or in the Labor Department. My own view is that the program deserves independent and fairly long-term status within the executive branch. Such an effort depends for its success on the joint support and cooperation of America employers and labor; it should not be located in either the Commerce or Labor Departments, which are regarded as beholden to the interests of their named constituencies. In addition, and more importantly, these agencies have regulatory and other responsibilities that might limit the acceptability of their efforts to either labor or management. (And HEW has no competence to deal with technological or other productivity matters.) Separate status as a Center, Commission, or Institute seems most appropriate.

With respect to the operating policies of such as agency, there are two matters of overriding importance.

First, in its efforts to improve the human side of productivity and the quality of working life, this Federal agency should not undertake direct operations itself, especially with respect to the technical assistance and action-research or experimentation aspects of its program. These are matters of intimate concern to labor and management; and under our system of government Federal agents, who may too frequently be perceived as playing a political role, are simply inappropriate to perform these functions. Rather, the agency should function through grants to universities and other non-profit agencies with competence to provide technical assistance or to stimulate, advise, and evaluate labor-management experiments. Grants should also be made to such agencies for informational and educational activities. (General social science research on "workplace problems" or "job satisfaction," or "motivation" should not be supported. Support for such research is best provided by other agencies, such as the National Science Foundation and the Labor Department.)

Second, notwithstanding the fact that only a minority of the American labor force is unionized, this program should concentrate its efforts primarily on unionized workplaces where both labor and management agree to engage in joint efforts to improve both productivity and the quality of working life. There is a serious danger that such job enrichment and other changes in workplaces will be seen as either a union-busting, anti-labor device or a management gimmick, what Peter Drucker has called a form of "enlightened psychological despotism." The best way to prevent either of these concerns from emerging is to ensure that unions are involved from the beginning in these efforts.

Summary and Legislative Implications: The argument presented in this testimony and its attachments is best summarized in the form of legislative recommendations:

1. The National Commission on Productivity and Work Quality should be retained, moved to independent status within the executive branch, and renamed the "National Commission (or Center, or Institute) on Productivity and the Quality of Working Life."

2. The dual and equally important goals of this agency should be to seek the improvement of both productivity and the quality of working life on the rational that the latter is worth seeking for its own sake, the former depends to some significant extent upon the latter, and both concerns interact.

3. With respect to the human side of productivity, the agency should undertake a program of technical assistance, action-research and experimentation, educational, and training, and informational activities in relation to both the public and private sectors.

Roughly two million dollars per year should be earmarked for experimentation with joint labor-management efforts to restructure jobs, organizations, and supervisory arrangemnts in pursuit of improvements in productivity and the quality of working life.[1] The findings section should make reference to the small body of existing experimentation of this nature in Europe and the United States; state the Congress' finding that this experimentation needs to be intensified and its results systematically made available to management, labor, and the public; and declare that an intensified period of research and development in this area is needed.

The legislation should be specific about the nature of the experiments to be supported: They should involve active labor and management participation; an agreement by both parties to negotiate subsequently the sharing of any financial gains deriving from the experiment; the presence of a qualified consultant, advisor, technical assistant, or change-agent agreed to by both parties; and an agreement by both parties for the change effort to be evaluated by neutral outside evaluators with the results to be in the public domain. Government funds should pay in part for the services of the third-party assistant and for the evaluation.

Three or four million dollars should be allocated for more generalized technical assistance (not necessarily having experimental and evaluation characteristics) and for educational, training, informational and activities.

These activities should not be undertaken directly by the agency itself, but rather through a program of grants to universities and non-profit institutions. General social science research on "motivation" or "job satisfaction," should not be supported; the emphasis should be on pragmatic, action-oriented efforts.

The agency should concentrate its efforts, especially its technical assistance and experimental programs, on situations with active union involvement and participation.

5. Authorizations and appropriations during the first year of the agency's life should be at least $10 million, increasing somewhat thereafter as provided in the two bills before the committee.

Appendix I

Ford Foundation grants in support of efforts to improve the quality of working life have included the following:

$126,000 to the American Assembly for conferences and publications under the direction of former Assistant Secretary of Labor Jerome Rosow on "The Worker and the Job: Coping with Change."

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[1] Specifying the nature of these experiments in this detail is not meant to preclude support of labor-management committees such as that in Jamestown, N.Y., or the joint job security and productivity committees in the steel industry. These efforts may be important and useful and the agency may decide to fund them to the extent its assistance is needed and appropriate, but such funds should come from the generalized technical assistance funds of the agency and should not dilute its commitment to a development strategy of structured and evaluated experimentation in job restructuring.

$75,000 to Cornell University for planning and $300,00 to the University of Michigan for the conduct and evaluation of experiments in job enrichment and other approaches to improving organizational effectiveness and the quality of working life. The Michigan grant supports the work of Drs. Stanley Seashore and Edward Lawler and their affiliate, the National Quality of Work Center.

$215,000 to UCLA for conferences, studies, publications, action research, and other activities of the Quality of Working Life Program directed by Dr. Louis E. Davis.

$211,000 to the University of California, Berkeley, for the Occupational Health Project of that university's Center for Labor Research and Education. This project is designed to assist workers, labor unions, and labor-management groups to cope more effectively with hazards to health in workplaces.

$100,000 to Cornell University and $93,000 to the University of California, Berkeley, for the conduct of six international exchange programs for workers. These programs are designed to enable groups of selected workers to work for a few weeks in foreign job settings and to express their reactions and observations through followup reports and other activities.

$200,000 for planning and establishment of an International Council on the Quality of Working Life (based at Loughborough University of Technology, United Kingdom) that would function as an international network of scholars and others concerned with comprehensive approaches to humanizing and democratizing work.

$150,000 to Columbia University for studies on worker values by Drs. Eli Ginzberg and Ivar Berg.

$41,000 to the Upjohn Institute for Employment Research, for studies and conferences that resulted in the book "Where Have all the Robots Gone" by Harold R. Sheppard and Neal Q. Herrick.

Perhaps $300,000 in individual grants, travel/study awards, and smaller institutional grants.

APPENDIX II

THE QUALITY OF WORKING LIFE: ISSUES AND NEEDS

(By Basil Whiting, Program Officer, Division of National Affairs, the Ford Foundation)

Terminology regarding efforts to improve organizational effectiveness and the quality of working life is profuse and confusing. One encounters "organizational development," "human relations," "participation," "industrial democracy," "job enrichment," "sociotechnical systems," and others of varying clarity and precision.

The "quality of working life" (or QWL) is a comprehensive term referring to all aspects of the quality of life at all kinds of work in all kinds of workplaces. As such it encompasses the concepts listed above and, as well, pay systems, communications, supervisory and promotional practices, hours, working conditions (including occupational health), and more.

"QWL" has both broad and narrow definitions:

Broadly speaking, QWL is an eclectic umbrella term for the various separate factors affecting working life. Thus one can "improve the quality of working life" by improving occupational health standards, adopting flexible working hours, expanding promotional opportunities, or instituting participatory supervisory practices.

Narrowly speaking, QWL refers to a more systematic, integrated, and comprehensive approach to these same matters. It is concerned with understanding and dealing with the structure and processes of work itself and of the organizations within which work occurs. This approach pays special attention to the intermeshing of the social and technical systems that are inherent in any work situation and concentrates as well on increasing the degree of participation by workers in controlling their own jobs. "Job enrichment" or "job and organizational design" are often used as shorter synonyms, though they have even narrower implications.

The broader definition is one accepted by and familiar to union leaders, managers, personnel professionals, trainers, many social scientists, the general public, and reformers of various stripes. The latter definition has European origins (the coal mine experiments of the British Tavistock Institute in the late 1940's) and is at the core of many of the present work improvement efforts in Scandanavia and elsewhere. Its leading American exponents are professors

Louis Davis of UCLA, Eric Trist of the Wharton School, Richard Walton of Harvard, and Stanley Seashore and Edward Lawler of the University of Michigan.

Discussion: There is little doubt that efforts to improve the productivity and the quality of working life of American labor can score major advances on many fronts. Flex-time, human relations, better grievance procedures, job rotation, etc., all have their place and in some situations can result in substantial progress towards both of these desirable goals. Hence, efforts designed to improve QWL within the context of the broader definition above deserve heavy emphasis. Special attention, however, should also be accorded the narrower definition—and for the following reasons:

The socio-technical and participatory approach to QWL incorporates the others in systematic fashion. It represents the most advanced and comprehensive thinking in field of work studies.

This approach addresses most directly the problems posed by the lack of "fit" between the education and expectations of our labor force (the percentage of the labor force with some degree of college experience will double between 1960 and 1985) and a job structure that is not changing fast enough and is therefore increasingly underutilizing the potential capacities of workers.

This approach offers the possibility of meeting both important human goals (decent working conditions plus self-development and self-realization) and important national economic goals (enhanced productivity). (Though it must be noted that the correlation between enhanced QWL and productivity is not automatic.)

There is need for an intensified "R&D" period regarding job and organizational redesign.[1] It is likely that more traditional approaches will continue to result in sizeable gains in the humanization and productivity of work for the relatively short-term future; but it is also likely that such approaches will increasingly run out of steam and that there will increasingly be a demand for socio-technical job and organization redesign. At present too little is known of these matters and a period of R&D is therefore essential.

The best European and American examples of this approach to QWL share certain characteristics in varying degrees:

Sometimes startling increases in productivity and quality along with sharp declines in absenteeism, turnover, rejects, scrap, etc.

A focus on seeking the "joint optimization" of the social and technical systems operating in a work situation. (This is an important point. While there are undoubtedly great improvements in productivity that are still to be made through improvements in capital and technology alone, the dominance of job and organizational design by such considerations can result in the inherently concurrent design of social systems that are dysfunctional to both human and economic goals. An important corollary: the joint optimization of social and technical systems may result in some situations in the adoption of a technical system that is less advanced than would be devised by the application of traditional engineering and traditional "scientific management" criteria alone but that is more productive in a comprehensively designed context.)

The "whole job" concept. By recombining jobs and cross-training, workers are enabled to participate more in the "end-product" of their efforts.

An atmosphere of open, frank, and full communication and thrust between upper management and workers—an atmosphere whose quality is often in startling contrast to that in more traditional environments—even those with labor relations considered excellent by normal criteria.

An effort to establish an environment of continuous learning and involvement regarding the job, service, or product.

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[1] There are numerous false or irrelevant issues associated with these matters that I will not discuss here. These relate to whether "worker alienation" is growing (it's hard to say from available data); to the relationship between job satisfaction and productivity (there doesn't appear to be one; dissatisfied workers are sometimes highly productive and satisfied workers sometimes not); to whether workers "are really asking for job enrichment" (they're not—until they have been in enriched situations, then they usually decline to go back to prior arrangements); to the dominance of social scientists in pushing for these approaches (sometimes a problem in terms of acceptability—though it has little to do with the relevance and utility of these approaches); to charges of "romanticism and utopianism" (no responsible proponent of QWL presumes that all jobs can be enriched or that such approaches meet the first or top priority needs of workers, only that such approaches can help meet the human and economic needs stated above).

A heavy reliance on "democratization" through autonomous and semiautonomous groups that practice "self-management." By experience, training, and guidance, groups of workers gradually take on many functions relating to a set of tasks or jobs that are normally performed by maintenance, supervisory, and mid-management personnel. Often first-line supervisors are eliminated. Frequently many personnel decisions are handled by the group.

A high degree of job security and, frequently, a combination of salary and group incentive payments. Often pay grades are based on a combination of seniority and the degree to which the individual masters all tasks performed by the work group.

An absence of petty regulations and hierarchical organizational structures.

Smallness in size, ranging from a section of a half-dozen people to perhaps a small plant with a shift size of from 30 to 50. (On the other hand, a major U.S. corporation is now planning a $65 million facility based on these principles.)

Some degree of controversy and only limited spread to other units.

The controversy, smallness, and lack of ready spread of these experiments derive from a number of factors including the following:

The relatively undeveloped nature of the field (see "Needs," below).

Inadequate knowledge on how to manage such semi-autonomous work groups within larger organizational settings especially with how to deal with the impact of such approaches on first-line supervisors and lower level managers.

Union suspicion. Some union leaders suspect such approaches are an attempt to divert unions and workers from more traditional goals—and to undermine the loyalty of workers to unions. They point out that QWL experiments often occur in non-unionized firms and that some managers overtly adopt such practices to "keep unions out." They fear for the erosion of hard-won work rules, sense a disguised effort at a "speed-up," and point out that these practices can be a form of what Peter Drucker calls "enlightened psychological despotism." On the other hand, some other leaders—notably in the UMW, IUE, and UAW—are cooperating with or even embracing QWL efforts, seeing them as but an extension of traditional union concerns.

Challenge to traditional values and structures. In many ways these QWL experiments challenge both value systems and organizational paradigms that have evolved since at least the Industrial Revolution. Such notions as the necessity for close supervision and double-checking and for hierarchical organizational structures are deeply ingrained and will not be modified overnight.

NEEDS IN THE SHORT-TERM FUTURE

As noted in several places above, there are numerous problems associated with this field and a clear need for a period of "research and development," In brief schematic form, our experience suggests the following top-priority needs:

1. Training Opportunities: There are numerous scholars who study labor relations, management, industrial sociology, and the like. The number who have had extensive experience in "action research" in the actual design or re-design of workplaces along socio-technical principles, however, is slim-perhaps a dozen or less within the United States. In addition, more numerous commercial consultants, managers, and union leaders have been "speaking prose" in this area; and one encounters them from time to time.

Hence, the top priority needs are clearly two forms of training:

Training of new "action researchers," "change agents," and consultants in the presently known techniques of organizational design and re-design. This is best done in apprenticeship fashion, working with existing experts.

Short courses and conferences to sharpen, deepen, and exchange the knowledge and experience of scholars, managers, labor leaders, consultants, and others now working at varying degrees of depth in this field.

2. The Generation of New Knowledge: Knowledge is presently limited or inadequate in four areas: First, the process of intervention in *existing* organizations in order to re-orient values, attitudes, and the structures of jobs and organizations on QWL principles; second, the process of designing *new* work organizations on those principles; third, the process of spreading innovations from small experimental beginnings to larger portions of work places; and fourth, the process of managing sizable organizations composed of work units based on these approaches.

The only adequate method of generating such knowledge appears to be through experience with actual organizational change. This may be done in one of two ways; first, evaluating changes undertaken by employers or employers and

workers; or second, the method known as "action research," a process of consultation/technical assistance *cum* research in which experienced "change agent/action researchers" assist in organizational change, evaluating as they go.

Both of these approaches suffer from the limitation, noted above, imposed by inadequate numbers of experienced personnel—and from the inherent difficulty of managing complex social change. In addition, external evaluation of experiments is often difficult or impossible; employers sometimes regard the results of successful organizational experiments as proprietary information—or are otherwise loath to admit outsiders or disclose information. Further, "snapshot" or "post hoc" evaluations can miss essential aspects of the process of change. The "action research" process offers the best insights but is often suspect in American social science circles, which seem so in thrall to concepts of "science" derived from the physical sciences and thus doubt the "self evaluation" involved in action research.

These problems, however, loom large mainly because of inadequate resources. There seem to be sufficient possibilities of evaluating, or conducting and evaluating, experimental changes—with the results to be made public. (The programs at Michigan and UCLA come readily to mind.)

3. The Development and Dissemination of Information: There is a dearth of information in published (or media) form on the nature and results of experimentation and change in this area. Indeed, except for a forthcoming volume being published by Davis and Cherns, there are virtually no persuasive case studies of the more comprehensive attempts. The need for such information is severe; otherwise interested employers, workers, and union leaders find little reinforcement or support, the lessons of experience remain cloaked, and the field seems distressingly esoteric.

Most existing information on QWL is either superficial reporting and speculation or middling analyses of partial changes. A greater volume of higher quality information is needed in several forms designed for several audiences: popular articles, scientific studies, case studies in depth and detail, "how to" manuals, economic and technical analyses, and "think pieces" on the larger implications of such approaches for individual, social and economic development.

4. The Development of a Union Role: Union suspicions of QWL activities are grounded in experience and serve as a caution to too heedless an adoption of QWL changes. Nonetheless, the underlying pressures that suggest changes in the organization and design of work remain. In this context a high priority must be accorded to the need of organized labor to find an appropriate role vis-a-vis QWL—one that facilitates change while maintaining the important safeguards and role of unions. Others interested in QWL development should assist labor when requested and seek labor's advice and involvement whenever possible.

5. The Need for Institutional Bases: With a field at this stage of development and with expertise spread this thinly, there is a need to establish centers of expertise that can marshal and concentrate the resources needed to make an "R&D" period fruitful and thus to lift these activities to a higher plateau. Various European nations have such centers—often a single institute with government, labor, and management support. The United States is so large, however, and the need for a pluralistic approach so apparent, that the anointment of a single American center or institute would be unwise. The American Assembly, noted above, and an earlier Foundation sponsored international conference recommended several such institutes or centers within this nation, each playing its own self-defined and differentiated role.

The following are candidates (there may be others not known to the author).

The proposed Work in America Institute being planned by Jerome Rosow. This Institute would mount a variety of activities relating to the broader definition of QWL and would also provide technical assistance to and evaluation of existing experiments in job redesign.

The quality of work program of the Institute of Social Research, University of Michigan and its affiliate, the National Quality of Work Center. This program, led by Drs. Stanley Seashore and Edward Lawler and Mr. Edwin S. Mills, concentrates on stimulating and evaluating varied experiments in enhancing the quality of work and of working life. It is a comprehensive program of experimentation, with three of twenty experiments in process and others delayed only by funding limitations. These could be the most significant labor-management experiments ever undertaken.

The proposed Quality of Working Life Center at UCLA's Institute of Industrial Relations. This Center is being planned by Dr. Davis; it would concentrate on

training, technical assistance, and "laying the scientific base" for improving organizational effectiveness and the quality of working life.

The activities of Dr. Eric Trist and his associates at the Wharton School, University of Pennsylvania. Dr. Trist has the potential of playing a role similar to that being planned by Dr. Davis at UCLA.

The activities of Dr. Michael Maccoby of the Institute of Policy Studies and the Harvard University Program on Science and Technology.

Senator NUNN. Let me ask you, Mr. Mills, are you also going to have comments?

Do you have prepared comments?

Mr. MILLS. Yes, I do.

Senator NUNN. Well, let me ask a couple of questions here of Mr. Whiting before we go to you.

Mr. Whiting, I certainly agree that we need to include labor from the very beginning. We are making every effort to do that, and, of course, there are some labor unions that have done an outstanding job in really leading the way. You may have been here a few minutes ago when Mr. Thrasher gave what I considered a very strong statement on productivity, and I hope that will be a spreading kind of realization.

I wonder whether we could concentrate only in industries that are unionized, for this reason. Many small industries and small businesses are not unionized. That is historically true and probably always will be. Yet the small businesses are sometimes the most in need of help, and their employees are most in need of help in terms of the quality of work.

I would think we would have to make a balanced approach here. If you just substantially devoted your activities to unionized places, I think you would find when you got through, statistically, you were concentrating on big business and big labor, and you left out completely the small business segment. I would certainly think that would be a very bad situation.

Mr. WHITING. I would agree, Senator, but my purpose was to emphasize the dangers of not concentrating on the labor movement. The notion that I understand was discussed yesterday—of having a sort of extension service in a variety of places to assist small business—makes some sense to me, but I would separate a technical assistance function of that nature from the kind of concentrated experimentation I am talking about. I think we can do both now at once, both experimentation and the kind of efforts that the steelworkers are involved within the steel industry or their variant in Jamestown, N.Y.——

Senator NUNN. Would you pull that mike up?

Mr. WHITING [continuing]. Where labor and management are pulling together to help business in that town. These ideas and the small business assistance, all this needs to be undertaken, because I think there is a lot known now that can be applied, and certainly there is a need to stimulate labor-management cooperation. At the same time, we really do need this experimentation program which would develop the additional knowledge needed in this area.

The amount of money we put into research and development on the technical side is extraordinary in this society. It certainly is a basis of our affluence. At the same time, there is virtually nothing being devoted to learning lessons on how to organize jobs more effectively.

We are behind in this area compared to a number of the other advanced nations. There are nationally organized programs in

Norway and Sweden. There is a new Federal agency—I am sorry—central government agency in France for the "amelioration of the conditions of work." We are behind in this area and we need to catch up. It is not that these ideas are new. They have been around for a long time. We have been pushing them, and I think that we will concentrate on this kind of experimentation as well as technical assistance and educational efforts.

Senator NUNN. Well, I certainly agree, and I commend you and the Ford Foundation on your efforts in this field.

Senator Percy has devoted, I am sure, a considerable amount of time on this quality of worklife, and I think it is an extremely important concept and I do envision that the final legislation will certainly be directed to that point. I think it goes hand in hand, and as you so well pointed out, it is an independent goal that even if we were not worried about productivity, it still deserves considerable attention.

Mr. WHITING. That is right.

Senator NUNN. One other question. How are we going to cope with this service sector? All of our efforts seem to be involved with union management, with industrial production, and that sort of thing. While that is extremely important and always will be, I think it is a fact that the service kind of employment is growing more rapidly and will continue to consume more and more of the GNP.

Mr. WHITING. It is even more difficult a problem than you imply, Senator. The people who I know who are experts on job design, for instance, say that jobs in this country over the last decade or so, as the country has turned more towards service activities, have worsened because services have generally been designed along the same kinds of industrial models of organizing work.

So as we shifted to services, we really have not improved jobs that much. But the same ideas, the same approaches of technical assistance informations, and experimentation apply equally as well to the service sector, equally as well to local government. There will be different problems but the only way to get at those problems is to get in there and start doing it.

In my position I see a number of proposals come in from the social sciences to research these areas. There is certainly a good deal we can learn from survey questionnaires and the like, but I think we will have much more of an impact if we get in there and do some actual changes, evaluate them, get the lessons out, and try elsewhere along the same lines.

Senator NUNN. Thank you.

Senator Percy, do you have some questions?

Senator PERCY. Yes; thank you, Mr. Chairman.

Yesterday, Mr. Whiting, were you in the room at the time we had testimony from Dr. Dunlop?

Mr. WHITING. No, sir, I was not.

Senator PERCY. He mentioned then the great difficulty in getting council or labor management committees organized because of the feeling, by a large body of labor, that these councils are essentially a means of speeding up work.

What do you feel the attitude of labor and management would be? How would they react to proposals that councils be established to put

labor and management around a table to talk about productivity reducing unnecessary costs, improving the quality of work life, et cetera? What is your experience as to their attitudes and how receptive they might be to such proposals if made by a center or a commission?

Mr. WHITING. Well, Mr. Mills will have some comments on this as well, I am sure. They are cynical, of course, at this time with unemployment pushing 6½ percent and maybe heading to 8 percent. Any national effort blown up with a lot of publicity to establish such councils is going to backfire. I do not think it is going to work.

I think that in the long run you have to deal with the question of full employment in this country. Without full employment, it is going to be every hard to get that kind of close cooperation on an intensive, nationwide basis.

Now that does not mean it will not work in some industries.

This recession has been checkered in its effect. We have some industries doing very well and there this kind of cooperation may be forthcoming. I think it also will not be possible for this kind of cooperation to emerge if it is pushed as a Federal effort. It has got to come from the private, nonprofit sector in cooperation with labor and management.

You need good people who know industry, know labor, and will work together on these efforts. If it is pushed as a Federal program, it is going to backfire.

Senator PERCY. Can you give us some idea as to what attitude would be expressed by labor and management toward the Government taking a very active, catalyst, role in this field? Are you likely to find an attitude expressed, such as "Well, what business is this of the Government? They are in enough things already, why should they get into this field?"

Mr. WHITING. I think that would be the attitude, which is why I have emphasized this should be undertaken not as a Federal effort with direct operations by Federal agents and so on around the country trying to stimulate these committees, but through grants to nonprofit agencies. This business of a relationship between labor and management is an intimate thing. It is a private thing. It is an area where labor has worked long and hard over the decades to obtain certain rights. It is an area where I think Government treads unwisely, unless it does so by facilitating the ability of those who are neutral with views that are nongovernmental to assist as catalysts in these areas.

Senator PERCY. Mr. Mills, I wonder if you could.

Senator NUNN. Mr. Mills has not given his testimony yet. If you could confine your questioning to Mr. Whiting, then we will have Mr. Mills give his statement.

Mr. MILLS. Thank you, Mr. Chairman. I would like to thank the committee for the opportunity to testify.

Senator PERCY. Mr. Mills, just a second. I would like to ask Mr. Whiting a question.

In your testimony, you have indicated that we should retain the National Commission on Productivity and Work Quality, move it to independent status within the executive branch and rename the National Commission—or center or institutes—on Productivity and the Quality of Working Life.

Changing the names of these commissions is a very costly business.

Why do you feel it is so necessary to replace "quality of work" with "quality of working life"?

Mr. WHITING. Well, because the "quality of work" is an ambivalent term. I know that some who have used it have thought of it as the same thing as the "quality of working life." But I think to most people that I have talked to, the quality of work seems like a synonym for productivity or a part of productivity.

Senator PERCY. The quality of the product that is turned out.

Mr. WHITING. Yes, the quality of the product. It sounds like the same thing. The whole thing, therefore, is a productivity effort.

Now, if we are going to do the sort of thing I am recommending, that is concentrating on human productivity as well, that means that you also have to concentrate on improving the quality of the working life, the experience of people at work.

Senator PERCY. So it is more labor-oriented in connotation rather than consumer or producer-oriented?

Mr. WHITING. Yes, sir, that is right.

Senator Percy. I think it is well worth it then, because that is what we really had in mind.

Now I have not had a chance to fully study your testimony. Do you elaborate on your preference between a commission, an institute, or a center?

Mr. WHITING. No, I do not and I do not have any views on that.

Senator PERCY. Which would you prefer, if someone said, "Make a decision"? You have given us three choices here. What would you call it, a center, an institute, or a commission, and if so, why?

I will precede your answer by stating that I think both the chairman and I feel that there is an antagonism toward commissions. I would like to search for something else. "Commission" sounds too much like a regulatory agency or a short-term study project. Hopefully, but they never do.

Mr. WHITING. I would agree with that. Change the title to center.

Senator PERCY. We intend to create something that is going to be a part of our business structure.

Mr. WHITING. I would agree with center as opposed to institute because institute connotes research to many people. We need action in this area, evaluated action.

So under those terms, I would prefer the term "center," provided it does have labor and management involvement in some way in the governance of its operation and provided that it undertakes its operations through grants, nonprofit activities and not through direct operations in this area.

Senator PERCY. Right, and it is to be a service-oriented operation where services are provided. That is why I think center is probably a better term.

Thank you very much.

Senator NUNN. Mr. Mills.

TESTIMONY OF TED MILLS, DIRECTOR, NATIONAL QUALITY OF WORK PROGRAM

Mr. MILLS. Thank you, Mr. Chairman.

I would like to thank Mr. Whiting and the Ford Foundation and the Economic Development Administration of the Department of

Commerce and the Institute for Social Research of the University of Michigan, with whom you are affiliated.

Senator PERCY. Mr. Mills, do you have copies of your testimony?

Mr. MILLS. I do.

Senator PERCY. Could we have them?

Mr. MILLS. Mr. Bizoni will provide them.

Senator NUNN. Mr. Mills, if you would pull that mike up just a little bit. Let me give a little bit of background I neglected to give.

Mr. Mills is a former director of the quality of work program, which was created by Mr. Jackson Grayson and Mr. Mills. Mr. Mills was Special Assistant to the Price Commission, which was a part of the National Commission on Productivity until early 1974. Now Mr. Mills is directing the National Quality of Work Center, which is a private, nonprofit organization funded primarily by the Ford Foundation.

Mr. MILLS. And the Economic Development Administration of the Department of Commerce.

Senator NUNN. And the Department of Commerce. Proceed. If you will pull that mike as close as comfortable to you, and then everyone can hear.

Mr. MILLS. One of the problems in my written testimony is that I have been one-upped by your conversations with Mr. Thrasher and Mr. Whiting because a great deal of what I wanted to talk about is what I say in my written remarks, that productivity is essentially a lousy word, and I will not dwell on it in this oral testimony except to say that you have heard that to many businessmen and economists productivity means simply and mechanistically greater efficiency and greater output over a stable or decreasing input.

You have heard correctly that to many, if not most, working men or women and their unions it means job loss, speed-up, or both, with no reward for either. You have heard correctly that as an economic force, the rising productivity rate in the national sense combats inflation through lowering pressure on prices and helps create new wealth to create new jobs. To economists like Mr. Mark, who will talk here today, it means one thing. To labor leaders like Mr. DiCicco yesterday and Mr. Thrasher today it means quite another. To rank and file working men and women, as your discussions this morning have shown, it means another. And to the public I strongly suspect it does not mean much of anything at all.

So I would like to suggest that what we are essentially talking about is the social and economic dynamism of a society. The narrow goals of purely economic improvement or the greater efficiency of our industries toward a goal of greater profit are not in themselves enough to turn on working men or women or the unions which represent them unless there are guarantees of sharing a bigger slice of a bigger pie.

The narrow goals of purely social improvement, or a better and more secure quality of working life, which we have been discussing here this morning, are not enough to turn on managers responsible for the efficiency of our economy or the stockholders to whom they are responsible, unless there are guarantees that social improvement will deliver economic improvement.

If the term productivity is to become one in which all of us are involved, it must partake of both social dynamism and economic dyna-

mism, joined somehow with a minimum of barriers to either, and a maximum of opportunities for both. In the words of the popular song in our society today, you cannot have the one without the other, and applies both ways.

Mr. Chairman, since early in 1972, our quality of work program both while it was a part of the National Commission on Productivity and since, as the same program in the private sector jointly promulgated by our new National Quality of Work Center in the Institute for Social Research, we have sought for ways to action programs, which Mr. Whiting underscored, to provide the one and the other. Or perhaps a better way to say it is: To eliminate unnecessary barriers to both social and economic dynamism, and through such elimination, to reinvigorate both at the same time.

And in answer to Mr. Percy's question to Mr. Whiting, in the past 2 years we have found an astonishing number of managers in both service and manufacturing companies and in State and local governments, and an astonishing number of labor leaders, both at the grass roots and international levels in industrial and public sector unions, who agree totally that social and economic dynamism are not necessarily incompatible with each other, that the one can feed the other, either way, and that as Phillip Murray predicted 34 years ago, it is not only possible but highly feasible to effect a kind of win-win collaborative mode of working together in which worker, union, and management all benefit therefrom.

Our program already has three active experimental projects—one in a coal mine, one in an auto parts plant, and one in a power company—to attest to such feasibility. And I would like to say again, in line with the question about the service sector, that the programs that we now have underway we believe will operate just as effectively in any kind of service organization as they operate in the manufacturing area.

We are currently about to begin a program in a hospital in a local community and in a public school, all of which are in the service sector.

Now, I have stressed the social-economic dualism as a definition of productivity not only because our experience proves it to be feasible but because I believe it may be basic to the center, which both S. 4130 and S. 4212 would propose. It is my very strong conviction, based on over 2 years' worth of exploring ways to improve the productive potential of our industrial society, that efforts to improve the productivity in the economic sense of our society, without enhancing the quality of work-life of the American worker, and particularly the unions they represent, will largely fail. As the coal industry, for one, can vouchsafe, capital alone is not enough. But is is my equally strong conviction, that capital, expressed in both technological research and development and in a new plant investment, is imperative to the economic dynamism of our or any society.

In other words, for any effort to improve our national productivity, in a dualistic sense, I submit it must be a joint effort of the spokesmen for people and the spokesmen for technology and capital. Perhaps more important, it must win the allegiance, enthusiasm, and commitment of both sets of spokesmen: and to the greatest extent possible, as the National Commission on Productivity and Work Quality has sought to do, weld them into a combined social and economic force.

And I would like respectfully to submit to the committee that overemphasis on either one or the other aspects of the dynamism that the word "productivity" really includes, might be to destroy the great potential of the Center under consideration in these hearings.

Mr. Chairman, I would like to add one further observation about the possible activities of the proposed Center under consideration by the committee.

The quality of work program was conceived to be, and still is, an action program, not a study program. While I have the greatest respect for a study program, such as the many extremely valuable studies the National Commission has made in its highly limited fields of health care, food, transportation, and the public sector, I believe study is not enough. While I feel research and development is a critically important component of productivity improvement, and it is, I submit that implementation of R. & D., out of what some call the real world, to see what works and to measure how it works so others can avail themselves of it, is of at least as of critical importance as R. & D. itself.

Whether one is testing new technology or new work or organizational structures, theory is not enough. There must be theory implementation in actual places of work, in real world implementability. There must be what some scientists call proof of concept, and what I call action programs. There must be testing, there must be measure, and this involves real people and real technologies and organizations and unions and managements and costs and risks and returns.

I happen to believe that given the urgency of our national need for productivity improvement, not, in many respects action programs which Mr. Whiting was urging, may be of greatest importance to us all than long-range study programs. And I would urge that if the Congress establishes a new center, action programs be given a very high priority in the legislation.

But there is a characteristic, Mr. Chairman, of action programs that I would like to bring to your attention. They necessarily involve real people and real organizations and real unions and real managements in the private sector.

The participants, even if the programs, as ours, are called experimental projects, are very private sector people. It is obviously imperative, since any inovative productivity programs involves changes sometime—change of technology, change of process, change of organization or work structures—that those private sector participants not only believe in the change being proposed, but believe that they own it, even though a neutral expert capitalist may be present to help.

It must become theirs. They must implement it in the private sector. They must make it work and they can make it fail. They must become convinced that the change being proposed is in their best interest, or they would not accept getting involved in the first place.

The point I am trying to make, Mr. Chairman, is difficult one but I think a profoundly important one, based on our long experience in action programs. It is simply this. When our program was housed in the National Commission on Productivity, it was a great deal harder to gain willing management and labor participants. The fact that we, so to speak, wore a red, white, and blue hat, that we were Feds, gained for us a lot of suspicion and occasionally downright hostility, in the profound American tradition of fear of Government meddling in private affairs.

Two international presidents of labor unions, despite urging from subordinates, refused to participate because we were part of the current administration. Hostility and fear of meddling by the Government was several times expressed to us politely by senior management in kind words. Yet when we moved our program into the private sector last March, these many barriers wholly disappeared. We were astonished at the calls we received from labor and managements who had previously refused to participate. Before, many potential participants were afraid of our program belonging not to them but to the Government. After, they believed it would be theirs.

Now, if ours were the only action program the proposed Center might support, these observations perhaps would not be relevant. But it is my hope, Mr. Chairman, that action programs, as I said, would comprise a substantial portion of Center-funded activities, both in technology and human resource development, or machine programs and people programs. And if they do, I urge consideration of the fact that it is one thing for the Center to fund a worthwhile action program owned by its participants, and it is quite another thing for the Center to contemplate maintaining Government ownership or bureaucratic control, which I feel is both destructive and unnecessary.

It is carefully measured productivity innovation or change itself that matters for the potential productivity of the participants and those in the same or other industries who can learn from those participants.

Mr. Chairman, I urge that the proposed Center help the private sector help itself.

In closing these remarks, I should like to suggest that neither in the short haul or the long run, as the Senator himself said, can Government provide the basic dynamism for productivity in a free society. That dynamism must come from its people, or what we call our very private sector. Government can, however—and in the case of the proposed legislation, I hope will—encourage, facilitate, support, and reward those in that private sector demonstrably willing, expert, and able to seek and test new technological and human ways to develop what we have to something better, or that social and economic dynamism which I have equated with productivity. To the extent that Government attempts more, Mr. Chairman, as was urged here yesterday, to the extent that it does meddle with the society of work and the technology of work through legislation, statute, or any other constraints, it can, and I believe will, destroy the very dynamism or productivity it seeks to enhance.

Mr. Chairman, I thank the committee for the privilege of testifying on so critically important a national need.

Senator NUNN. Thank you, Mr. Mills.

I must say I agree with most of your points here, particularly the emphasis on action, the emphasis on the Government helping the private sector help itself. That is the direction I feel we must take at this time.

I have been doing so much of the questioning. I would like very much for Senator Percy to take all the time in terms of questioning Mr. Mills.

Senator PERCY. Mr. Mills, you and I have had talks over the years, so my questions are brief.

Mr. MILLS. You know most of the answers anyhow.

Senator PERCY. It seems I am quite familiar with your thinking. As I went through your testimony, I just wondered about your thoughts as to how the center should be financed. What proportion should come from the Federal Government? What proportion should come from foundations, from organized labor, and from business? Would they not feel more a part of it if they owned a piece of it and had something to say about it? What would you recommend along that line?

Mr. MILLS. Well, Mr. Percy, we have in our program 100 percent Government donation. When I say Government funding, Ford, in this case, or EDA donation for 6 months. In the next 12 months we demand both the union and the management supply 50 percent of matching funds, and after 18 months, then labor and management participants supply all funds.

In other words, we view what we are doing as a seeding function in which the Government merely makes possible getting something going so that I believe it is of critical importance that the private sector own a substantial portion of the costs and get involved in the risks of the changes that are undertaken.

Otherwise—as a matter of fact, this has been urged to me by labor leaders—Mr. DiCicco, who was here yesterday, urged that in all projects, labor union put the money down on the line in front, in order to insure its commitment, and I think this is a very important factor.

Senator PERCY. Do you think that Senator Nunn and I should both consider modifying our bills to make absolutely clear that we want to attract and elicit support and help from foundations who are interested in this field, from labor, and from business? This would not just be for the purpose of reducing the cost to the Government, but to reduce the impression that it is strictly a Government program, and to convey the idea that there really is input, management, and control that can be provided by the sectors that will be participating?

Mr. MILLS. Senator, in section 205 of your bill, it states that it is the intent of the proposed center to maximize the participation of labor and industry.

Senator PERCY. How about Senator Nunn's bill?

Mr. MILLS. I do not recognize this in Senator Nunn's bill, but in any case the idea of a tripartite labor-industry-government operation, as is the case, for instance, in the Scandinavian countries, if you could strengthen that intent legislatively and even ask for contributions from the private sector, it might be a very decided advantage.

You will receive in the mail, or have received in the mail, testimony from Dr. Grayson,[1] who urges that in addition to the center you are proposing, his notions for a private productivity center not be abandoned and perhaps that the center you are proposing could help get going in the private sector. As a matter of fact, I think Dr. Grayson proposes that the Government provide matching funds of the first $5 million, if industry and labor will come up with matching funds.

This may be an interesting idea of Dr. Grayson's. Mr. Rostow, as you are I am sure aware, has been seeking support for what I believe he calls the Work Institute. This is a similar organization to that which you

[1] See p. 155.

are proposing, but which would be in the private sector, and I think that both these and other ways to get the private sector with its money on the line, from both labor and management in relatively fair ratio from one to the other, could be of enormous benefit, to draw the private sector into commitment to what you are trying to achieve.

Senator NUNN. I have in my legislation two specific grant programs, and the intent is in that direction. I certainly think that whatever final bill comes out of this, that it is a very good suggestion.

Senator PERCY. Yes, I think we ought to——

Senator NUNN. I think that is our original intent in both pieces of legislation, but it probably should be given a great deal more emphasis.

Mr. MILLS. As I recall, both bills requested on any grants there be private sector participation.

Senator PERCY. Right.

Mr. MILLS. But I think Senator Percy is talking about something a lot larger, and I think perhaps a lot more a significant to getting toward the nongovernmental status that Mr. Arai told us he had in Japan yesterday.

Senator PERCY. I would want to say very much that we are not after grants just to reduce the Government's share. We are after grants to keep management and control of the programs in the hands of those for whom the programs are designed. I think it will be infinitely better if the direction comes from those that will be directly affected, rather than someone who is removed from it.

Mr. WHITING. Sir, I would agree with that. I might emphasize that the question applies to at least two levels.

One is the level of the funding of the national center itself as an entity within the executive branch, and the other is the kind of funding that goes to experimentation and other activities, technical assistance, and what not. It seems to me it would be very wise to follow the procedure that would require matching funding with some participation by grant recipients in the lower level because that is where the action takes place and that is where those provisions apply.

The national level is another question. I would be careful about requiring in some fashion that kind of participation or else those who run the center would be spending all their time seeking funding from sources themselves who are at present under severe financial pressures.

Senator PERCY. Because you both are knowledgeable in the philanthropic fields, may I ask you this: What prospect would we have for getting the Ford Foundation to give some priority to the funding of these programs?

What priority do you think labor unions and management would place on funding something like this next year?

Mr. MILLS. I can address myself to that because one of the things we have been doing for the last year since we were funded as an operation by the Ford Foundation and EDA is seeking funding for support, and I think this is a very critically important point, Senator.

For support of productivity improvement activities in the private sector, we have found that, with the exception of the Ford Foundation, to our knowledge, there is no philanthropic organization which has in its charter the ability to help a business help itself. This is one area where only Government can help, and curiously, in Washington, only the Economic Development Administration of Commerce has in

its charter the ability to help businesses to help themselves. Nowhere else, in my knowledge in the Federal Establishment or in the private philanthropies does that ability exist.

Senator PERCY. One last question: in your testimony, Mr. Mills, you said that two international presidents, despite urging from subordinates, refused to participate because we were part of the current administration. Is that the Nixon administration or the Ford administration?

Mr. MILLS. The Nixon administration, but I think that that reflected, as a matter of fact, the opposite side of the coin, which I did not put in my testimony. As a matter of fact, the senior vice president of one of our large companies said, Mr. Mills, if we go into this, can you go back to Washington and call off your boys on OSHA, as if I could somehow do anything about that.

So the fact of being a Government representative severely inhibited the evaluation of what we were trying to achieve.

Senator PERCY. Were one of the union international presidents Mr. George Meany?

Mr. MILLS. No.

Senator PERCY. Let me add a third then. I do not think he would mind at all my quoting him. He is never reticent to say exactly what he thinks on any issue. When I talked to him about participating and helping in the productivity effort, he said it was one of the major factors that brought labor and management together in the war. He said he would not have any part of such an operation organized by the Nixon administration. It would just be a charade. It would be a big pr deal, a big announcement, a big promotion, with nothing behind it. Quoting him, "I refuse to be a character actor on their stage any longer."

Mr. MILLS. I think I met almost the same one.

Senator PERCY. And I agreed with him. I had come to that conclusion myself. I was sick and tired of these pr fellows over there proposing a lot of shallow schemes. There was no substance to a lot of those programs, but now I think the situation has changed. I think there is really a seeking-out, and I would hope that all of these international presidents would reevaluate their position and could willingly participate in productivity efforts.

Mr. MILLS. One interesting thing is that one of the international presidents I mentioned who turned us down because we were Government has since joined the Productivity Commission, just very, very recently, so that may be an indication.

Senator PERCY. Thank you both very much indeed for valuable testimony, for drawing upon all of your experience that you have capsulized very nicely.

Senator NUNN. Thank you very much. We appreciate your coming. We look forward to continuing work with you.

Our next witness is Mr. Jack Jericho, who is executive director of the American Institute of Industrial Engineers. He has been interested, and his organization has been interested, in this subject, for a good many years.

Mr. Jericho, we are delighted to have you with us. We will be glad to receive your remarks. I have a real time problem. At 12:30 I have got to be on the floor on a piece of legislation. I may have to leave, but

Senator Percy will continue to preside, and I will come back as soon as I can.

He also perhaps has a problem too, but we are going to do the best we can to get through the witnesses this morning.

TESTIMONY OF JACK F. JERICHO, EXECUTIVE DIRECTOR, AMERICAN INSTITUTE OF INDUSTRIAL ENGINEERS; ACCOMPANIED BY DR. MARVIN E. MUNDEL, PUBLISHER AND LECTURER

Mr. JERICHO. The American Institute of Industrial Engineers is a nonprofit technical engineering group headquartered in the Atlanta, Ga., area, specifically, Technology Park in Norcross, made up of and supported by 23,000 individual members who are engaged in virtually every activity of industrial engineering practice and organized throughout theUnited States, Canada, and Mexico. We are pleased to be invited to present its views on the proposed National Productivity Act of 1974, S. 4130, at the initial hearings of this committee, and to a lesser degree on S. 4212.

Myself, I am a registered professional engineer and I serve as executive director of our organization. With me is Dr. Marvin E. Mundel to assist me with questions which may be asked as a result of the testimony. Dr. Mundel is widely known for his publications, his lecturing, and he is very familiar with the Japanese industries and the Japanese culture, and he has just published a book which would probably be of interest to the committee on measuring and enhancing productivity in the Government and the service organizations.

I just learned this morning through Paul Robbins, the executive director of the National Society of Professional Engineers, that I am speaking for 57,000 members of that group, and they support our testimony.

In order to put AIIE's concern about productivity in its proper perspective, it should be pointed out that one of the basic objectives and functions of industrial engineering is to continuously find the most effective use of dollars spent for the complex interrelationships for materials, equipment, human resources, and energy. For many years, industrial engineering has had a very limited understanding amongst business, labor, and the general public.

Attached to this testimony is a definition of the profession, as well as the activities which we hope will clarify and bring about better understanding of our role.

The discipline is used effectively to improve productivity in practically all manufacturing industries, particularly those producing discrete products and those converting raw materials into basic products needed, such as steel and aluminum plants, to produce discrete products.

Besides manufacturing, industrial engineering has expanded in the last 15 years into Government at all levels, mass transportation systems, hospitals, and health care systems, banking, logistics, and physical distributions, and practically all other forms of service oriented business.

Industrial engineering is unique in the engineering world because it draws upon other engineering disciplines and is the only one which we feel is truly human relations oriented. It bridges the gap between engineering and behavioral science, is deeply concerned with the

importance of people in productivity improvement and is continuously searching for new ideas to motivate people and change attitudes through experimentation and research.

The AIIE wishes to state that it emphatically and enthusiastically supports the concepts outlined in the National Productivity Act, S. 4130 and S. 4212 because we just received S. 4212. The testimony is specifically toward S. 4130. I will have some general remarks at the end of the testimony on S. 4212.

Now why do we feel there is a need for a Federal productivity policy and a National productivity center? In researching the reasons for the need several factors were found. There are as follows:

There are few, if any, national goals or policies providing specific industries what productivity improvements are needed to successfully continue to compete internationally in the 10 to 15 year time frame ahead.

There are too many definitions, some complex, of productivity and most of them are not understood. One of the most universal which is probably known better than any others is output per man hour. This definition has a tendency to create resistance to productivity improvements because it implies for work by the worker.

Last week I attended a meeting of 20 top industrial engineering managers and vice presidents, and of the 20, they came up with 20 different definitions of productivity, and each one of the corporations represented had at least 10 to 20 basic measurements, and all of them are actively engaged in searching for new ideas in productivity improvement, but none of them have found any one measure which they can operate their business on.

No action-oriented group exists to systematically find the problems and the barriers causing the declining growth in productivity.

There is no clearinghouse or central group which can adequately evaluate the problems to determine the priority for research technology improvement in specific areas.

There is little or no consideration given to the impact legislation may have on productivity, such as restrictions placed on industry and the service sector by environmental, safety, and health standards. We certainly do not agree that they are needed.

There is no central information and technical center to gather, evaluate, and publish material which can effetcively provide information on technological improvements which are directly related to productivity. I would like to state it is particularly true for small business because our organization is continuously being sought out to provide this type of information, and it is very difficult to find.

The effective but limited results of the National Commission on Productivity proved there is a need for a Federal policy and an effective productivity center but a center adequately funded to carry on the projects needed.

Little regard or concern seems to exist to the barriers or disincentives which stand in the way of productivity improvement and in some instances create inefficiencies. Two examples which most people are familiar with are the unnecessary cost in the trucking industry, promoted by the Interstate Commerce Commission, such as uneconomical routing of trucks, empty return hauls and setting of uneconomical rates.

The second is the courts and Federal Trade Commission's frowning on the banding together of small companies for more economic procurement.

Inflation, now coupled with a recession, is damaging the economy worldwide. A crisis exists, and it is time to look to significant improvements in productivity to reestablish the leadership of the United States in the world economy and revitalize its own economy. The establishment quickly of a Federal productivity policy and an action-oriented National Productivity Center is needed now.

Senate bill S. 4130 which calls for a Federal productivity policy and the establishment of a National Productivity Center is needed and consideration of the bill by the entire Senate should not be delayed. However, we feel some specific changes or modifications are appropriate to strengthen the bill and assure that its purposes are effectively carried out.

Generally, the findings in section 101 are complete and well-defined. The purpose of the act, that is section 102, are well-stated but AIIE recommends two changes, namely (3) should read "to establish a universal definition of productivity and to increase the understanding of the role of productivity and its importance to the Nation" and (4) "to establish a National Productivity Center at Cabinet level in the Executive Branch reporting directly to the President of the United States of America."

This has been done in Senate bill 4212 to a great degree. We feel definition and understanding are extremely important to help the Center enlist active support from both management and labor.

Also, the Center should not be placed in a position where it might be just another agency. It must have top level identification and not be inhibited.

Sections 103, 104, and 105, while broad, are adequate and appear to excellently describe what the proposed bill desires to accomplish.

We would like to suggest that section 201(2)(a), line 16, be modified to read "natural, social, and behavioral sciences, industrial engineering, and other engineering disciplines."

It is our opinion that the behavioral sciences and industrial engineering are so important to productivity that both should be specifically identified.

Section 201(b) specifically speaks of measurements and procedures which will be used to assess the impact of proposed actions on productivity. The AIIE is available to be used by the Center to assist in the identification and development of the standards and measurements on a contract basis.

It is noted in section 201(c) that proposals for new legislation, programs recommended in the President's budget and other major Federal actions which might affect productivity, in Government and/or industry must clearly include a detailed statement on many specific items. We feel provisions should be made in the bill to assure that the proper mix of technical and business talent is a part of the Center and is available to assist in preparing and evaluating these statements. These people must be professionals.

Section 201(f) deals with the dissemination of advice and information about productivity growth. This activity would probably be most effective if it was carried out through an information center maintained and operated by a technical engineering group. Again, AIIE is

available to cooperate with the National Productivity Center in this area. This activity could eventually become self-sustaining but would require substantial front-end funding, and I would like to add that this should be a joint front-end funding by Government, labor, and industry.

In section 302, in which the National Productivity Center is established, specific references are made to the Department of Commerce and the Secretary. As stated earlier, the Center should be established at Cabinet level. We also recommend that the qualifications for the Director and Deputy Director—now, this would apply to both bills—include an industrial engineering background to assure that proper leadership and broad technical knowhow are provided to the Center. The engineering community is ready and willing to take roles in efforts directly involved in technology along with the economists and "B" school trained individuals.

The bill proposes, in section 306(b)(1), that the National Productivity Center be adequately funded and then authorized to make grants or enter into contracts to conduct research demonstrations or specific projects to improve and stimulate productivity growth. We would again like to offer its services to the National Productivity Center to act as its evaluation agency to review all proposals submitted to the Center.

Under sections 302(3)(g) and 306(b)(4), the bill states that the National Productivity Center will conduct an annual conference and special workshops, conferences, and other forums to disseminate information. Because of its experience in conducting these types of workshops and conferences, we would be pleased to work with the Center in developing and conducting workshops and conferences.

In section 307(b)(2), reference is made to placing special emphasis on the use of institutions of higher education, especially those possessing engineering schools. We feel this should be expanded with the statement "particularly industrial engineering."

Because many projects and programs which will be developed as a result of having a National Productivity Center will be long range, we suggest that section 308 be revised to read "fiscal year ending June 30, 1975, and the 7 succeeding years." We feel the Center must have a period long enough to prove its usefulness, and the problem is too complex to solve in 3 years.

AIIE feels the bill should highlight the need for research and study of the differences in culture and the educational systems between the United States and other countries such as Japan and West Germany. These differences may have a significant impact on productivity, and solutions to these differences must be found if we are to continue its leadership role in the world economy.

On behalf of AIIE, I would like to summarize my remarks in a few remarks about S. 4212. We would like to see quick action on the bill, expeditious identification of specific industries which need technological assistance, funding which will permit effective operation of the Center, proper recognition that industry and labor must be included in defining specific objectives of the Center, staffing of the Center be properly balanced and include professionally trained industrial engineers.

Now, in S. 4212, last week I was in a meeting for 3 days on productivity. I was not able to go into the depths of it, and I would like to.

Throughout the bill, reference is made to business, labor, and Government. We recommend that consideration be given to stating in any bill that professional societies and trade associations should be part of this group. It is in productivity centers in West Germany and Japan, these groups are closer to the real productivity problems than those identified because they are out where the action takes place, in the manufacturing plants, in the service-centered industries, and I think they can contribute to the overall objective we are searching for.

Section 202(a) established the composition of the Board of Directors. We recommend the Board be extended to include the Attorney General and representatives from the Federal Trade Commission, the Interstate Commerce Commission, the Federal Power Commission, the Federal Energy Office, and the Environmental Protection Agency.

We also recommend that three members of the Board be selected from the professional and technical engineering societies. Serious consideration should be given to establishing the Center, and it has been spoken of now more than once this morning as a quasi-Government business, rather than an agency, and this would come about because of possible funding jointly with Government, labor, and management.

Now, in personal discussions with leaders from Fortune 500 companies, many of whom I spoke with personally last year, they feel that overall productivity improvement is severely hampered by the adversary relationships between Government and business. Somehow, the proposed Center must find ways to bring about mutual trust and create an atmosphere of cooperation.

Senator NUNN. Excuse me, Mr. Jericho. Could you make the rest of the testimony a part of the record? We have a live quorum, and the Sergeant at Arms has called, which means if you do not come, you get arrested; and under those kind of conditions, I think I had better go.

Mr. JERICHO. I would not my fellow citizen from Georgia to have that happen to him.

Senator NUNN. Mr. Jericho, we appreciate very much your being here. All of your remarks were made a part of the record. I think you got almost through.

Mr. JERICHO. Just about.

Senator NUNN. We appreciate the cooperation you and your association have extended to us, and we hope we will continue to get your input as we move along.

[The prepared statement of Mr. Jericho with attachment follows:]

PREPARED STATEMENT OF JACK F. JERICHO ON BEHALF OF THE AMERICAN INSTITUTE OF INDUSTRIAL ENGINEERS, INC.

Mr. Chairman, the American Institute of Industrial Engineers (AIIE) is a nonprofit technical engineering group headquartered in the Atlanta, Georgia area, specifically Technology Park in Norcross, made up of and supported by 23,000 individual members. These members are engaged in virtually every activity of industrial engineering practice and organized throughout the United States, Canada and Mexico, on a regional, divisional and chapter affiliated basis. AIIE is pleased to be invited to present its views on the proposed "National Productivity Act of 1974", S. 4130, at the initial hearings on this Committee.

My name is Jack F. Jericho, I am a registered professional engineer and serve as the Executive Director of the American Institute of Industrial Engineers. With me is Dr. Marvin E. Mundel to assist me with questions which may be asked as a result of my testimony. Dr. Mundel is widely known for his publications, his lecturing and he is very familiar with Japanese industries and the Japanese culture, and he has just published a book which would probably be of interest to

the Committee on Measuring and Enhancing Productivity in the Government and the Service Organizations. I speak today for the 23,000 members of AIIE, of which 3,000 are enrolled in about 100 schools of industrial engineering. I just learned this morning through Paul H. Robbins, the Executive Director of the National Society of Professional Engineers, that I am speaking for 57,000 members of that group and they support our testimony.

The testimony presented today has been prepared with the assistance of AIIE President John P. Houston, President-Elect William A. Smith, Jr., Vice President-Industry and Management Divisions, Marvin E. Mundel and members of the National Capital Chapter; Kenneth Duff, John L. Grizzard, Patricia G. Haynes and Richard Powers.

AIIE's membership consists of industrial engineers, systems engineers and managers at all levels in an organization of technical oriented companies producing goods and services. Also, and most importantly, a significant group of members are educators teaching industrial engineering and conducting valuable research to find new technology to improve productivity. Many of the research findings are published by the American Institute of Industrial Engineers.

Our members are deeply concerned and vitally interested in the decline in productivity growth in the United States because this decline in the rate of growth is contributing to inflation and is affecting the competitive position of the United States in world markets.

In order to put the AIIE's concern about productivity in its proper perspective, it should be pointed out that one of the basic objectives and functions of industrial engineering is to continuously find the most effective use of dollars spent for the complex interrelationships for materials, equipment, human resources and energy to improve productivity and quality of work. Industrial engineering is formally defined as follows:

"Industrial Engineering is concerned with the design, improvement and installation of integrated systems of people, materials, equipment and energy. It draws upon specialized knowledge and skills in the mathematical, physical and social sciences together with the principles and methods of engineering analysis and design, to specify, predict and evaluate the results to be obtained from such systems. Industrial engineering is strongly oriented towards the improvement of productivity in people-machine systems"

The discipline is used effectively to improve productivity in practically all manufacturing industries, particularly those producing discrete products and those converting raw materials into basic products needed, such as steel and aluminum plants, to produce discrete products. Besides manufacturing, industrial engineering has expanded in the last 15 years into government at all levels, mass transportation systems, hospitals and health care systems, banking, logistics and physical distribution and practically all other forms of service oriented business.

Industrial engineering is unique in the engineering world because it draws upon other engineering disciplines and is the only one which is human relations oriented. It bridges the gap between engineering and behavioral science, is deeply concerned with the importance of people in productivity improvement and is continuously searching for new ideas to motivate people and change attitudes through experimentation and research.

Too often in the past, and even in some quarters today, many business and labor leaders still identify the industrial engineer within the narrow scope of work standards and wage incentives. This is no longer true and to provide the record with the complete scope of the discipline, an appendix is attached to this testimony.

The AIIE initially wishes to state that it emphatically and enthusiastically supports the concepts outlined in the proposed "National Productivity Act of 1974". S. 4130 and S. 4212. Because we just received S. 4212, the testimony is specifically for S. 4130, but includes some general remarks about S. 4212.

Why do we feel there is a need for a Federal Productivity Policy and a National Productivity Center? In researching the reasons for the need, several factors were found. These are:

1. There are few, if any, national goals or policies providing specific industries what productivity improvements are needed to successfully continue to complete internationally in the 10–15 year time frame ahead.

2. Too many definitions, some complex, of productivity exist and most of them are not understood. One of the most universal which is probably better known than any others is output per manhour. This definition has a tendency to create

resistance to productivity improvements because it implies more work by the worker.

Last week I attended a meeting of 20 top industrial engineering managers and vice-presidents, and of the 20, they came up with 20 different definitions of productivity and each one of the corporations represented has at least 10 to 20 basic measurements relative to productivity. All of them are actively engaged in searching for new ideas in productivity improvement, but none of them have found any one measure which they can operate their business on.

3. No action oriented group exists to systematically find the problems and the barriers causing the declining growth in productivity.

4. No clearing house or central group exists which can adequately evaluate the problems to determine the priority for research technology improvement in specific areas.

5. Little or no consideration has been given to the impact legislation may have on productivity, such as restrictions placed on industry and the service sector by environmental, safety and health standards.

6. There is no central information and technical center to gather, evaluate and publish material which can effectively provide information on technological improvements which are directly related to productivity. I would like to state this is particularly true for small business because our organization is continuously contacted to provide this type of information, and it is very difficult to find. In fact, at this hearing I learned that the National Commission on Productivity has many publications on productivity. We were not aware of these.

7. The effective but limited results of the National Commission on Productivity proved there is a need for a Federal policy and an effective Productivity Center but a center adequately funded to carry on the projects needed.

8. Little regard or concern seems to exist to the barriers or "dis-incentives" which stand in the way of productivity improvement and in some instances create inefficiencies. Two examples which most people are familiar with are the unnecessary cost in the trucking industry, promoted by the Interstate Commerce Commission . . . such as uneconomical routing of trucks, empty return hauls and setting of uneconomical rates; the second is the courts and Federal Trade Commission's frowning on the banding together of small companies for more economic procurement.

9. Inflation, now coupled with a recession, is damaging the economy worldwide. A crisis exists and it is time to look to significant improvements in productivity to reestablish the leadership of the United States in the world economy and revitalize its own economy. The establishment quickly of a Federal Productivity Policy and an action-oriented National Productivity Center is needed now. America is ready for change!

Senate Bill S. 4130 which calls for a Federal Productivity Policy and the establishment of a National Productivity Center is needed and consideration of the bill by the entire Senate should not be delayed. However, we feel some specific changes or modifications are appropriate to strengthen the bill and assure that its purposes are effectively carried out.

Generally, the findings in Section 101 are complete and well defined. The purposes of the Act in Section 102 are well stated but AIIE recommends two changes; namely, (3) should read "to establish a universal definition of productivity and to increase the understanding of the role of productivity and its importance to the Nation", and (4) "to establish a National Productivity Center at Cabinet level in the Executive Branch reporting directly to the President of the United States of America". This has been done in Senate Bill 4212 to a great degree. We feel definition and understanding are extremely important to help the Center enlist active support from both management and labor. Also, the Center should not be placed in a position where it might be just another agency. It must have top level identification and not be inhibited.

Sections 103, 104 and 105, while broad, are adequate and appear to excellently describe what the proposed bill desires to accomplish.

AIIE would like to suggest that Section 201 (2) (A), line 16, be modified to read . . . natural, social and behavioral sciences, industrial engineering and other engineering disciplines . . . It is our opinion that the behavioral sciences and industrial engineering are so important to productivity that both should be specifically identified.

Section 201 (B) specifically speaks of measurements and procedures which will be used to assess the impact of proposed actions on productivity. The AIIE is available to be used by the Center to assist in the identification and development of standards and measurements on a contract basis.

It is noted in Section 201 (C) that proposals for new legislation, programs recommended in the President's budget and other major Federal actions which might affect productivity, in government and/or industry must clearly include a detailed statement on many specific items. Provisions should be made in the bill to assure that the proper mix of technical and business talent is a part of the Center and is available to assist in preparing and evaluating these statements. These people must be professionals.

Section 201 (F) deals with the dissemination of advice and information about productivity growth. This activity would probably be most effective if it were carried out through an Information Center maintained and operated by a technical engineering group. Again, AIIE and NSPE are available to cooperate with the National Productivity Center in this area. This activity could eventually become self-sustaining but would require substantial front-end funding. I would like to add that this should be a joint front-end funded project by government, labor and industry.

In Section 302, in which the National Productivity Center is established, specific references are made to the Department of Commerce and the Secretary. As stated earlier, the Center should be established at Cabinet level. If this is accepted by the Committee on Government Operations, revisions will be needed in this section. We also recommend that the qualifications for the Director and Deputy Director, now this would apply to both bills, include an industrial engineering background to assure that the proper leadership and broad technical knowhow are provided to the Center. The engineering community is ready and willing to take leadership roles in efforts directly involved in technology along with the economists and "B" school trained individuals.

The bill proposes, in Section 306(b)(1), that the National Productivity Center be adequately funded and then authorized to make grants or enter into contracts to conduct research demonstrations or specific projects to improve and stimulate productivity growth. AIIE would again like to offer its services to the National Productivity Center to act as its evaluation agency to review all proposals submitted to the Center.

Under Section 302 (3)(G) and 306 (b)(4) the bill states that the National Productivity Center will conduct an annual conference and special workshops, conferences and other forums to disseminate information. Because of its experience in conducting workshops and conferences, the AIIE would be pleased to work with the Center in developing and conducting workshops and conferences.

In Section 307 (b)(2) reference is made to placing special emphasis on the use of institutions of higher education, especially those possessing engineering schools. We feel this should be expanded with the statement . . . particularly industrial engineering . . .

Because many projects and programs which will be developed as a result of having a National Productivity Center will be long range, we suggest that Section 308 be revised to read . . . fiscal year ending June 30, 1975, and the seven succeeding fiscal year. The Center must have a period long enough to prove its usefulness and the problem is too complex to solve in three years.

AIIE feels the bill should highlight the need for research and study of the differences in culture and the educational systems between the United States and other countries such as Japan and West Germany. These differences may have a significant impact on productivity and solutions to these differences must be found for the United States to continue its leadership role in the world economy.

Earlier reference was made to the National Commission on Productivity. The staff of NCOP made some significant contributions but did not have the charter nor the funds to carry out the objectives of the proposed "National Productivity Act of 1974". If possible, the committee might consider the elimination of the Commission and place the staff in the proposed Productivity Center. This has been accomplished in S. 4212.

On behalf of AIIE and NSPE, I would like to conclude our remarks by urging:

1. Quick action on the bill.
2. Expeditious identification of specific industries which need Technological assistance.
3. Funding which will permit effective operation of the Center.
4. Proper recognition that industry and labor must be included in defining specific objectives of the Center.
5. Staffing of the Center be properly balanced and include professionally trained industrial engineers.

I would now like to make some general comments about S. 4212:

1. Throughout the bill reference is made to business, labor and government. We recommend that consideration be given to stating in any bill that professional societies and trade associations be included as part of this group. In the productivity centers in West Germany, Japan and other countries these groups are much closer to the real productivity problems than those identified because they are out where the action takes place, whether it is in the manufacturing plants or the service-oriented industries. I think they can contribute to the overall objective we all are searching for.

2. Section 202(a) established the composition of the Board of Directors. We recommend the Board be expanded to include the Attorney-General, representatives from the Federal Trade Commission, the Interstate Commerce Commission, the Federal Power Commission, the Federal Energy Office and the Environmental Protection Agency. We also recommend that three members of the Board be selected from the professional and technical engineering societies.

3. Serious consideration should be given to establishing the Center, and it has been spoken of now more than once this morning, as a quasi-government business, rather than an agency, and this could come about because of possible funding jointly by government, labor and management.

4. In personal discussions with leaders from some of the Fortune 500 companies, many of whom I have spoken with personally in the past month, I have found that they feel overall productivity improvement is severely hampered by the adversary relationships between government and business. Somehow, the proposed Center must find ways to bring about mutual trust and create an atmosphere of cooperation between government and business.

In closing, I want the Committee to know that the engineering community, particularly AIIE and NSPE, pledges its support to the Congress and offers assistance in developing the concept and implementation of procedures needed to improve America's productivity. In fact, AIIE's Board of Trustees recently appropriated funds to develop a position paper on productivity. This paper might be very useful in developing the bill to be considered by the 94th Congress.

Again, we would like to thank the Committee for the opportunity to express our views on the proposed "National Productivity Act of 1974", S. 4130.

Appendix to the American Institute of Industrial Engineers Testimony on The National Productivity Act of 1974

To expand on the definition of Industrial engineering, assure complete understanding of the major activities of industrial engineering and how these activities relate to productivity improvement, following is a summary of these activities:

1. Design facilities, including layout of buildings, machines and equipment to insure maximum utilization of capital investment and utilization of the latest advances in technology, giving full consideration to environmental and safety issues.

2. Design and improve planning and control systems for distribution of goods and services, production, inventory, quality, plant maintenance and engineering with particular emphasis on the latest advances in computer applications.

3. Develop management control systems for financial planning and cost analysis to enable all levels of management to evaluate trends of all factors which affect productivity.

4. Use operations research and management science to solve complex business problems and allocate and optimize use of resources. Many of the techniques of operations research make it possible to simulate actual conditions and then evaluate the impact of technological change.

5. Conduct plant location surveys, considering potential market for raw material sources, labor supply, financing and taxes. These surveys can have significant impact on productivity.

6. Conduct long-range organization studies with particular emphasis on effective communications throughout the organization.

7. Design, install, manage and evaluate effectiveness of computer based data processing systems.

8. Design and implement management decision making systems to provide more timely control of operations.

9. Select operating processes and methods to accomplish a given task in order to achieve the most efficient production.

10. Develop and install wage incentive systems to fairly compensate the worker for increases in productivity.

11. Develop performance measures and standards, including work measurement systems to assure proper evaluation is made of productivity trends, particularly in labor output.

12. Specify proper methods and equipment to insure maximum productivity utilizing the principles of automation and computer controlled processes.

13. Develop ideas to motivate people and make them part of the development factors to improve productivity.

14. Improve product and service quality and reliability for the consumer.

The above activities all play an important role in productivity improvement. Technically and professionally, the industrial engineers may be one of the best qualified groups in the United States to provide the technical knowhow and coordination needed to bring about the effective operation of a dynamic and action-oriented National Productivity Center.

Senator NUNN. The other testimony we had this morning was from Mr. Averch, who is Deputy Assistant Director of Analysis and Planning for the National Science Foundation and they worked considerably on this statement in this area. Is Mr. Averch here?

Mr. AVERCH. Yes, sir.

Senator NUNN. Would it be convenient to you if we started back about ten minutes to 2 and had your testimony then? I think we would have a much better chance to get the testimony and get in some meaningful questions.

Mr. AVERCH. That would be fine.

Senator NUNN. Because we are going to be on the floor of the Senate for quite a while, and I do not want people to have to sit and wait.

We will start back at 10 minutes to 2, and we will have our other witnesses then.

I will ask unanimous consent that the testimony of C. Jackson Grayson, Jr., Dean of the School of Business Administration, Southern Methodist University, and former Chairman of the Price Commission, be included in the record.

He has been very active in the field of productivity. He has, as I understand it, been advocating the establishment of an American Productivity Center as a private sector undertaking devoted to helping business and labor increase our country's productivity. Dean Grayson maintains that increased productivity also means improving the nature and quality of life for each human being.

The Center he advocates would be non-profit, privately financed, outside of government, and staffed by experts in both capital and human productivity.

Unfortunately, Dean Grayson was unable to appear in person to present his testimony. However, he did make arrangements to have it delivered to the Committee today. I ask that it be inserted in the record at this point.

(The prepared statement of Mr. Grayson with attachments, follows:)

PREPARED STATEMENT OF C. JACKSON GRAYSON, JR., DEAN, SCHOOL OF BUSINESS ADMINISTRATION, SOUTHERN METHODIST UNIVERSITY, DALLAS, TEX.

Mr. Chairman, I am pleased to testify before this Committee on the subject of productivity—which should be a key component of this nation's economic policy, and which is now lacking.

Regardless of which of these two Bills is adopted, or modifications of them, I urge the Congress to pass *some* final bill to establish a coordinated productivity effort based in the *public sector*.

But equally urgently, I recommend that a *private sector* productivity effort be launched, encouraged and stimulated by the final Bill.

Such a "National Productivity Program," launched simultaneously from the two sectors could:

(1) Aid in the fight against *inflation* and *recession;*
(2) Add to the real *earnings* and *employment* of workers;
(3) Increase the *profits* of business;
(4) Add to the real economic *growth* of this nation;
(5) Increase not only the quantity of goods and services, but also the *quality* of work and of products;
(6) Help overcome *shortages* of goods and services not only in this nation, but also in the world.

Such a Program deserves and needs the support of labor, business and government. *All three.*

A MISSING ELEMENT

Both of the Bills are designed to increase American productivity, and therefore, deserve support. The final product will undoubtedly be a modification, merger, and/or compromise resulting from these important hearings.

But what I think is an important missing element is a *private sector* productivity effort, paralleling the public sector.

Therefore, the thrust of my testimony is to urge that such a private sector effort be launched through the creation of a labor-management "American Productivity Center"—encouraged and financially supported through a one-time seeding grant of $5 million dollars *to be matched on a 2 for 1 basis by the private sector.*

Thus, the private sector American Productivity Center (hereafter APC) would be launched simultaneously with the public sector effort with an initial funding of $15 million. Thereafter, it would exist with no special government funds, outside of normal government grants and contracts which it might merit from any agency of the government.

This is not a duplication of effort. Quite the contrary.

Some things can only be done, and are best done, through a privately organized, privately run, and independent body, outside of the necessary political constraints under which any publicly organized and operated agency must function. The two productivity organizations would complement and assist one another, each active and accountable within its own sphere.

As Chairman of the Price Commission in Phase II, I learned of the tremendous importance of productivity improvements in our American economic system. I made many speeches at that time urging that more national importance be given to an increased productivity effort. Since then, I have continued to urge the creation of a national productivity program, particularly the formation of a private sector American Productivity Center. (See the two attached articles).

The following pages briefly outline the structure, operation, objectives, and funding of such a private sector Center. Following that, I will comment on some features of the proposed Bills for the public sector Center.

AMERICAN PRODUCTIVITY CENTER (APC)

Start-up

The prime initiative for the start-up organization, operation, and funding of the APC must come from labor and management in the private sector.

The proposed Congressional Act could stimulate and assist in the formation of the APC by:

(1) Stating in the Act encouragement of the formation of such a private sector Center;
(2) Directing the public sector Center to work with the private sector Center in a cooperative manner; and
(3) Providing authorization for a one-time, no strings attached, $5 million appropriation for the formation of such a Center, *provided* that the private sector raised $10 million.

The President and Congressional leaders could call together in the White House key business and labor leaders and present the challenge, encouragement, and provisional funding opportunity.

It would be up to the private sector from there on to design and operate the APC.

The details of organization, functions, budgets, operations, etc. would best be worked out by business and labor, but a rough outline is suggested.

Functions

The key functions of both the public *and* private sector efforts should include:

1. Public Awareness and Information;

2. Research and Development;
3. Human Factors in Productivity Improvement;
4. Capital Factors in Productivity Improvement;
5. Materials Productivity; and
6. Training.

Elements of each of these functions would probably occur in each Center. But certain functions would probably have a larger role in each Center. For example, the public sector Center would probably devote more resources to public awareness and education, research and development, structural factor studies, and clearinghouse-reference services. In addition, it would study, coordinate and seek to improve the productivity of the public sector within itself, at the federal, state, and local levels.

The private sector Center would stress productivity improvement in the private sector by working directly with firms, unions, associations, and other organizations on direct demonstration projects, productivity councils, and training. It might also point out, to the public sector Center, *ways in which* the public sector impaired productivity in the private sector or ways in which the public sector might assist.

But, I stress, each Center would probably perform some of each of the functions. Research, for example, need not be limited to the public sector. Nor should productivity councils be restricted to the private sector.

Suggested list of what might occur under each of these functions is included in the Appendix.

Organization

The APC would have a Board of Directors, composed from 15 to 20 of the top business and labor leaders, perhaps with some representation from the academic community.

The Board would select officers to run the organization, create policies, and monitor progress.

Location

Location would be decided by the Board of Directors, probably in some geographical area that permitted easy access.

Independence

The APC would operate strictly as a private, non-profit organization, with no obligations or oversight authority from the Congress or Executive Branches of government.

Funding

The initial government challenge grant of $5 million would be contained in the authorization from the Act. Business and labor would have to come up with $10 million before the government would invest its $5 million.

The initial $15 million would carry the APC through its first critical years of operation while it is becoming established—initiating procedures, policies, and programs. Thereafter, the APC would have to exist on funds received from services, fees, publications, grants, and contracts. The Japanese Productivity Center obtains over 90% of its funds from private sources, plus some grant and contract work from government sources.

If funds were not received in sufficient amounts to sustain its initial programs, then it would have to scale back. If it does not receive sufficient funds to sustain itself in future years, then it should close down because it has not proved its worth to the market system.

PRODUCTIVITY COUNCILS

Both in the private sector APC and in the public sector Center, I believe that one of the main *action* steps should be the creation of "Productivity Councils" at local levels in each sector.

It would be a mistake to create either Center and have it become solely a research or "think-tank". Some steps have to be taken to *act*, or we will merely have another study organization. Productivity improvement actions do not occur mainly in the halls of Congress or academia, in corporate or union executive offices. They occur wherever the goods or services are being manufactured or delivered, and this is where the Councils must be formed to study and implement methods to improve productivity.

Such "Productivity Councils" should be part of the programs of both Centers.

Private-sector productivity councils

The APC would have as one of its main programs the encouragement of the formation of private-sector Productivity Councils at the lowest levels of organizations.

Such Councils would occur in business firms, unions, professional organizations, trade associations, service clubs, and educational institutions. The APC could work through the vast network in this nation of organizations (e.g., United Steelworker, Chamber of Commerce, American Medical Association, American Association of Association Executives, Grocery Manufacturers of America, Rotary Club, American Council on Education, etc.) to ask them to organize productivity efforts within their membership. "Productivity" might be adopted as a theme for an entire year, and the parent organizations could stimulate the formation of Productivity Councils on the part of their members, show them how, publicize, stimulation, and reporting.

These local Productivity Councils would *determine for themselves* specific organizations, goals, and methods for improving productivity. The specific programs would be decided in accordance with individual circumstances and as a result of joint study and approval by labor and management. No central goals or methods should, nor could, be imposed. It would be clear that productivity gains should be shared by labor, management, capital, and consumers. And it should be clear that encompassed in the term "productivity" is included "quality of life and quality of work" of each person—be he manager or worker.

Public sector productivity councils

Similar to the private sector, public sector Productivity Councils would be formed under the coordination of the public Center.

Such Councils would be created at the lowest levels in federal, state, and local systems.

They would be coordinated through the public sector Center, and could be organized and operated through all government related networks, such as the Federal Regional Councils, Federal Executive Boards, and Governor, County, and Mayor's offices.

As with the private sector, the idea is to push the study and improvement of productivity to the lowest levels where the work actually occurs, and where people know best what is blocking their productivity, and how it might be improved. Similarly, rewards and recognition would be given to individuals and units making significant increases.

Functions of productivity councils

To make the functions more concrete, the following is a suggested list of some of the functions that such Councils might assume in either sector:

1. *Define productivity* as they see it in their own circumstances.
2. Determine how to *measure productivity* in individual circumstances.
3. Determine the *blocks to productivity.*
4. Determine how to *increase productivity and reduce waste.*
5. Determine appropriate *rewards for productivity increase.*
6. Set *productivity goals* for their Council.
7. *Monitor and report on their performance.*
8. *Monitor and report on rewards* for performance.

THE TWO BILLS

I think it is clear from the preceding that I envision a vigorous, large-scale, highly visible, and involving productivity thrust for the nation. It is also clear that I see this as a dual effort by both the private and public sector. And I have shown how this might be done.

Regarding the two Bills before the Committee, I shall atempt to give short answers to the questions directed to me.

1. Is there a need for a coordinated government backed productivity effort.

Yes. Most emphatically.

2. What major government department, if any, should be tasked with providing leadership in this area?

Preferably, no one governmnet department.

There should be a new Center, outside of all government departments, regulatory bodies, agencies, etc. It should have access to and cooperation from all governmental bodies, but it should not be under any one of them. It would best be put in the Executive Branch in as independent status as possible, with

reporting authority such as the President directs. I would suggest either directly to the Economic Coordinator or the Vice-President. An alternative might be OMB.

3. How should the NCOP and Work Quality be restructured to provide policy input to the President and the governmental department or unit taking the lead on productivity?

NCOP is under-funded and its charter does not permit the extended scope characterized by either of these Bills.

I therefore, think the present NCOP and Work Quality should be folded into the new expanded Center. Its policy input would be through the reporting mechanism designated by the President, and its authority for securing cooperation, information, etc. would be as spelled out in both proposed Bills.

The membership of the Board of the Center should be largely as spelled out in the version by the Senator Percy and others (S 4212) with perhaps several additions:

1. A representative from state governments.
2. A representative from city governments.
3. A public member.

4. What state and local activities should be supported and stimulated in an effort to raise productivity?

Membership of the Center should be expanded to include state and local representative, as indicated in the previous answer.

Productivity Councils should be created at every state, county, and city level.

5. What should be the role of institutions of higher education, non-profit organizations, and profit seeking private organizations?

For education and non-profits, I suggest that grants and contracts be given as outlined in both Bills. These should be for research and for demonstration projects, as outlined.

I would suggest that no educational or other non-profit organization be given a grant or contract unless it also submitted a plan and a later report on how *that unit planned to increase its own productivity.*

I have already indicated how I would involve the private sector.

6. What role should management and labor play?

I think that the membership on the Boards of both the private and public sector is essential. Without their support, the effort is likely to fail.

Both labor and management are wary about such eflorts. Productivity to many workers means "speed up, work harder, work faster," etc. They also fear that productivity improvement means unemployment and no share in the productivity gains.

Management fears that if workers start to become involved in productivity improvement programs that management's authority is eroded, and that the "workers will be taking over next."

Clearly, not all workers or managers believe all of these negative associations. But enough do believe them to have thwarted some productivity efforts. Such beliefs have also increased over the years an adversary relationship between labor and management—to the detriment of productivity.

Productivity improvement does not have to mean any of the above. Productivity can be increased from working smarter and differently. Productivity gains can mean more, not less, employment. Workers do not have to "take over" when they involve themselves. Perpetuation of these myths, ancient feuds, and attitudes will only hurt labor, management, and society.

In Japan, their Productivity Center was launched only after both labor and management had agreed to these three "guiding principles" of operation. I submit them only as an example of how cooperation was achieved:

THREE GUIDING PRINCIPLES

1. Employment.
2. Labor-management consultation.
3. Equitable distribution.

Employment

Improvement of productivity will ultimately increase employment. To cope with transitional surpluses in personnel, however, the government and the private sector shall work together to devise adequate means of preventing unemployment.

Labor-management consultation

The specific ways in which to improve productivity shall be left up to the individual enterprises and labor, being decided in accordance with individual

circumstances and as a result of study and discussion with the collaboration of labor and management.

Equitable distribution

The fruits of the improvement of productivity shall be equitably distributed among management, labor, capital, and consumers in accordance with individual circumstances and with the conditions of the national economy.

7. How much research and development is needed? In what direction?

R&D is needed—and badly. *Measurement* is the number one problem. Both the private and public sector Centers should work on this.

Second would be *methods* to improve productivity. Here I include both human and capital factors—job enrichment, work re-design, profit-sharing, tax incentives, capital formation and investment, technology, etc.

Third would be *demonstration projects* that put into development ideas generated by research.

8. What kinds of educational and informational activities are needed? What groups should be recipients?

In the Appendix I have listed the kinds of efforts that are needed to make the public aware of the importance of productivity. Only a very small part of the effort should be invested in any national media campaign. Most people forget these messages, or don't know what to do after they have heard them.

Awareness and education are best done through existing organizations—associations, schools, unions, businesses, etc.

9. Should the Federal Government establish a national policy with respect to productivity?

Yes, as stated in the Bills.

But, I urge that no national productivity *number* be created as a goal. People will spend all of their time arguing about whether it is the right number, whether we reached it, etc.

10. What additional efforts should be encouraged by Government at all levels to raise governmental productivity?

The project already underway in the Federal Government by GAO, CSC, and OMB is an excellent start, and should be encouraged further.

Additionally, the Productivity Councils should be created at every Federal level.

Some work has already been done at the State and local levels by NCOP and by the various State and local committees created in the Stabilization Program of recent years. Many of their recommendations and studies should be extended, plus the formation of Productivity Councils at the State and local levels.

International conference

One last suggestion is that the final Bill set up an *International Conference on Productivity* and provide for the creation of an *International Federation of Productivity Centers* for succeeding years.

Clearly, the problem of increasing productivity is a world wide problem, not one just in the United States. With ever increasing world population, material shortages (food and energy now at the top of the list) and the needs of the "have-not" nations becoming more insistent, we must find ways in the world to be more productive. And this means productivity of goods and service, and productivity of the quality of all of our lives in this world.

I propose, therefore, that this Bill include the calling of an International Conference on Productivity, to be organized and run by the new public sector Center.

This Conference would perform several functions:

1. It would formally recognize at an international level that the problem of productivity is global and inter-dependent.

2. It would draw international attention to efforts to increase productivity by many methods.

3. It would establish a base from which future discussions and cooperation could be perpetuated.

4. It might establish a basis around which other tough economic and political issues might be tackled indirectly—recycling capital, trade negotiations, world material shortages, etc.

Invited participants would be:

1. Government leaders.

2. Productivity Center heads from other nations: European Association—17, and Asian Association—14.

3. Other Nations: Arab, Russia, China, and others.
4. Economists, labor and business leaders, opinion leaders, academicians, etc.

Out of this Conference. I propose that there be a continuing organization to be called the "International Federation of Productivity Centers". Membership would be representatives of each of the national productivity centers around the world. There are now 31 such Centers, and the number will probably grow.

The International Federation would be a vehicle to continue international productivity cooperation past this first Conference.

Funds should be authorized in this first Bill to cover the costs of the first Conference ($200,000), and to fund the International Federation until Fiscal Year 1979 at an annual rate of $200,000. Funds from other nations should be sought to supplement the costs. These funds should be over and above the amounts now being requested.

SUMMARY

I urge rapid action following these Hearings on whatever Bill is finally reported out of the Committee. I can think of few things that could do as much for this nation in so many ways as increased productivity. It is the best long term bet that we can make as a nation to help preserve competition, fight inflation, and improve the quality of our life and work.

I hope that, through these Hearings, key persons can discard some of the negative feelings surrounding the word productivity and work together to build on its positive meanings. In its true sense, productivity improvement means improving the nature and quality of life for each human being. It means motivation, dignity, and greater personal participation. It means developing individuals whose lives can be productive in the fullest sense.

Mr. Chairman, I want to commend you for holding these Hearings and congratulate Senators Percy, Nunn, and their co-sponsors of these Bills for bringing a most important program before the Congress. It is one of the most important actions that the Congress could take to benefit the nation for its economic destiny. I would hope that both Centers, private and public, could be in full operation by July 4, 1976, so that we could dedicate them as a part of our Bi-Centennial celebration. It would highlight the factor that has caused us to grow to be one of the world economic leaders—*productivity.*

Toward that end, it is essential that productivity be a national movement, supported by the whole nation, including government, labor, and business.

APPENDIX A

[From Business Week, July 14, 1973]

Ideas and Trends—How to Make Productivity Grow Faster

(By C. Jackson Grayson, Jr.)

Nowhere in the entire U.S., to my knowledge, is there a single organization, association, or instrumentality of any significance whose basic effort, objectives, and expertise are devoted specifically and solely to improving American productivity in the years ahead.

There is not one national clearing-house for productivity data collection. There is not one organization providing a place for American labor, business, and the public to turn for information, publications, or education about productivity. And there is not one nonprofit organization providing expert assistance to labor and business desiring to create programs to increase productivity.

Business Week last October devoted an entire issue to "our biggest undeveloped resource," our national productivity. It pointed out that while the U.S. economy is still the most productive in the world, it is not productive enough for what we ask of it.

Labor expects, and has been obtaining, annual wage increments above our 3% long-term productivity growth rate. Business seeks expanded profit margins but faces challengers in world markets with higher productivity growth rates than ours—and lower prices. Society wants ever-increasing social and economic benefits. There is no way to enlarge the pie for labor, business, and society without an increase in the key factor—productivity.

Time for action.—I propose, therefore, that there be created a nonprofit organization, funded and operated by the private sector, to focus solely on increasing American productivity and to be called the American Productivity Institute.

Japan has developed such an organization, the privately run Japan Productivity Center, a 300-man educational, data-gathering, research, informational, and counseling organization for both labor and management. It has a $7.5-million annual budget, which was originally—and ironically—set up by foreign aid and U.S. experts. West Germany has a productivity center, the RFK, with a staff of 500. Even tiny Israel has developed a 400-man Israel Institute of Productivity.

But the U.S., which is still the most powerful and productive nation on earth, has only a 20-man National Commission on Productivity in Washington, whose annual working budget is about $2.5-million, an insignificant amount in a $250-billion national budget.

This almost total void in the U.S. on a matter so important as productivity is astonishing. And at this moment in our national history, I consider it particularly alarming.

Our productivity gain in the last decade has been the lowest in the modern industrial world. After Britain, our percentage of investment in fixed assets is the lowest in the modern world. Our investment in R & D has slid to the bottom.

Europe and Japan have far outstripped us in productivity gains in recent years. They've not only gained on us; they've passed us in some areas.

The adverse balance of payments, formal devaluations, continued dollar weaknesses in the float—all signal serious deterioration in our international economic leadership.

Phases I through IV generate the very real specter of permanent wage-price controls and a more centrally directed economic system, unless competition and productivity from the private sector can contain inflation.

Business in the dark.—It was as chairman of the Price Commission in Phase II that I learned firsthand how undeveloped our "biggest undeveloped resource" was.

We based part of our Phase II control regulations on the critical importance of productivity gains as an anti-inflationary force. Any company requesting a price increase was required to deduct its productivity gain from increased labor costs to arrive at an allowable price hike.

As the thousands of applications poured in, we began to find that about half of our analysts' time was being spent trying to obtain reasonably accurate productivity numbers. We found that the majority of American businesses either (1) had invalid productivity measurements that would not stand scrutiny, or (2) had no idea how to create reliable measurements, or both.

We decided to switch, midway through Phase II from basing our approvals on individual firm figures to industry-by-industry figures, obtained from the Bureau of Labor Statistics and others. In midsummer, 1972, we published industry figures for 433 SIC codes at the 4-digit level in the manufacturing sector. Though the best available, they needed (and still need) improvement in accuracy, expansion to other SIC manufacturing codes, and updating. Furthermore, they did not include the service sector.

We also learned that many firms had no idea how to go about *improving* productivity. Repeatedly, we were asked: "How do we improve productivity? Where do we start? Who can help us?"

In searching for solutions, together with the firms, we found an extraordinary paucity of experts in government, in universities, and in the private institutions who could provide constructive help. Some analytical work, largely macroeconomic, has been done by a few individuals at Brookings, National Bureau of Economic Research, National Planning Assn., BLS, and the Conference Board. But outside of these few highly competent individuals we found nobody, no institution, no center to turn to. I can literally count on the fingers of one hand the productivity experts that constituted a real resource.

I have come to the conclusion that an American Productivity Institute totally dedicated to improving productivity—in both its social and economic sense—is critically needed and over-due. Urgent tasks are waiting for such an organization:

It would tackle the messy problems of definition and measurement. The economists' definition that productivity is the ratio of "physical output to physical input" raises more questions than it answers. Output involves both quantity *and* quality. How do you measure the quality of an improved TV set, a new drug, or an improved stepladder? How do you measure the nonphysical output, for example, of a university, a doctor, a tax assessor? Equally difficult, what is "input"? Is it time, materials, wages, land, capital, effort, brains, attitudes?

And how do you separate the contribution that each input makes to output? We must get beyond the present practice of settling for the partial productivity factor of "output per man-hour," which is inadequate and inapplicable for many businesses.

It would help develop ideas and techniques to increase productivity. Financial people argue that productivity improvement is a matter of capital investment. Industrial engineers say it is better work methods and measurement. Behavioral scientists view it as motivation—teamwork, incentives, involvement of people, self-actualization, and new workplace organization. Management scientists and consultants tout more efficient management techniques. Labor leaders say it really means harder work by the work force—more sweat, more speedup from already overworked and dehumanized workers or elimination of workers.

Productivity is some of all of these. Regardless of the method, it really means getting more quantity and quality out of each unit of *capital* and *labor* going through the economic system. The institute could group its work into these two large baskets: *capital productivity* and *labor productivity.*

Help where it's needed.—Impartial research and policy recommendations will be urgently needed to indicate where—at the national level—capital investment is needed to at least maintain our current leadership, as well as to give early warnings of lagging sectors and overtaking by international competitors. Policy alternatives could be laid out for government tax policies and direct investments. At the corporate level, research, information, and advice could be given on capital budgeting, management systems, innovation in organization, marketing, and management, and technological trends.

Collected in the capital area would be the work of economists, financial officers, bankers, tax experts, statisticians, and accountants. Tools in this area would be money, materials, technology, systems—all expressed in quantitative language.

Similarly, ideas and recommendations are needed to stimulate labor productivity—ideas in the areas of human behavior, attitudes, and motivation.

The currently exploding attention to human factors in the workplace is a relatively new Western phenomenon. I believe it will have as profound an impact on our ways of performing and regarding work and increasing productivity as the phenomenon of capital investment did during the Industrial Revolution. So far, though, it has emerged more extensively abroad than in the U.S. It manifests itself in the groups called Quality Control Circles in Japan, and at Olivetti in Italy, Norsk-Hydro in Norway, ICI in Britain, and in the U.S. in companies such as AT & T, Procter & Gamble, Corning Glass, and Texas Instruments.

Collected in the labor area would be sociologists, psychologists, labor relations experts, industrial relations officers, union leaders, plant managers, and the like. Their tools would be training, organization development, job redesign—usually expressed in qualitative terms.

Clearly, capital and labor productivity interact. They are really two sides of the same coin. But today that interaction is occurring in a distrustful adversary setting—each playing ritualistic games, often neutralizing the other in a suicidal manner. The institute must point out the common grounds and mutuality of interests of those two apparently disparate areas.

Putting resources to work.—The institute should provide a place for labor, business, and the public to turn for counsel as to how to improve *both* capital and labor productivity. It should provide a full resource of economic and social productivity data in a computerized system national in scope. It should constantly research and report the state of the art of productivity, new developments, new suggestions, new theories and hypotheses. It should provide a locus for expert advice on "how to get started" or "how to improve." Such assistance should range from educational and referral services to on-site, long-term counseling in getting productivity improvement programs started and continued. The institute should supplement, but not compete with, the private firms advocating particular methods.

In international and in domestic terms, the chips are down. I believe that there is something in the American character that always has and always will respond in situations of importance.

I submit that there must be an American Productivity Institute.

I submit that it is already late in time to get such an institute organized, funded, developed, and developing.

I submit that it is a private-sector responsibility to bring such an institute into existence.

APPENDIX B

[From the Wall Street Journal, January 1974]

At the Invitation of United States Steel, C. Jackson Grayson, Jr., Calls for a New Productivity Center

I urge business and labor to form an American Productivity Center.

The proposed Center will be devoted solely to helping business and labor increase our country's productivity, but in the broadest sense of that word.

To most Americans, productivity improvement means producing more and better goods and services, a growing standard of economic life, a way to fight inflation. It is these things.

But it is more. Much more.

It is human dynamism as well.

For increased productivity also means improving the *nature* and *quality* of life for each human being. It means motivation, dignity and greater personal participation in the design and performance of work in the plant or office. It means developing individuals whose lives can be productive in the fullest sense.

The Center will seek to achieve a major increase in each of these facets of productivity—not separately but interdependently.

Productivity improvement, spearheaded by such a Center, is crucial. For we are moving from a nation of abundance to a nation of growing scarcity.

The Center will be non-profit. Privately financed. Impartial. Outside of government. Staffed by experts in both capital and human productivity.

It will gather data about productivity from all sources. It will develop new ideas and techniques. It will seek to increase national understanding of the importance of capital and human productivity through educational programs and communications media.

It will search for new measurement tools. It will help business and labor launch programs of their own to boost productivity.

I find it almost incredible that such an institution does not exist today in the United States. Japan, Israel, Germany—each has a large one in active operation.

In 1776, the 56 Founding Fathers signed a Declaration of Independence that made it possible for generations of Americans to work in a free system and to create the world's most dynamic, productive society.

Two hundred years later, we need rededication to that dynamism. The Center could be a bicentennial gift from American business and labor to the American people.

And so I propose that when the American Productivity Center is dedicated on July 4, 1976, we symbolize our dedication with the actual signing of a document—a *Declaration of Interdependence.*

By this act we will recognize that labor and business can no longer continue their adversary relationship, that *all of us* are inseparably linked in the productivity quest.

Let us select 56 Americans from labor, youth, business, minorities, senior citizens, immigrants, all segments of society, to sign our new declaration which will embody the same spirit of anticipation, faith, conviction and commitment of our forefathers. With the Center's help, America can move forward to new peaks of productivity. The Center should be created without delay.

APPENDIX C

Functions of Productivity Center

1. PUBLIC AWARENESS AND INFORMATION

Media dissemination: (brochures, films/tapes, seminars, press information, and productivity magazine).

Data center: (world library, computer data, clearinghouse, and referral services).

Public policy studies/recommendations.

Monitor and report on international productivity centers.

2. RESEARCH AND DEVELOPMENT

Productivity measurement: (capital, human, materials, and total factors analyses).
Productivity studies: (individual firm case histories, industry studies, world trends, and demonstration projects—capital, human, and materials).

3. HUMAN PRODUCTIVITY

Quality of work development: (demonstration projects and evaluation projects).
Job enrichment studies/projects: (job redesign, work teams development, and flexible work hours, etc.).
Labor-management conferences.

4. CAPITAL PRODUCTIVITY

Productivity investments: (measurement, funding, and tax).
R & D stimulation.
Government liaison.
World competitiveness.
Capital regeneration: (inflation and accounting systems).

5. MATERIALS PRODUCTIVITY

Create-monitor conservation ("reduce waste") program: (energy, food, raw materials—glass, metals, etc., and time).
Coordinate closely with: (firms, public sector, associations, and council on environmental quality).
Publicize suggestions.
Create awards.

6. TRAINING

Training of productivity specialists: (human, capital, and materials).
International liaison: (international seminars, international visits—labor and management—exchange internships).
Productivity seminars: (labor, management, and materials).
Productivity scholarships.

Senator NUNN. We will adjourn until 10 minutes to 2.

[Whereupon, at 12:37 p.m., the committee adjourned, to reconvene at 1:50 p.m. the same day.]

AFTERNOON SESSION

Senator NUNN. Our first witness this afternoon is Dr. Averch, Deputy Assistant Director for Analysis and Planning, Research Applications, National Science Foundation.

Thank you very much for your patience. I know we have pretty much decimated your schedule today, but we appreciate your patience, as these interruptions are unavoidable.

Dr. AVERCH. I understand.

Senator NUNN. Please proceed.

TESTIMONY OF HARVEY AVERCH, DEPUTY ASSISTANT DIRECTOR FOR ANALYSIS AND PLANNING RESEARCH APPLICATIONS, NATIONAL SCIENCE FOUNDATION

Dr. AVERCH. Mr. Chairman, I will comment both on S. 4130, the National Productivity Act of 1974, and S. 4212, the National Center for Productivity and Economic Competition Act.

The National Science Foundation recognizes, as do the sponsors and cosponsors of both of these bills, that growth in the productivity of our economy is a long-term national problem. Accordingly, the foundation recently reorganized its research applications program to include

specifically a productivity division, as well as relevant technology transfer activities. The foundation believes that many of its basic research programs, particularly in engineering and materials, also contribute to productivity growth.

Both S. 4130 and S. 4212 would increase Federal activities with respect to research, development, and demonstration; technical assistance to both the public and private sectors; and general coordination of action programs. Increased Federal activity may be necessary for speeding productivity growth, since increased productivity is a necessary condition for achieving important national objectives. Increased Federal activities in the productivity area should be judged in terms of their incremental social benefits against their incremental costs. There are three major aspects of S. 4130 and S. 4212 that deserve particular comment in terms of benefits and costs. These include: (1) productivity impact statement as required in sections 201 and 202 of S. 4130; (2) the role of the National Productivity Center in both bills; (3) the role of research, information, and technology transfer programs in both bills. I will comment on each of these in turn.

As experience with environmental impact statements suggests, there are conceptual, analytical, and measurement problems in assessing or evaluating the impact of diverse programs on a general objective such as productivity or productivity growth. These problems multiply when we try to evaluate the impact of laws and regulations on productivity growth, since we are really trying to gauge either market responses or governmental behavior. One alternative to requiring productivity impact statements immediately, as provided in S. 4130, is applied research, experiments with prototypes, and evaluation research to test whether such statements would be feasible, and very credible and, to use economists' jargon, cost-effective.

Such R&D activity appears to be consistent with the charter of the National Center as defined in both S. 4130 and S. 4212. If experiments suggest that productivity impact statements are feasible and cost-effective, then legislation could be drafted and implemented on the basis of validated information; it is, much more precise information than we now have. In view of the Federal Government's experience with social experiments, such a phased approach would be a sound way to develop such statements. At the moment we do not know what the social costs of productivity impact statements might be, or whether they might not themselves have the undesired effect of retarding productivity growth.

S. 4130 would locate a National Productivity Center in the Department of Commerce. This center would not only affect the programs of the Commerce Department, but also the research and coordination functions of other Federal agencies, particularly agency productivity centers. It is very important that each agency enhance efforts to increase productivity growth. But since agency structures differ, the way in which this is done should be tailored to the agency. In any case, productivity growth, as both bills note, is a systems problem that spans all Federal agencies, the independent regulatory agencies, State and local governments, and the private sector. If a special activity for productivity growth is required, sound principles of systems design suggest that it be independent of any particular mission agency.

Thus, the Independent National Center for Productivity and Work Quality proposed by S. 4212 would be a preferred alternative. In any case, sufficient coordinating authority and, perhaps, budgetary review authority, would be required. The Commission form of organization, I should note parenthetically in view of this morning's session, does not have budgetary review authority, and budgets are in most cases the way to the heart of most public agencies. Whether the center should have both coordinating functions and research, demonstration, and technical assistance functions as well is an important design question. In many cases, the Center as currently designed in S. 4130 and S. 4212 might compete with the agency programs it is supposed to coordinate.

Research programs on productivity growth, I believe, must be systematic and multidisciplinary. They must involve both basic and applied research. The research programs of most domestic agencies are relevant to productivity growth, although all agencies face a serious problem of utilization of research results. In the R. & D. area, the proper question to ask is: "What is the incremental contribution of the research development and demonstration programs proposed for the National Productivity Center at its projected budget levels?" By incremental, I mean relative to what we are already doing. We have to measure this incremental contribution against other alternatives. These might include redesign of current R. & D. programs to emphasize productivity, or increased agency funds for productivity research with coordination by the Center.

Neither S. 4130 nor S. 4212 provide necessary or sufficient criteria for distinguishing the Center's programs from those of other agencies. Whatever criteria are set up, more systems research is needed to integrate human factors, organizational and managerial behavior, capital, and technology as they affect productivity. As both bills note, better technologies for measuring outputs and inputs particularly in the public sector, are needed. And there is a need for vigorous social experiments bearing on productivity growth. The question arose this morning as to who should pay for such experiments. I believe sound economic as well as public policy suggests that where there is a capturable benefit by the private sector, it should pay. Where there is a clear public benefit, the Federal Government, or some other public agency, should pay, and we need to work out proper combinations. Let me note that we also need better technologies for evaluating our existing programs and our existing regulations with respect to productivity growth.

There is also a very clear need to evaluate, synthesize, and disseminate the Federal Government's stock of information on productivity. The NSF's productivity division has undertaken evaluations of existing research on productivity, industrial organization, and job satisfaction, as well as evaluations of research on a number of major public service areas, such as police, fire, and sanitation.

Because of the substantive requirements to do good systems research in productivity, the charge to the Center in both bills is large and complex. Whether the Center could mount an effective R. & D. program while it also coordinates and makes policy is a question that deserves close examination. Whatever the decision, it is important that research, experiments, and demonstrations be done, be designed, with

respect to crosscutting productivity problems; and in our view, these can be performed more effectively and with greater objectivity if done independently of any mission agency.

S. 4130 and S. 4212, in sum, raise very important issues. The Foundation believes that the specific design of the activities proposed in both bills may not be "cost-effective." Before embarking on requirements such as productivity impact statements, it would be sensible to carry out research and to evaluate some number of prototypes. We should clearly extract as much information on productivity as possible from our existing research programs, and we should use our existing institutional arrangements as much as possible. For example, an experimental Ad Hoc Domestic Technology Transfer Committee was established recently within the Federal Council for Science and Technology. Its function is to consider the problems of transferring the results of federally supported R. & D. to State and local governments. A proposal has also been recently made to the FCST that it establish a Committee on Manufacturing Productivity.

Section 306(b) (2) of S. 4130 would authorize the proposed National Productivity Center to establish with the National Science Foundation research programs to develop new or improved methods, techniques, and technologies to stimulate productivity growth. The Foundation, of course, would be happy to work with any National Productivity Center that the Congress might establish. I think it would be useful for me to outline briefly those programs in the NSF which already directly address productivity.

The Research Applications Directorate's Advanced Productivity Research and Technology Division has programs that address concepts expressed in both bills. As S. 4212 notes in section 101, there is a national need to identify, encourage, and support systems which will contribute to productivity growth and work quality. Research in productivity measurement and innovative management techniques is carried out by the NSF, as well as research on hard technology required to improve public service delivery. In the private sector, research is underway on improved excavation and tunneling technologies, some advanced enzymes research. I should note human resources research is also emphasized. Issues concerning the quality of technology and the quality of work are also within the charter of this division. In addition, the NSF has established experimental technology transfer networks for the public sector through its intergovernmental science programs, and for the private sector through its R. & D. incentives program. Some assistance to State and local governments in using science and technology in decisionmaking is also a part of the NSF program. A rough count indicates there are about 150 projects that bear directly on productivity and the Research Applications Directorate.

I brought along a summary of the activities and research activities, Mr. Chairman. I think you will see they run all the way from research on regulation to issues concerned with the private sector.

In summary, if a productivity center is determined to be "cost-effective" when compared with alternatives—and I believe very strongly we have to make those determinations, especially when we are talking about productivity growth—then the type of center described in S. 4212 would be preferred. I think an outstanding issue there was

whether such a center can fulfill all of its projected missions simultaneously, and that that should be carefully analyzed before any legislative action is taken. Thank you, Mr. Chairman.

Senator NUNN. Thank you very much, Dr. Averch.

How much dissemination of information is the National Science Foundation, your organization, doing? It sounds like you have got a lot of research and development going on in this area.

Dr. AVERCH. Utilization is part of every proposal in the Research Applications Directorate, so that resources are provided to grantees to carry out utilization activities. Now, they can do that directly or they can hire a communications specialist to do that.

Senator NUNN. Well, I cannot find anyone who is aware of it anywhere. All of these things sound real good to me, but a fellow told me one time, when I was really involved in the Planning Commission and very interested in research and planning; he said, we are going to be digging while you are planning. You know, we have got a little digging we have got to do here. I have been working on this for a year, and I have not run into anybody yet, out there in the field, that knows anything about all these technical projects laid out here.

Dr. AVERCH. Well, again, let me note that there is a utilization requirement required in both unsolicited proposals to the Research Applications Directorate, and in solicited proposals. There is also some centralized utilization and dissemination that is undertaken.

Senator NUNN. What companies have used your information? What unions have used it?

Dr. AVERCH. I can provide a list for the record. Most of the research on productivity has been devoted to the public sector.

Senator NUNN. Like what? Give me a practical application.

Dr. AVERCH. Improving solid waste collection techniques, and looking at alternative ways to do that. For example, by the State University of New York at Stony Brook. I think there is a general problem throughout the R. & D. community of getting information out into the field, and validating what we get. So I believe that there is much more work that needs to be done.

Senator NUNN. Could your organization do the research instead of having it done at the Productivity Center in many of these areas? Is that part of what you are telling us here?

Dr. AVERCH. Well, we could do some of it, not all of it, as laid out in the bills.

Senator NUNN. Could you furnish for the record, in addition to some of the practical applications in the productivity field, what you are already doing? I would like to have that for the record, if you could.

Dr. AVERCH. Yes, sir.

Senator NUNN. Also, if you would tell us areas where you could provide the service that we envision in this bill. I know you have heard a lot of the testimony, and I think it would be helpful, because we certainly do not want to duplicate existing efforts.

Dr. AVERCH. That is correct. I think that is why I noted the two bills did not really call out the particular criteria that would distinguish the Center's research programs from those of other agencies. I think that is important to do, and can be done. I will furnish for the record what the Research Applications Directorate does do.

Senator NUNN. Fine.

[The following was subsequently supplied for the record by Mr. Averch:]

MOST IMPORTANT NSF PRODUCTIVITY RESEARCH PROJECTS WITH PRACTICAL APPLICATIONS

MUNICIPAL SYSTEMS AND SERVICES

A RANN award to the Urban Institute was designed to develop and test measures and procedures whereby a local government can track the productivity of its programs through time. A number of new measures have been developed and include citizen surveys, service user surveys, and trained observer measurement of libraries, street cleaning, and landfill operations. The measurement techniques have been tested and applied in St. Petersburg, Florida, and Nashville, Tennessee, with respect to decisions on rat control, purchases of street sweepers, and recreational facilities and programs. The productivity measurement work has been successfully disseminated to other cities including Randolph, New Jersey; Falls Church, Virginia; Palo Alto, California; Memphis, Tennessee; and Birmingham, Alabama.

As part of a larger research program in innovative planning for urban public safety systems, MIT assisted the Boston Emergency Medical Services Committee in a survey of emergency room facilities, staffing, and patient capacity. Results of the analysis showed marked mismatches between the rated capacity and workloads of emergency rooms in nine major hospitals. For example, it appeared that Boston City Hospital received 11 more emergencies and 115 more patients per day than its rated capacity. Conversely, Massachusetts General Hospital handled 11 fewer emergencies and 95 fewer patients than its rated capacity.

These data were used in revamping the ambulance dispatching system in Boston including recommendations for the elimination of static districts in true emergency cases and for basing the allocation of emergencies on travel time and hospital medical specialties. The proposal has been accepted by the Region VI Interstate Emergency Medical Services Committee and presented to the Commissioner of Health and Hospitals and the directors of Boston hospitals. When fully implemented, the researchers' design for emergency medical services will increase efficiency and effectiveness with no increase in cost.

The University of North Carolina is conducting comparative field evaluations of the experience of new communities financed under the Federal Urban Growth and New Communities Development Act of 1970. The act finds that the "national welfare requires the encouragement of well planned, diversified and economically sound new communities." Congress expected that new communities would improve the quality of life by (1) increasing for all persons the available choices of locations for living and working; (2) helping create neighborhoods designed for easier access between places where people live and work; and (3) providing adequate public, community, and commercial facilities. Early results of interviews with new community residents, with local officials, and with new community developers tentatively suggest the following conclusions.

New communities cannot be expected to have more than a moderate impact on general urban problems. Federal policy that provides incentives for better planning will have a much more significant impact than will programs designed to construct specific new communities.

It is important to improve the quality of educational planning, provide mechanisms for matching the pace of school construction with the pace of new residential construction, and to foster innovation and improvements in the quality of education in new communities.

Basic health facilities constructed in new communities often duplicate existing facilities because of a failure to plan comprehensive health care facilities on a regional basis, and do not recognize that new communities have populations that require special health services, for example, high proportions of very young or very old persons.

Although a key component of Federal new community policies is housing opportunities for low and moderate income families, there is a wide variation in the extent to which new communities actually meet this need. If such opportunities are not made at the outset of development, they will later meet resistance when residents become concerned about the impact of lower-priced housing in an established community.

Extending work conducted in cooperation with the Environmental Protection Administration in New York City, the State University of New York at Stony Brook is cooperating with the Department of Environmental Services of the District of Columbia in applying and testing operations research and routing methods to improve sanitation collection in selected areas in the District. In developing and assigning new routes, the Stony Brook researchers have been sensitive to needs to obtain information and advice from the personnel actually operating the equipment on the streets. Substantial savings should be realized when improved routing methods are applied throughout the District.

New York City initiated an experiment in administrative decentralization and local integration of certain municipal services in selected districts in January 1972 to test the hypothesis that service delivery can be improved without additional funds by granting local agency personnel greater autonomy in service delivery operating decisions. Under a RANN award, Columbia University is evaluating the outcome of the experiment with respect to wider implementation in New York and other cities. Interim evaluation suggests that District Managers in the experimental areas have had their greatest success in the stimulation of more effective demand for services with more difficulty encountered in changing the supply of services. For example, managers in a number of districts were able to mobilize public and private agencies for the development of new recreational facilities through public discussion. Local coordination through District Managers by the Parks Administration and the Police Department has increased the effectiveness of park patrolling. Increased cooperation between police and Housing Authority police has increased public safety in the experimental areas. Interim results of the study are being used by the Office of Neighborhood Government, the New York State Temporary Charter Revision for New York City, participating New York agencies, and HEW.

Over the past twenty years, the city of San Jose, California, has been one of the fastest growing cities in the Nation, increasing in population from 50,000 people to over 450,000. As this growth continues, major problems are being encountered with respect to land use and development, and the ability of the city to provide and finance vital public services. Since many cities face these same problems, the Foundation provided support to the Rand Corporation for a major study of the determinants of urban growth in San Jose and of the various policy alternatives available to the city to regulate this growth effectively. The Rand study involved econometric modeling of growth and land use, as well as survey research to establish the preferences of the people of San Jose concerning growth.

As a result of this research, the city (1) established a new land-use policy limiting development to the more central parts of the city, and (2) levied a construction tax on new development to finance capital improvements—e.g., parks, playgrounds, police and fire services, libraries—required to service each new development.

San Jose is the first large city to adopt this policy of financing capital improvements so that many of the public costs generated by new land developments are paid directly by those choosing to enter the development market and those who use the products of the development. These policy decisions, while directly applicable to San Jose, provide a major test case for other jurisdictions considering new ways to control urban growth and to finance urban infrastructure. Research to determine the generalizability of these and related results on the determinants of urban growth and policies is currently being conducted in Seattle, Washington, and St. Louis, Missouri, and plans call for expansion to other cities in the Midwest, Northwest, and South.

Beginning in FY 1972 the city of Los Angeles decided to apply program planning and budgeting formats and techniques to the city budget. Under an NSF award to the Los Angeles Technical Services Corporation, in cooperation with the City Administrative Officer, research assistance was provided to develop (1) a sound basis for program structure and (2) useable measures of effectiveness for major programs in the budget. These two activities have given the city a far greater ability to revise, modify, and measure the delivery of city services, to achieve increased cost-effectiveness, and it appears already that substantial benefits have been achieved. Work to extend program budgeting and create improved measures of effectiveness for major programs in the budget. These two activities have given the city a far greater ability to revise, modify, and measure the delivery of city services, to achieve increased cost-effectiveness, and it appears already that substantial benefits have been achieved. Work to extend program budgeting and create improved measures of effectiveness is now being carried out

in small and medium size cities, as well, to establish the general applicability of these methods to local governments.

One of the sizable expenses in the delivery of municipal services is the cost of solid waste collection and disposal. New York City provides a dramatic example of this service delivery problem in that the collection and disposal of some 20 million tons of solid waste costs the city approximately $150 million per year. RANN has supported research by the State University of New York (SUNY) Stonybrook, working in close collaboration with the New York Sanitation Commission and the Sanitation Workers Union, to find a more cost-effective way of scheduling this service. This research was carried out successfully, and in May 1972, final agreements were reached between the New York City Sanitation Commission and the Sanitation Workers Union to revise the scheduling of the service to better match the collection and disposal requirements for solid waste on each day of the week. This change yielded a net saving to the city of up to $11 million per year and provided the sanitation workers with an improved on-duty/off-duty schedule of activities throughout the year.

The Sanitation Commission and the Union have discovered, more recently, that this new mathematical modeling technique for scheduling collection service has provided them with a substantially improved management tool to meet contingency or other new requirements for service in a manner compatible with the requirements of both the Commission and sanitation workers. This development has facilitated the initiation of new research in New York City on the potential application of new technologies to improve the cost-effectiveness of sanitation service. Work has been initiated to extend the application of this overall research to other cities—especially in the Midwest, the Northeast, and the District of Columbia.

ADVANCED INDUSTRIAL PROCESSING

The first stage of a continuous immobilized enzyme process of the conversion of starch to a mixture of glucose and fructose (invert sugar) has been successfully demonstrated by Iowa State University in cooperation with the Corning Glass Company. This glucose-fructose mixture, a syrup, is currently made from an ordinary sugar and amounts to nearly one-half of the U.S. consumption each year. Currently, about 5.5 million tons of a requirement of 12 million tons are imported annually. Should the total experiment be successful, the 5.5 million tons could be produced from the 5% of the current domestic corn production. This would provide the country with the option of being self-sufficient in sugar needs.

At Case Western Reserve University, a machine was designed and built which has the unique capability of forming low carbon steel cross sections used in durable goods construction. This advance was first made to solve the problem of bending steel ship frames accurately and economically in shipyards. A proof-of-concept experiment of a laboratory sized bender (⅓ to ⅙ scale that of a full machine in a shipyard) was successfully demonstrated. A supplier firm will build a full-scale machine for actual shipyard use.

The research on the bending machine was disseminated and interest was generated for applying the bending techniques to the copper coils used on large megawatt electric generators. These coils, used in nuclear and fossil fuel-generated power plants, are presently handcrafted, difficult to make, and a major bottleneck in the manufacture of such generators. The modified machine promises precision bends, and much shortened lead times as well as economic advantages over present methods.

The broad objective of a project at the University of Rochester is to improve the efficiency of small and medium scale manufacturing by automating parts manufacturing. An important intermediate objective is improvement of engineering graphics practices. Three fundamental problems are being solved: extraction and compaction of information from mechanical drawings and specifications, synthesis of processing sequences from said information and sequence implementation for machine control. These problems are being attacked theoretically, initially through graph theory, and practically, by implementing structure processors on a suitable computing system. Collaboration with an industrial partner—the Gleason Works of Rochester—is an important element of the program. Gleason is carrying the primary responsibility for surveying contemporary industrial technology and for industrial liaison, will serve as a testing ground for practical results, and will contribute ideas, techniques, and data.

The assembly and inspection tasks, and their integration have stubbornly resisted automation to date in discrete part manufacturing and were documented

by the Automation Workshop of the National Enquiry into Productivity in Durable Goods Manufacturing held at U. of Mass., October 1972, as requiring the most attention in Automation for Manufacturing. Also touch sensor work is considered by many industrial firms to be the biggest problem preventing the development and application of adaptive assembly and materials handling devices. The major research objective of a project at Stanford Research Institute is to develop sensors, manipulators, computer programs, and programming techniques all integrated into complete systems to demonstrate and implement general purpose, cost-effective staged inspection and assembly operations with applicability to a wide range of batch-produced discrete-part products. There are two overriding constraints on the research plan: 1) Programming the sensory-manipulation and inspection systems must be able to be done by factory-trained people who do not have to learn to be computer programmers; a) Manipulative actions are to be "programmed by doing": b) the programming of visual tactile sensing routines is to be done using an interactive software system (graphics terminal); 2) The computer programs which form the backbone of the system—including the various inspection, sensing and manipulative routines must be small and simple enough to require modest computer capabilities, both with respect to central processor and random-access memory. The aim is to implement the inspection/assembly station on a mini computer backed up by an inexpensive bulk disk memory. Research into cooperative actions between two manipulators under computer control is also under way.

Study at MIT is emphasising the distribution of goods at the retail and wholesale levels, and is focusing on the retail distribution of food and nondurable consumer goods.

The objectives of the study are: 1) to determine the extent to which advanced technologies such as computers, control automatic materials handling and electrical communications, are already being applied in service industries; 2) to identify among the service industries selected for study those that show greatest promise for productivity gains through use of advanced technology; 3) to set forth preliminary design configurations for a technology-oriented retail distribution system which, if implemented, would improve the productivity of the retailing process.

Work in the CAD/CAM area is in an early but explosively growing stage and hence, is fragmented and quite uncoordinated. There is a real need to provide a synoptic view of the research work in discrete part metal manufacturing. There is no standardized notation or language, rendering precise communication and comparison of research results difficult. As a result, there is a danger of duplication of research and there exists no clear overview of the type and scope of research. Classification schemes are being developed from the literature search and survey reports to be undertaken so that present capabilities and current research efforts can be categorized in a project at Illinois Institute of Technology. A document containing the synopsis of current CAD/CAM research plus a glossary of terms will be prepared. This synopsis will be cross-indexed, at least, to investigators, institutions, research areas, and funding organizations.

A Pennsylvania State University study of metalworking under pressure (MUP) will document its economies, scientific underpinnings and research needs, and potential applications to provide needed information and enable its widespread use in industry. Five tasks are under way.

1. Survey of MUP Technology;
2. Survey of scientific principles and underlying current MUP Technology;
3. Determination of gaps in MUP Technology where further research is needed;
4. Potential applications of MUP Technology where significant savings in energy and material may result; and
5. Cost estimates and comparisons of several "conventional" cases of processing compared with processing using MUP Technology.

The central focus of a research project at Stanford University is on the analysis and problem definition necessary to develop an overview of automated assembly in industry which is realistic from the points of view of current practice and projected new technological capabilities. This analysis will form the base from which a high level user oriented assembly language will be constructed in which it will be easy to program practical assembly tasks for practical assembly devices. To implement the above objectives work is proceeding

on: the analysis of industrial assembly as currently done in industry; necessary descriptors and strategies for computer integrated assembly; language design for automatic generation of assembly sequences and for vision and tactile sensing; gedanken experiments concerning new assembly devices and their integration into the assembly language. Work will also proceed on a "mini" system (mini computer connected to manipulative devices) which will be a test bed for the language design and utility and completeness of the descriptor system and strategies for assembly.

The major objective of a program at MIT is to perform exploratory research towards a first level of an adaptive and reprogrammable modular mechanical assembly system. Principal problems are the system design or architecture (which includes computer simulation, control system design and man-machine supervisory role definition), the definition of tasks the system will perform and the methods of communicating with it, particularly the manner in which it is taught a new assembly task. Of equal concern are the associated sensor arrays for monitoring the assembly task in process, the minimization of control logic and control algorithms, and associated software systems. The aim is both to achieve the research goal and structure the system for minimum implementation costs.

The program is divided into three main phases. The First phase, which is the subject of this proposal, is concerned with a) applied research for a first level of a new kind of industrial modular assembler system, b) establishing the unique relationships with industry needed, c) configuration definition of the first level industrial modular assembler for eventual implementation in d) an industry or industries selected as appropriate for the proof-of-concept evaluation.

LIST TASKS IN PRODUCTIVITY BILLS S. 4130 AND S. 4212 THAT COULD BE DONE BY NSF

S. 4130

Title II, Section 302(a)(3)(C) promoting the advancement of scientific knowledge of the effects of actions and technology on productivity and encourage the development of new techniques and technology to improve productivity;

(E) collecting, collating, analyzing, interpreting, and disseminating data and information on productivity;

(F) administering (Research and Development) grants to States and localities in accordance with Section 307 of this Act;

Section 306(b), Subsections (2) through (5);

S. 4212

Functions of the Center stated in Section 206(4) to study, examine, and identify;

(A) existing Federal, State and local statutory and regulatory impediments, inhibitions and impairments to the growth of productivity and improved work quality and the effective economic performance of the public and private sectors of the United States . . .

(B) Federal, State and local fiscal policies, statutes, and regulations which could be revised or improved to encourage and facilitate increased economic effectiveness and encourage or reward industry and labor initiative, or both, to develop methods, techniques, and systems for the improved utilization of technology and human resources in the private sector . . .

Section 207—all functions relating to applied research, but not these relating to demonstrations.

Senator NUNN. The big problem here, from what I gather, is not so much new research that we need, but to take the existing knowledge and disseminate it, and get it out in the field where it will do some good.

Dr. AVERCH. I think that is a problem. I think we needed more work on evaluating what we fund, what we buy, and on disseminating

valid information; and I think that is a job that is clearly within the charter of the centers in either bill.

Senator NUNN. In terms of trying to define cost, whether this is cost-effective, I think that really should be done on any legislation. I think that is a good principle anywhere. Tell me how you are going to formulate prototypes, how long it is going to take, and how you are going to develop a measurement of cost effectiveness on something of this general nature.

Dr. AVERCH. You are asking me to design a research project. I think I would try to pick three or four different programs, Federal programs if you will, try to trace through the groups that they impact, and try to assess what economists call "total factor productivity". That is hard to do. We have heard a lot about labor productivity, output per man-hour. I think economists would like to argue impact statements in terms of total factor productivity, the combination of all the factors that go to making output. You can try survey technology to assess impact. I think it is important to ask people what they think impacts would be. I think you could try some econometrics, or modeling, with respect to particular sectors impacted.

Senator NUNN. Could you look at someplace like Japan and Germany, and some of the other countries that already have it?

Dr. AVERCH. I think their experience would be instructive, but the structure of their economy is really quite different from what we have here, and the role of government is quite different from what we have here. So I think we could learn some lessons, but I am not sure you could directly transfer the experience.

Senator NUNN. How long would it take you to make this kind of analysis?

Dr. AVERCH. Well, as public policy analysts, some information now is better than very sophisticated information later. I would think it could be done, or some prototypes could exist, within 6 months. It would not be a very sophisticated prototype, but I think it would tell us a lot more than we currently know.

Senator NUNN. Would you also do prototypes on possible alternatives? What is an alternative to a center that takes information from—it seems to me the very essence of this is to have somebody coordinate the efforts of productivity around the country—people working in one place and let other people know about it in another place?

Dr. AVERCH. Yes, sir. I think the question is, how you go about doing that in efficient ways. One way is through a center which has these coordinating powers, and another way might be through regional kinds of activities where you have decentralized kinds of activities. You yourself mentioned that——

Senator NUNN. That really is part of this proposal. I would hope that is the way it would develop.

Dr. AVERCH. Right. In terms of coordinating Federal agencies, as you know, it is a very difficult job, and it may well be that you might want to connect the center in some way with the OMB or the Executive Office of the President. I do not recommend that. I am saying that those are options that you might want to look at.

Senator NUNN. Thank you very much. I particularly appreciate your patience in waiting for us, and I hope we have not caused you too much inconvenience.

Dr. AVERCH. Thank you, sir.

Senator NUNN. We do hope that you will submit to us the functions on a continuing basis that your organization could perform in connection with the center, particularly in the R. & D., because anything that can be done with existing agencies and facilities we certainly prefer, rather than any duplication.

Dr. AVERCH. I will do that. Thank you.

Senator NUNN. Thank you very much.

Our next witness is Mr. Thomas G. Kleppe, Administrator of the Small Business Administration. We are glad to have you here today. We appreciate your coming.

TESTIMONY OF THOMAS S. KLEPPE, ADMINISTRATOR, SMALL BUSINESS ADMINISTRATION; ACCOMPANIED BY H. GREGORY AUSTIN, GENERAL COUNSEL AND NORMAN KARSH, ACTING ASSISTANT ADMINISTRATOR FOR ADVOCACY PLANNING AND RESEARCH

Mr. KLEPPE. Thank you, Mr. Chairman. This gentlemen on my right is our General Counsel, Mr. Gregory Austin. The gentleman on my left is our Acting Assistant Administrator for Advocacy Planning and Research, Mr. Norman Karsh.

Mr. Chairman, I have an 8½-page statement that is triple spaced. I think it pretty well summarizes and says what SBA feels about the legislation which is the subject of this hearing, and if it is all right with you, I would like to read it.

Senator NUNN. That would be fine. We have got a live quorum up there. I may have to leave any minute but we are going to try to get through your statement first.

Mr. KLEPPE. This will go very fast.

Mr. Chairman, I very much appreciate the opportunity to appear before this committee to discuss S. 4130, the proposed National Productivity Act of 1974.

S. 4130 would establish a Federal productivity policy, provide for a review of Federal laws, regulations, and policies, establish a National Productivity Center in the Department of Commerce, and authorize a grant program to promote productivity growth in all sectors of the economy. There are several provisions of the bill on which I would like to comment in behalf of small business.

One of the stated findings of the bill is that, "the accumulation of laws, regulations and procedures over the years has in the aggregate adversely affected productivity growth." This is probably a well-based finding. There seems to us to be considerable truth in the testimony of one of the representatives to the recent economic summit conference to the effect that much Federal regulation is unnecessary and imposes unnecessary and costly recordkeeping and reporting requirements on businesses that increase costs and inflate prices, and much of it imposes ill advised requirements that impede, rather than facilitate productivity in the economy. Small business, in most cases, cannot pass this additional cost of doing business on to the customer.

Thus, we would support these provisions of the bill that require "a review by all Federal agencies of current statutory authority, adminstrative regulations, policy and produres to insure these are consistent with the purposes, policies, and goals of the act." Federal agencies

currently have the authority to make such reviews, but a legislative mandate to conduct such reviews currently to and conduct a continuing review and a comprehensive review every 4 years is a requirement which we support.

The provisions of the bill that are of most interest to SBA and small business—and by saying that they are of interest to us I do not mean to imply that we support these provisions—are those which would establish a national productivity center within the Department of Commerce and provide grants to institutions of higher education for research and informationgathering and dissemination, and to State and local governments to establish productivity centers and technical assistance programs similar to an extension service.

Productivity is a function of some combination of land, labor, capital, management, and technology, within a broad, all-inclusive definition of these terms. Their optimal combination results in maximum productivity, that is, the greatest possible output in goods and services per composite unit of resource input. Increased productivity can result from improvements in management or in the quality and/or the performance of labor, from improved applications of capital facilities, or from innovations in technology and/or advancements in other aspects of the current state of the arts. Such increased productivity could benefit the consumer.

However, with some exceptions, large business does not need governmental assistance to improve management, to increase labor output, to finance capital outlays or to make technological advances. Large business is more advanced in all of these areas in relation to each specific business than any governmental staff could ever hope to be. A Government productivity program, therefore, in my opinion, is not needed for large business. Likewise, technology research grants, with some possible exceptions in the public interest area are also of questionable value to big business. Large business concerns have or can obtain necessary financial and technical resources to conduct their own research and development programs.

It is with respect to small business that governmental productivity programs are most needed. They should be broad enough to encompass management assistance, since this is one of the areas in which governmental assistance is most needed and would be most productive if carried to the small businessman through governmental extension services.

Furthermore, small businesses, not unlike typical American farmers, do not have the resources for research and development activities nor would they find such activities profitable. The costs are prohibitive for single small business enterprises, as is the cost of agricultural research and experimentation which has been sponsored through governmental grant programs and has contributed so heavily to make American farmers the world's most productive agriculturists. Similar grant programs for small business research and development could make similar contributions to increasing the productivity of small businesses.

We strongly suggest, however, that the committee consider making private, and especially small, R. & D. firms eligible for such grants. It seems to me that such firms could well supplement or complement the efforts of educational institutions in this area.

Such R. & D. programs to be most effective would need to be accomplished by appropriate assistance to provide small businesses the man-

agerial and technical assistance they would need to utilize new and improved technologies. As you, Mr. Chairman, have suggested, our SCORE chapters across the Nation have many talented individuals who have been former high-level executives in various industries. These individuals have survived many difficult times and have considerable insight into and knowledge of the problems of industry, the economy, and the Nation. They could be assigned to problem small businesses through SBA-established procedures.

Although it follows logically from this analysis that such programs as are provided by S. 4130 should be primarily concerned with small business, we are not prepared at this time to recommend that productivity activities be transferred from the Executive Office of the President in the form of the National Commission on Productivity and Work Quality.

Mr. Chairman, this concludes my prepared statement, except to add this point.

Your staff provided us with some proposed questions and they were good enough to give them to us in advance so we could prepare some answers. I would ask that these questions and our responses to the questions be included at this point in the record.

Senator NUNN. They will be included, without objection.

[The information referred to follows:]

QUESTIONS OF THE COMMITTEE ON GOVERNMENT OPERATIONS, U.S. SENATE, TO THOMAS S. KLEPPE, ADMINISTRATOR, SMALL BUSINESS ADMINISTRATION, WITH RESPONSE

Question. Is there a need for a coordinated government backed productivity effort?

Answer. A coordinated government effort is essential. Increases in productivity involve not only the effort of producers of goods and services but also critical choices in such areas as labor-management relations, education and research, government activities and the employment and utilization of capital. All these factors have a serious impact on productivity. In times of inflation and recession, in particular, the need for a coordinated effort is essential.

Question. What major government department, if any, should be tasked with providing leadership in this area?

Answer. In our judgment, leadership in this area should remain in the Executive Office of the President. It is the small and intermediate size activities of business organizations which are most susceptible to improvements in productivity. These size businesses are all influenced by the factors which I have just mentioned in the above question, and on the other hand these businesses are in all likelihood most susceptible to increased productivity results. Considering the fact that the SBA is the only agency of government specifically responsible for this sector of our economy, we feel that implementation of many policy recommendations might logically take place through SBA.

Question. How should the National Commission on Productivity and Work Quality be restructured to provide policy input to the President and the governmental department or unit taking the lead on productivity?

Answer. It is my understanding that the National Commission on Productivity and Work Quality is currently providing input to the President and other governmental departments. The Commission could continue to serve as the policy body to whatever federal agency or agencies are chosen to take the lead on implementing policy recommendations.

Question. What state and local activities should be supported and stimulated in an effort to raise productivity?

Answer. There are currently a wide variety of organizational units within state and local government responsible for economic development within their own jurisdiction. It would be most appropriate to provide support to these same organizations and to request of them a greater emphasis on improving productivity among their constituencies.

Question. What should be the role of institutions of higher education, non-profit private organizations, and profit seeking private organizations?

Answer. Private and non-private research organizations, including institutions of higher education, provide considerable research results to business, labor, and governmental organizations today. These existing research organizations provide independent and objective analysis of economic conditions on both a macro as well as a micro economic scale. To the extent that resources are available, it would appear most beneficial to have these organizations engage in additional or continued research activities to produce new insights and directions for the improvement of productivity standards.

Question. What role should management and labor play?

Answer. The key to increased productivity resides in increasing the output per man hour. Labor and management, through the collective bargaining process, can both obtain significant benefits with increased productivity. In fact, the increases in output per man hour in the past, has produced the significant advances that our economy has experienced. In times of national economic growth, labor-management problems are less critical than in times of a slow down in the economy. Under today's conditions, the survival of both labor and management may be influenced by the ability of both parties to work closely together in order to maintain employment and profit levels at the highest possible level.

Question. How much research and development is needed? In what direction?

Answer. There is no quantifiable answer to this question. I am sure we will have to have more information and knowledge than we currently have, but very often, as we gain new insights, we also find that there are new areas which still have yet to be explored. We appear to find out how much we don't know every time we find out something new.

Question. What kind of educational and informational activities are needed? What groups should be recipients of these efforts?

Answer. We need to impress upon all segments of our society that improved productivity is not only in the national interests but also in the individual interests of every employee and employer in our country. This point must be stressed at all levels and in all forms. All groups representing organized components of our economy should ultimately be the ones who pass this word on to their memberships.

Question. Should the Federal Government establish a national policy with respect to productivity?

Answer. The Federal Government can, of course, establish very general national policy with respect to productivity. Increases are good and should be sought, whereas decreases are bad and should be avoided. However, beyond the most general of policies, the Federal Government would be most effective in its efforts if it could provide the leadership and guidance for labor and management organizations. This must be viewed in terms of previously established and accepted principles that productivity serves the country and its people. Within broad guidelines, labor and management can have a more direct impact on the public.

Question. What additional efforts should be encouraged by government at all levels to raise governmental productivity?

Answer. Most important, we don't need a new government agency or department. This is costly and would undoubtedly duplicate efforts already underway. The National Commission on Productivity and Work Quality, within the Executive Office of the President, should be given the responsibility for examining and improving overall government productivity. Government functions are essentially service type functions which are most difficult to analyze and develop output standards for. Many attempts have been made to prioritize government activities and to assign resources in relation to such priorities. However, the process usually requires a considerable length of time before effective realocations of resources can be made. Cost benefit studies have been in vogue for several years now but we must increase our analytical capabilities to develop improved measures which would enable us to make meaningful priority oriented systems.

Senator NUNN. I appreciate very much your testimony. You have worked with us in developing this legislation.

As I gather from your statement and summary, I think your organization is ready, willing, and able to help in any way in the implementation of this legislation as it pertains to small business.

I would like to ask you a lot of questions but I do not want you to have to wait. I have got a vote up there and I am going to have to run, and we will be interrupted for a few minutes.

So if you do not have any other particular point you need to make now, I would ask you to keep in touch with us and add anything you might like to for the record.

Mr. KLEPPE. Mr. Chairman, we think this says in brief terms how we feel and you have recited part of it, and we stand ready, willing, and we hope to a degree, able to be of assistance in this whole area that you are discussing.

Senator NUNN. I think it is going to be extremely important that the Small Business Administration be vitally involved in this. I agree with you that small businesses have perhaps the most critical need for assistance.

Mr. KLEPPE. Productivity is the name of the game today, and in our humble opinion, it begins with small business because that is the heart and soul of the free enterprise system in this country.

Senator NUNN. I agree with you. Thank you very much.

Mr. KLEPPE. Thank you, Mr. Chairman.

Senator NUNN. We will recess for approximately 10 minutes. I will be back as soon as I can for the next witness.

[A brief recess was taken.]

Senator NUNN. Our next witness is Mr. Jerome Mark, who is Assistant Commissioner, Office of Productivity and Technology, Bureau of Labor Statistics, Department of Labor.

Mr. Mark, we are delighted to have you with us. My apologies for the delay but we are running closer to schedule than we did yesterday. I hope we are going to have about an hour here without interruptions. But that is just wishful thinking, so why don't you proceed and we will see how far we can go without having any more votes.

TESTIMONY OF JEROME A. MARK, ASSISTANT COMMISSIONER FOR PRODUCTIVITY AND TECHNOLOGY, BUREAU OF LABOR STATISTICS, U.S. DEPARTMENT OF LABOR

Mr. MARK. Thank you very much, Mr. Chairman. I have a longer statement that I submitted to the committee and I do have a summary of that, which I would like to read to you now.

Senator NUNN. Do we have a copy of your summary or do we just have the basic statement?

Mr. MARK. You have a copy of the complete statement and I just handed you a copy of the summary.

Mr. Chairman and members of the committee, I appreciate your invitation to appear before you today to discuss current developments in productivity. As you know, the Bureau of Labor Statistics provides current data on changes in productivity for the total private economy, major economic sectors and for many specific industries. It also derives comparable measures of productivity change for other industrialized countries.

I would like to review for you what has been happening in the recent period and try to place current movements in some perspective with past trends.

Productivity as measured by output per man-hour in the nonfarm sector of the private economy declined at an annual rate of 2.4 percent during the third quarter of this year. This was the sixth consecutive quarter in which productivity declined or showed no growth. In the total private economy the same pattern prevailed except that there was a slight increase, 0.6 percent, in the second quarter, as sharply rising farm productivity offset the decline in the nonfarm sector.

This decline in productivity is the most sustained and most severe that we have had in the entire post World War II period. Since the first quarter of 1973, productivity in the private economy has fallen over 3 percent and in the nonfarm sector almost 3½ percent. In the 1969–70 downturn we experienced productivity declines for five quarters but they were not as severe. Over that period the drop was only 7/10 of 1 percent for the private economy and 1½ percent for the nonfarm sector.

In manufacturing, another sector for which we have quarterly data, the picture is not as bleak. Although productivity declined slightly in the first and third quarters of this year, it rose in the second quarter. As a result, over the last year—that is, from the third quarter of 1973 to the third quarter of 1974—the ups and downs in manufacturing productivity balanced and the overall rate did not change. In this sector the fall in output has been much less than in the rest of the private economy, and the corresponding man-hours reductions have been made to a greater extent.

The gloomy picture for the private economy over the last year and a half follows 2 earlier years of very substantial productivity gains. In both 1971 and 1972 productivity rose by more than 4 percent, substantially above the long-term trend rate of 3.1 percent. This gain reflected the substantial growth in output which occurred in the recovery from the 1969–70 recession.

Thus, the pattern of productivity growth over the last 5 years has been very closely associated with changes in the business cycle. We have experienced two business contractions and one recovery and the behavior of productivity has closely followed these changes.

Several factors help explain this close relationship. For instance, reluctance to lay off hard-to-find skilled workers and the uncertainty about the length and severity of a downturn means that employers do not adjust employment in line with output declines and output per man-hour falls sharply.

This is the case in the current downturns as it was in the 1969–70 one. Employment in the private economy and in the nonfarm sector continued to increase through the third quarter of this year despite the decrease in output. Some adjustments were accomplished through reducing overtime hours and average weekly hours but total man-hours continued to increase until the recent quarter.

This lagged adjustment works the opposite way in expansions. Typically, as sales recover, inventory accumulations are drawn down. Next, businessmen increase output by using the existing work force and capital stock more intensively. There is usually some increase in weekly hours but the work force is not augmented until output continues to advance; consequently, productivity grows rapidly. In the latter stages of the recovery, the increase in labor input begins to keep pace with output and output per man-hour grows more slowly. This is precisely what happened in the 1971–72 expansion.

Thus, a good part of the productivity movements in recent years reflects cyclical patterns. However, in analyzing productivity movements it is important to distinguish between short term fluctuations reflecting cyclical conditions and productivity changes that reflect other less transitory factors.

In this connection I would like to examine longer term trends and what has been happening to productivity.

Over the entire postwar period, output per man-hour in the private economy grew at an average annual rate of 3.1 percent; the rate to 1966 was 3.2 percent, while from 1966 to the present it was only 2.4 percent. In this part of my testimony, I want to try to distinguish between what we know about this decline, and what we, and other investigators, only suspect.

The overall trend in productivity for the private economy reflects both changes in the productivity of component sectors and industries and shifts in the relative importance of sectors with different levels of output per man-hour. Thus, even if there is no change in productivity in any industry, overall productivity can still change if there is a shift in resources from a low productivity to a high productivity area.

During much of the postwar period there was a marked shift in manpower from agricultural activities to the nonfarm industries. Since agriculture had a much lower level of output per man-hour than most nonfarm industries, this shift contributed to the overall productivity trend. From 1948 to 1966 about 0.4 percentage points of the 3.2 percent growth rate—more than 10 percent of the total—came from this shift.

However, since 1966 the shift effect has accounted for only 0.1 percentage point of the productivity trend. Thus, a significant part of the reduced rate of productivity growth for the private economy since 1966 has resulted from the ending of this movement of people from the farms.

Several researchers in the field of productivity have argued that changes in the age-sex composition of the labor force have reduced labor productivity growth in recent years. The rate of growth of the labor force rose sharply in the late 1960's with a great number of new entrants, as the products of the baby-boom era began to enter the labor force. Also, labor force participation by women has risen abruptly in recent years and significantly since 1966. New entrants typically are less productive because they lack experience; females because, at least traditionally, they have entered less productive occupations.

Historically, a major source of productivity growth has been the growing capital stock. The capital/labor ratio, a common measure of the intensity of capital in production, grew more rapidly from 1966 to 1972 than from 1947 to 1966 in the total private economy and the nonfarm and manufacturing sectors. Thus, since 1966, production in the U.S. has not only become more capital intensive, it has done so at a faster rate than prevailed from 1947 to 1966, so that the changes in the level of capital cannot be considered a source of the productivity decline since 1966.

I have tried to present to you the pattern of productivity change for the private economy. It is useful, however, to look also at various in-

dustries within the overall economy. We publish annual indexes of labor productivity for about 50 selected industries, such as steel, motor vehicles, petroleum refining, and railroads.

In 1973, changes in output per man-hour varied widely among these industries. The changes ranged from a large gain of over 12 percent in aluminum rolling and drawing to a decline of over 7 percent in copper mining. About a quarter of the industries had declines in productivity.

Although the motor vehicle manufacturing industry registered a gain in productivity of 2.7 percent in 1973, this gain was substantially below its average long-term rate. While demand was high during the first three quarters, it dropped off sharply in the last quarter, reflecting the energy shortage.

On the other hand, for some industries, 1973 was a good year. The steel industry, for example, benefited from a large increase in demand allowing the industry to take full advantage of its recently installed modern capital equipment.

As far as 1974 is concerned, some preliminary indications of current productivity changes can be gained from rough calculations based on 8 or 9 months of data for a limited number of industries. They generally show a further dropoff in productivity due to the cyclical downturn.

The motor vehicles industry, as can be expected, had a complete turnaround. Output was down by about 25 percent in the first three quarters, due to the sharp dropoff in sales, and man-hours declined by about 15 percent, resulting in a decline of about 10 percent in productivity. This occurred before many of the widespread plant closings and layoffs in the fourth quarter.

Gas and electric utilities and the petroleum refining industry also show sharp declines in productivity—about 3 percent and 7 percent, respectively. These would be the first annual productivity declines in these industries in at least 25 years.

In a number of other key industries, while productivity gains occurred in the first three quarters of 1974, they appear to be somewhat lower than their long-term growth rates.

The railroad industry, for example, shows a slight gain of about 1 percent while the trucking industry is registering a decline of about one-half of 1 percent.

The steel industry only shows a slight gain in productivity through the first three quarters of the year. Based on continuing demand for steel, output increased about 3 percent over the same period last year. This, coupled with a small increase in man-hours, results in a gain in productivity of less than 2 percent. However, the impact of the coal strike in the fourth quarter, which led to steel plant closings, may have an effect on this gain.

Just as the current productivity movements among industries vary widely, the long-term rates vary widely, too, ranging from 9 percent per year for the petroleum pipelines industry to a low of about 1 percent for the footwear and cigarette industries.

Among many of these industries, however, there was a definite falloff in productivity in the more recent period, 1966–73, and the factors associated with the lower rates differed by industry. One of the more noticeable dropoffs occurred in the coal mining industry where

the impact of more stringent safety regulations and the effects of many local work stoppages seem to have had an effect on productivity.

Another important industry with a large dropoff in productivity was air transportation reflecting the substantial completion of the shift from piston engine planes to jets by 1966 as well as some declining demand in the 1970's.

The gas and electric utilities industry also had a sharp dropoff in the latter period, especially in the 1970's when the industry was affected by capacity problems, environmental pressures, and the energy shortage.

On the other hand, an industry that recorded a significant increase in the more recent period was manmade fiber manufacturing. This industry more than doubled its growth rate in the latter period as compared to its rate from 1957 to 1966, as it benefited from the rapid increase in demand for synthetic fabrics.

The motor vehicles industry had a slight falloff in productivity, from a rate of almost 5 percent per year in the 1957–66 period to 3.8 percent from 1966 to 1973. This can be attributed in part to a slowdown in output growth from a rate of about 8 percent from 1957 to 1966 to almost 5 percent from 1966 to 1973. During this latter period, the industry also was affected by two strikes, and a cyclical downturn in the economy. In 1967, there was a strike and productivity showed only a slight gain; in 1969–70, there was a recession as well as another strike, and the industry had a decline in productivity of almost 4 percent.

The steel industry, which historically has had a low rate of productivity gain, recorded a slight increase in productivity in the more recent period. Output per man-hour in this industry grew at a rate of 1.7 percent from 1947 to 1966 and increased to 2.2 percent from 1966. This industry benefited from the installation of a large amount of modern capital equipment, including basic oxygen furnaces, continuous casting units, and high-speed rolling mills, much of which came on line during the 1966–73 period.

To place our domestic productivity situation into a broader perspective, it is useful to compare our experience at home with the experience of other major countries.

The Bureau regularly prepares indexes of output per man-hour in manfacturing for 11 foreign industrial countries as well as the United States. We also prepare supporting indexes for such related series as manufacturing production, total man-hours, hourly compensation, and unit labor costs.

Estimates for the first half of 1974 indicate that manufacturing productivity in major industrial countries abroad, except in the United Kingdom, rose more than in the United States. From the first half of 1973 to the first half of 1974, output per man-hour rose about 1 percent in the United States, while rising over 9 percent in Japan, 6 percent in France, 4 percent in Germany, and 2 percent in Canada. The gain in the United Kingdom was about one-half of 1 percent. Output rose in all of the countries except the United Kingdom and man-hours declined or remained unchanged in all of the countries except Canada.

Although the U.S. rate of productivity gain for manufacturing has been the lowest among the eight major countries during the postwar period, the U.S. gains from 1966 to 1973, while still lower, were somewhat improved in relation to the other countries. The 1966–73 period,

however, reflects two distinct subperiods. From 1966 to 1970, U.S. productivity growth was very sluggish and the U.S. position vis-a-vis the other countries deteriorated substantially. However, from 1970 to 1973 the U.S. rate accelerated and actually exceeded the rates of increase for Canada, France, Germany, and the United Kingdom.

While the relationship of the United States to other countries in terms of productivity growth has been poor, in terms of unit labor costs it has been favorable. Trends over the past year show that unit labor costs, which reflect the interplay of wage changes as well as productivity changes, have been rising more rapidly abroad than in the United States. For example, Japanese unit labor costs in the first half of 1974 are estimated to be up by 20 percent over the year earlier period, British costs up 15 percent, and Canadian, French, and German costs up by 8 to 9 percent—compared with 7 percent unit labor cost in the United States.

This is primarily because hourly compensation has been rising so much more rapidly abroad than in the United States. Moreover, these recent changes in unit labor costs were affected substantially by exchange rate changes.

In the postwar period, on the whole, from 1950 to 1973, U.S. unit labor costs have risen at an average rate of 1.9 percent per year. This long-term record has been lower than in Japan, 2.3 percent, or in Germany, Italy, and the United Kingdom, 3 to 4 percent, when trends are calculated on a U.S. dollar basis. The 1950–73 record for Canada and France are somewhat below the U.S. rate of cost increase.

Senator NUNN. On that point, if I may interrupt, when you measure unit labor costs, now is this just in the manufacturing sector?

Mr. MARK. Yes; it is. That is all we have the adequate data for.

Senator NUNN. You do not have the similar data in the service sector?

Mr. MARK. No; we do not. We developed some estimates, but they are not accurate.

It would be desirable to have comparative measures of the levels of output per man-hour and related indicators, but such comparisons are not available for the manufacturing sector because of data limitations and technical problems in comparing physical outputs between countries. The only industry for which the Bureau compares levels of output per man-hour is the steel industry.

The Bureau's study of comparative levels of productivity in the primary iron and steel industry covers the United States, Japan, and the three largest steel producing countries of Western Europe: France, Germany, and the United Kingdom. Because of data gaps, the comparative data for the four foreign countries are presented in terms of ranges, with high and low estimates.

In 1964, the first year for which we have these data, productivity in the Japanese, French, and British steel industries was only about half the U.S. level and in Germany was running about 60 percent of the U.S. level. However, steel productivity has been rising faster in Japan, France, and Germany than in the United States. Between 1964 and 1973, output per man-hour increased by less than 30 percent in the United States and the United Kingdom, by nearly 70 percent in France and Germany, and by almost 250 percent in Japan. Consequently, as of 1973, output per man-hour in the steel industry appears

to be above the U.S. level in Japan, approximately three-fourths of the U.S. level in Germany, and two-thirds of the U.S. level in France, while remaining at about half the U.S. level in the United Kingdom.

To summarize our present situation with regard to productivity, Mr. Chairman, we are currently experiencing a substantial decline in the private sector, the most sustained and severe we have had in the postwar period. This decline is closely associated with the current economic downturn.

Not all sectors have been equally affected. Manufacturing has not experienced any decline over the year, and some industries have been able to continue their productivity gains.

As I pointed out, it is difficult to disentangle the short-term cyclical effects on productivity change in recent years from longer term factors, but we have had some falloff in the rate of productivity since 1966, which reflects some less transitory changes. These changes include an alteration in the composition of the work force and the ending of the farm-nonfarm shifts.

In the very recent period, we have become painfully aware of two new scarcities: raw materials and energy. Over the next few years, new technologies reflecting these new scarcities will be developed and adopted. In the interim, the prospect for rapid growth in productivity is favorable only on cyclical grounds: as the recovery from the current recession eventually takes hold, output per man-hour will probably rise rapidly as in past recoveries; however, the intermediate term prospects for productivity growth from conventional sources are not strong.

Senator NUNN. Thank you, Mr. Mark, for your excellent statement. Does your Department get involved in more than statistical analysis? Do you get involved in actual fieldwork in terms of any assistance to business or labor in the productivity score, on the question of productivity?

Mr. MARK. Most of our fieldwork, Mr. Chairman, is in connection with trying to understand the factors underlying the changes that we have measured. We have provided some assistance to companies, particularly during the Price Commission, and phase II, when the productivity measures were introduced as guidelines. We did provide them with some insights into the methods that were employed in developing the measures and the statistical techniques which would be relevant for that.

But in general, our visits are primarily to obtain analytical information to try and understand the factors affecting the change.

Senator NUNN. I got a little bit of an idea in listening to this I think very thorough presentation that the productivity cycles are inevitable, and there is not very much you can do other than your effect on the overall economy to control productivity.

What role do you think the Federal Government can play through a center of some sort in trying to stimulate productivity growth?

Mr. MARK. Well, I think in the short term it might have a limited role because, in the one sense, as I indicated, short-term productivity changes are really in response to the economic changes in the country. In the long term, since the long-term factors are essentially new technology, improvements in the quality of the labor force, and expansion of capital, any efforts you can take to stimulate these aspects would be, I think, well worthwhile.

For example, enhancement of the diffusion of technology and knowledge about new technological changes which may be taking place, information of that type, could be, I think, quite helpful.

Senator NUNN. Have you followed the Steelworkers' agreement with management on the labor councils, labor-business councils?

Mr. MARK. To some extent, but not to a great deal, I must admit. We are aware that they had taken place. We do not know what impact they have had, though.

Senator NUNN. Well, do you think the kind of trend, based on just your judgment rather than your statistical analysis, the kind of a trend or pattern they have set in discussing problems outside of the normal negotiating process, can bear fruit in the productivity area?

Mr. MARK. I think it can be very helpful because it could anticipate a lot of, perhaps many, problems which might arise to disrupt the production process and any evening out or minimizing of possible adverse effects of changes which are taking place, can be very helpful; yes.

Senator NUNN. Obviously, your department would certainly be one of the prime departments of Government they would have to work very close to in encountering the Productivity Center.

Mr. MARK. Yes, sir.

Senator NUNN. You would be able to provide the statistical base and analysis right now. That is your capability right now.

Mr. MARK. Yes, sir.

Senator NUNN. Do you intend to expand any of your cross-country comparisons—from one nation to the other—for other than the steel industry?

Mr. MARK. Oh, yes. We have been trying to develop measures for other industries. It is very difficult, though, you know, to develop level estimates which are the most interesting. We have done some work in trying to develop trend measures for industries, and we are continuing that. We have done some research on the footwear industry, because this was a very low productivity growth industry in the United States, and also because of the concern about imports of footwear. One of the reasons for increased imports might be the different productivity levels abroad and in the United States. But this has been extremely complicated. We have a study underway. It has been underway for some time, to try and measure the differential productivity levels in the United States and Taiwan, Japan and Brazil, and Spain, in this industry.

Senator NUNN. How meaningful are these comparisons between countries when our basic foundation on productivity is already, at least with the exception of a few countries, so much higher in terms of productivity, even though we are growing slower. Our base is already higher, and when you are coming from a much lesser base, inevitably your growth rate is going to be greater up to a point.

Can you comment upon that?

In other words, how meaningful is it that Japan is growing 12 percent and we are growing at 3 percent?

Mr. MARK. Well, I would say it would not mean too much for a very short period or if it was immediately after the War where there was a low base, but the Japanese experience has been going on for 20 years, and in that sense I think it becomes quite meaningful.

Senator NUNN. Well, in your judgment, what explains that tremendous productivity growth in Japan?

Mr. MARK. There are many factors. It is extremely difficult to isolate and quantify the various ones. I would say perhaps the most significant one is the extent to which—the greater proportion of capital investment relative to total output that exists in Japan relative to the United States and other countries is one of the major explanations. Another is the——

Senator NUNN. The proportion of capital investment in manufacturing?

Mr. MARK. Yes. In Japan, capital investment as a proportion of total output is running around 28 percent whereas in the United States it is running anywhere from 11 to 14 percent. So it is a substantial difference.

Another thing is perhaps—and this would be speculative—the type of industrial organization that exists.

Senator NUNN. Well, I would like to go into it in considerably more detail on some of these points, but we do have other witnesses waiting. We appreciate very much your cooperation and we expect to continue to consult with you as we go along on this legislation.

Mr. MARK. Thank you very much.

Senator NUNN. Thank you, sir.

[The prepared statement of Jerome A. Mark follows:]

PREPARED STATEMENT OF JEROME A. MARK, ASSISTANT COMMISSIONER FOR PRODUCTIVITY AND TECHNOLOGY, BUREAU OF LABOR STATISTICS

Mr. Chairman and Members of the Committee: I appreciate your invitation to appear before you today to discuss current developments in productivity. As you know, in addition to developing information on prices, wages, and employment, the Bureau of Labor Statistics also provides current data on changes in productivity for the total private economy, major economic sectors and for many specific industries. It also derives comparable measures of productivity change for other industrialized countries.

I would like to review for you what has been happening in the recent period and try to place current movements in some perspective with past trends.

CURRENT DEVELOPMENTS

Productivity as measured by output per man-hour in the nonfarm sector of the private economy declined at an annual rate of 2.4 percent during the third quarter of this year. This was the sixth consecutive quarter in which productivity declined or showed no growth. In the total private economy the same pattern prevailed except that there was a slight increase (0.6 percent) in the second quarter as sharply rising farm productivity offset the decline in the nonfarm sector.

As I pointed out it is difficult to disentangle the short term cyclical effects on productivity change in recent years from longer term factors but we have had some fall-off in the rate of productivity since 1966 which reflects some less transitory changes. These changes include an alteration in the composition of the work force and the ending of the farm-nonfarm shifts.

In the very recent period we have become painfully aware of two new scarcities: raw materials and energy. It seems clear that the near future will be characterized by continued relative shortages in these key areas.

Over the next few years, now technologies reflecting these new scarcities will be developed and adopted. In the interim the prospect for rapid growth in productivity is favorable only on cyclical grounds: as the recovery from the current recession takes hold, output per man-hour will probably rise rapidly as in past recoveries; however, the intermediate term prospects for productivity growth from conventional sources are not strong.

This decline in productivity since the first quarter of last year is the most sustained and most severe that we have had in the entire post World War II period. Since the first quarter of 1973, productivity in the private economy has fallen over 3 percent and in the nonfarm sector almost 3½ percent. In

the 1969–70 downturn we experienced productivity declines for five quarters but they were not as severe. Over that period the drop was only 7 tenths of one percent for the private economy and 1½ percent for the nonfarm sector.

This current decline in productivity reflected reductions in the rate of growth in output in most of 1973 followed by actual declines throughout this year accompanied by continued increases in man-hours through 1973 and small declines this year. The declines in man-hours resulted from reductions in weekly hours since employment continued to increase through the current quarter.

In manufacturing, another sector for which we have quarterly data, the picture was not as bleak. Although productivity declined slightly the first and third quarters of this year it rose in the second quarter. As a result, over the last year (i.e., from the third quarter of 1973 to the third quarter of 1974) the ups and downs in manufacturing productivity balanced and there has been no change. In this sector the fall in output has been much less than the rest of the private economy and the corresponding man-hour reductions have been taking place.

The gloomy picture for the private economy over the last year and a half follows two earlier years of very substantial productivity gains. In both 1971 and 1972 productivity rose by more than 4 percent—substantially above the long term trend rate of 3.1 percent. The gain during these two years reflected the substantial growth in output which occurred in the recovery from the 1969–70 recession.

Thus, the pattern of productivity growth over the last five years has been very closely associated with changes in the business cycle. We have experienced two business contractions and one recovery and the behavior of productivity has closely followed these changes.

Several factors help explain this close relationship. These include the time that lapses after the cyclical turnaround has taken place before individual employers recognize it and start making necessary adjustments.

Employment adjustments are not immediately made to compensate for falling demand. Although business declines, employers cannot cutback staff as much as current output levels indicate. Many employees have duties which are not directly related to the volume of production. As the proportion of these nonproduction or overhead workers becomes relatively more important, as has happened in the last 20 years, the tendency to retain staff is accentuated. In addition, employers often have contractual commitments which tend to slow down employment adjustments. These include multi-year employment contracts as well as rights to severance pay and supplementary employment benefit plans; the number of these has been increasing over the years. Furthermore, firms have large investments in trained labor and it may be difficult to rehire these workers should business improve. Consequently, it is often more economical to retain skilled workers and not use them fully than to risk the necessity of hiring untrained workers later on. The lag in the adjustment of employment to declines in output has occurred in all of the economic downturns in the postwar period.

Because of the reluctance to layoff hard-to-find skilled workers and the uncertainty about the length and severity of the downturns, employment adjustments are not commensurate with output declines and output per man-hour falls sharply.

Such has been the case both in the current downturn and in the 1969–70 one. As I mentioned earlier, employment in the private economy and in the nonfarm sector continued to increase through the third quarter of this year despite the decreases in output. Some adjustments were accomplished through reducing overtime hours and average weekly hours but total man-hours continued to increase until the recent quarter. Similarly, in 1969–70 output growth declined from 4.8 percent in 1968 to 2.8 percent in 1969. Yet man-hours grew at a rate of 1.9 percent in 1968 and 2.3 percent in 1969. So we had the sharp drop off in productivity growth.

As output continued to fall, however, efforts to cut costs were pursued vigorously. Adjustments were made in man-hours and the decline in productivity was arrested or reversed. By 1970, when output fell by one-half a percent, man-hours declined by 1½ percent so that productivity rose.

This lagged adjustment works the opposite way in expansions. The typical recovery pattern from business slumps is as follows: As sales recover, inventory accumulations are first drawn down. Next businessmen increase output by more intensively using the existing work force and capital stock. There is usually some increase in weekly hours but the work force is not increased until output continues to advance. Productivity grows rapidly until in the latter stages of

the recovery, the increase in labor input begins to keep pace with output and output per man-hour grows more slowly.

This is precisely what happened in the 1971–72 expansion; in 1971 output increased by 3.6 percent while man-hours continued downward by 6/10 of a percent. Output per man-hour therefore increased sharply by 4.3 percent. In 1972 the rate of growth in output increased to 6.7 percent and man-hours rose by 2.7 percent. Thus, productivity grew somewhat more slowly than in 1971—4 percent but still well above the long term trend rate.

In 1973, the completion of the recovery was marked by the reduced rate of growth in output after the first quarter while man-hours continued to increase strongly and we had the turnaround in productivity.

Thus, a good part of the productivity movements in recent years is a reflection of cyclical patterns. However, in analyzing productivity movements it is important to distinguish between short term fluctuations reflecting cyclical conditions and productivity changes that reflect other less transitory factors.

In this connection I would like to examine longer term trends and what has been happening to productivity.

LONG TERM PERSPECTIVE

Over the entire postwar period from 1947–73, output per man-hour in the private economy grew at an average rate of 3.1 percent; the rate to 1966 was 3.2 percent, while the rate of growth from 1966 to the present was only 2.4 percent. In this part of my testimony, I want to try to distinguish what we know about this decline, from what we—and other investigators—only suspect. As I indicated earlier, the recent experience has been marked by sharp cyclical movements. However, in terms of annual data, the year 1973 represents full recovery from the 1969–70 downturn, and hence is an appropriate end point for our long term perspective on productivity growth.

EFFECTS OF SHIFTS AMONG SECTORS

The overall trend of productivity for the private economy reflects both changes in the productivity of component sectors and industries and shifts in relative importance of sectors with different levels of output per man-hour. Thus, even if there is no change in productivity in any industry we can still have an overall productivity change if there is a shift in resources from a low productivity to a high productivity area.

During much of the postwar period there has been a marked shift in manpower from agricultural activities to the nonfarm industries. Since agriculture had a much lower level of output per man-hour than most nonfarm industries, this shift contributed to the overall productivity trend. From 1948 to 1966 about 0.4 percentage points of the 3.2 percent growth rate—more than 10 percent of the total—came from this shift. In 1948 over 17 percent of total man-hours of the private sector were in agriculture. By 1966 only 6.8 percent were in agriculture.

However, since 1966 the percentage has dropped to 5.2 percent so that the shift effect has accounted for only 0.1 percentage point of the productivity trend. Thus, a significant part of the reduced rate of productivity growth for the private economy since 1966 has resulted from the ending of this movement of people from the farms.

Within the nonfarm sector there has been virtually no impact on productivity change of shifts among the sectors. From 1948 to 1966, there was absolutely no effect on the productivity growth rate of any shifts which occurred among sectors. And since 1966 the effect of shift among component sectors has only contributed 0.1 percentage point. This conclusion is also substantiated by some work by Edward Denison, an outstanding researcher in this field, who concluded that the shift from commodity producing industries to service producing industries has had no appreciable depressing effect on measured productivity growth.

Several partial explanations for the recent reduction in productivity growth have been advanced by economists who carefully study the subject. There is no general agreement as to the quantitative importance of these various factors. However, these discussions show, I believe, that there is no simple explanation for the decline since 1966, and that the secular forces currently at work are consistent with somewhat lower long term rates of growth than we observed from 1947 to 1966, and to the present.

CHANGING COMPOSITION OF THE LABOR FORCE

Several researchers in the field of productivity have argued that changes in the age-sex composition of the labor force have reduced labor productivity growth in recent years.[1] The rate of growth of the labor force rose sharply in the late 1960's with a great number of new entrants, as the products of the "baby boom" era began to enter the labor force. Also, labor force participation by women has risen abruptly in recent years and significantly since 1966. New entrants typically are less productive because they lack experience; females because, at least traditionally, they have entered less productive occupations. Estimates of the incremental effect of this change on reducing productivity growth during the latter part of the 1960's average about 0.3 percentage points.

CHANGE IN THE CAPITAL/LABOR RATIO

Historically a major source of productivity growth has been the growing capital stock. The capital/labor ratio is a common measure of the intensity of capital in the production (although utilization adjustments are sometimes made to the capital stock to compensate for cyclical effects).

As table 4 clearly shows, the capital/labor ratio grew more rapidly from 1966 to 1972 than from 1947 to 1966 in the total private economy and the nonfarm and manufacturing sectors. Even when the capital stock is disaggregated to its equipment and structure components, only the equipment component in manufacturing shows a decline in the rate of growth in the latter period. This decline is more than compensated by the rate of growth inplant and other structures, so that the total capital stock in manufacturing grows slightly faster in the latter period.

Thus, since 1966, production in the U.S. has not only become more capital intensive, it has done so at a faster rate than prevailed from 1947 to 1966, so that changes in the level of capital cannot be considered a source of the productivity decline since 1966.

It would not be correct to interpret the changes in the aggregate capital/labor ratio shown in table 4 solely as reflecting the substitution of capital for labor, or consider such substitution as the only source of productivity change where capital is concerned. In a broader sense, labor and capital clearly cooperate in the production of goods and services. Recently new evidence[2] has been developed which suggests a strong complementarity between capital structures and white collar workers, and very low substitution between capital equipment and blue collar workers in U.S. manufacturing postwar.

VARIATION AMONG INDUSTRIES

I have tried to present to you, briefly, the pattern of productivity change for the private economy. It is useful, however, to also look at the movements among the various industries within the overall economy. As I mentioned, we publish annual indexes of labor productivity for about 50 selected industries—such as steel, motor vehicles, petroleum refining, and railroads.

As can be seen in table 6, in 1973, changes in output per man-hour varied widely among the industries. The changes ranged from a large gain of over 12 percent in aluminum rolling and drawing to a decline of over 7 percent in copper mining. About a quarter of the industries had declines in productivity.

Some of the key factors affecting these industries were the shortages of raw materials and semi-finished goods as well as the energy shortage. Two industries particularly affected by the energy shortage were tires and paint manufacturing, where productivity dropped 4.6 and 3.9 percent, respectively. Many of the materials to make paint and tires are petroleum based and were in very short supply in 1973. Another factor in the productivity decline in tire manufacturing was the rapid shift to production of large numbers of radial tires, which necessitated major changes in production equipment and techniques.

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[1] Denison, Edward F., *Accounting for U.S. Economic Growth, 1929–1969*, the Brookings Institution, 1974. Perry, George, "Labor Structure, Potential Output, and Productivity," Brookings Papers on Economic Activity, 1971 : 3, pp. 533–565.

[2] Berndt, E. R. and Christensen, L. R., "The Specification of Technology in U.S. Manufacturing," Discussion Paper 73–17, University of British Columbia, March 1974, and "Testing for the Existence of a Consistent Aggregate Index of Labor Inputs," American Economic Review, June 1974.

A decline of almost 3 percent in output per man-hour was recorded in the major household appliance industry. This occurred despite a large increase in output of 5.7 percent as the industry was affected by materials shortages, poor materials, and periods of maximum capacity utilization. The sugar refining industry also had a decline in productivity of almost 3 percent, as output dropped due mainly to poor crops, especially for sugar beets. Other industries with declines in productivity in 1973 included bakery products, flour and other grain mill products, tobacco, and footwear.

Although the motor vehicle manufacturing industry registered a gain in productivity of 2.7 percent in 1973, this gain was substantially below its average long term rate. While demand was high during the first three quarters, it dropped off sharply in the last quarter—reflecting the energy shortage. Man-hours did not drop off nearly as much as output in the fourth quarter, as manufacturers began to make major changes in production facilities to build more small cars. Despite the fall-off in the sales toward the end of the year, output grew by 14 percent, while man-hours increased by 11 percent, resulting in the relatively small gain in productivity. Other significant industries with low productivity gains were air transportation with 1.8 percent, gas and electric utilities with 0.4 percent, and coal mining with 0.3 percent.

On the other hand, for some major industries, 1973 was a good year. The steel industry, for example, benefited from a large increase in demand allowing the industry to take full advantage of its recently installed modern capital equipment. Productivity grew by almost 11 percent in 1973, based on a large gain in output of 19 percent and an increase in man-hours of about 7½ percent. In petroleum refining, another important industry, productivity grew by 9 percent in 1973. This large gain was based on a large increase in output accompanied by a sharp decline in man-hours. Railroad transportation also had a significant gain of over 8 percent in output per man-hour. Output grew by over 9 percent as freight traffic increased to record highs due to large increases in grain, coke and metals haulage, while man-hours increased by only 1 percent.

As far as 1974 is concerned, some preliminary indications of current productivity changes can be gained from some rough calculations based on 8 or 9 months of data for a limited number of selected industries. They generally show a further drop off in productivity due to the cyclical downturn.

The motor vehicles industry, as can be expected, had a complete turnaround and now shows a large decline in productivity. Output was down by about 25 percent in the first three quarters, due to the sharp drop off in sales, and man-hours declined by about 15 percent, resulting in a decline of about 10 percent in productivity. This occurred before many of the widespread plant closings and layoffs in the fourth quarter.

Gas and electric utilities and the petroleum refining industry also show sharp declines in productivity—about 3 percent and 7 percent, respectively. These would be the first annual productivity declines in these industries in at least the past 25 years. In the bituminous coal industry, productivity is continuing its recent decline, dropping about 4 percent in the first three quarters of the year. The coal strike in the fourth quarter may have an impact on this figure, however.

In a number of other key industries, while productivity gains occurred in the first three quarters of 1974 they appear to be lower than their long term growth rates. These include fiber boxes, air transportation and manmade fibers with about a 3-percent gain; paper, with about a 2-percent gain; and tires, with about a 2-percent gain.

The railroad industry shows a slight gain of about 1 percent while the trucking industry is registering a decline of about one half of a percent. Trucking shows no gain in output, while railroads has only a small output gain, undoubtedy reflecting the general slowdown in the economy.

The steel industry only shows a slight gain in productivity through the first three quarters of the year. Based on continuing demand for steel, output increased about 3 percent over the same period last year. This, coupled with a small increase in man-hours results in a gain in productivity of less than 2 percent. However, the impact of the coal strike in the fourth quarter, which led to steel plant closings, may have an effect on this gain.

INDUSTRY LONG-TERM PRODUCTIVITY CHANGE

Just as the current productivity movements among industries show wide variation, the long term rates also vary widely. The fan charts (3 and 4) illus-

trate this. The long term rates range from 9 percent per year for the petroleum pipelines industry to a low of about 1 percent for the footwear and cigarette industries.

Among many of these industries, however, there was a definite fall-off in productivity in the more recent period, 1966–73. More than two-thirds of the industries had lower rates of productivity gain from 1966–73 than the preceding period, generally 1947–66, and the factors associated with these lower rates differed by industry. One of the more noticeable drop offs occurred in the coal mining industry which shifted from a high rate of 6.3 percent per year from 1947–66 to an actual decline of 1.3 percent per year from 1966–73. Among the reasons which seem to be associated with this very large drop off in productivity were the impact of more stringent safety regulations and the effects of many local work stoppages.

Another important industry with a large drop off in productivity was air transportation, growing at the very high rate of almost 8 percent from 1947–66, and the lower rate of about 5 percent from 1966–73. Here the fall off reflects the substantial completion of the shift from piston engine planes to jets by 1966. Productivity in the industry was also affected by declining demand in the 1970's.

The gas and electric utilities industry also had a sharp drop off in the latter period, with output per man-hour falling from a rate of 7.3 percent from 1947–66 to 4.5 percent from 1966–73. The productivity slowdown in this industry was most pronounced in the 1970's, when the industry was affected by capacity problems, environmental pressures, and the energy shortage.

On the other hand, an industry that recorded a significant increase in the more recent period was manmade fiber manufacturing. This industry more than doubled its growth rate from 1966–73, as compared to its rate from 1957–66. The industry benefited from the rapid increase in demand for synthetic fabrics. Production of manmade fibers is a highly automated continuous process, and the industry is a significant user of computer control.

Among the more economically significant industries, motor vehicles manufacturing had a slight fall off in productivity, from a rate of almost 5 percent per year in the 1957–66 period to 3.8 percent from 1966–73. This can be attributed in part to a slowdown in output growth from a rate of about 8 percent from 1957–66 to almost 5 percent from 1966–73. During this latter period, the industry also was affected by two strikes, and a cyclical downturn in the economy. In 1967, there was a strike and productivity showed only a slight gain; in 1969–70, there was a recession a well as another strike, and the industry had a decline in productivity of almost 4 percent.

The steel industry, which historically has had a low rate of productivity gain, recorded a slight increase in productivity in the more recent period. Output per man-hour in this industry grew at a rate of 1.7 percent from 1947–66 and increased to 2.2 percent from 1966–73. This industry benefited from the installation of a large amount of modern capital equipment, including basic oxygen furnaces, continuous casting units, and high speed rolling mills, much of which came on line during the 1966–73 period.

In general, while there were many important industries which did experience some greater gains in productivity in recent years, in most industries for which we have measures, some drop off did occur.

PRODUCTIVITY DEVELOPMENTS ABROAD

To place our domestic productivity situation in a broader perspective, it is useful to compare our experience at home with the experience of other major countries.

The Bureau regularly prepares indexes of output per man-hour in all manufacturing for 11 foreign industrial countries as well as the United States. We also prepare supporting indexes for such related series as manufacturing production, total man-hours, hourly compensation, and unit labor costs. These measures indicate whether U.S. productivity in overall manufacturing is improving or worsening in relation to other nations, but they do not necessarily indicate comparative trends for individual manufacturing industries or products. Nor do they provide comparisons of productivity levels among the countries.

RECENT TRENDS

During 1974, U.S. productivity growth in manufacturing has been minimal, as I mentioned earlier. Estimates for the first half of 1974 indicate that productivity in major industrial countries abroad, except in the United Kingdom,

rose more than in the United States. From the first half of 1973 to the first half of 1974, output per man-hour rose about 1 percent in the United States, while rising over 9 percent in Japan, 6 percent in France, 4 percent in Germany, and 2 percent in Canada. The gain in the United Kingdom was just one-half of a percent.

For most of the countries, the recent productivity gains can be attributed mainly to increases in output but partly also to reductions in man-hours. The patterns of adjustments to the current economic slowdown show considerable variation from country to country, however. In the United States, a modest output gain of about 1 percent from the first half of 1973 to the first half of 1974 accounts for the entire productivity gain over the period, since man-hours remained unchanged. In France, output rose significantly by nearly 6 percent while man-hours dropped by a fraction. In Japan, output rose 4½ percent while man-hours declined 4½ percent, thus accounting for a productivity rise of over 9 percent over the year. German output rose less than 1 percent while hours declined 3 percent. Only in the United Kingdom did both measures decline, with the reduction in hours exceeding the drop in output. Canada was the only country reporting a gain in man-hours, which was accompanied by an even greater gain in output. In sum, output rose in all of the countries except the United Kingdom, and man-hours declined or remained unchanged in all of the countries except Canada. In each case output gained relative to man-hours, so at least some gain in productivity was achieved in every country covered.

LONG-TERM TRENDS

Between 1950 and 1973, output per man-hour in U.S. manufacturing rose at an average rate of 2.9 percent per year. The comparable figures for the other major countries are 3½ percent per year for the United Kingdom, 4 percent for Canada, 5½ percent for France, 6 percent for Germany and Italy, and 9½ percent for Japan. Within the 23-year period, the pattern has been for the rate of gain to accelerate during the 1966–73 period over the rate during 1950–66.

Although the U.S. rate of productivity gain for manufacturing has been the lowest among the eight major countries during the post war period, the U.S. gains from 1966–73, while still lower are somewhat improved in relation to the other countries. The 1966–73 period, however, reflects two distinct subperiods. From 1966 to 1970 the U.S. productivity growth was very sluggish and the U.S. position vis-a-vis the other countries deteriorated substantially. However, from 1970–73 the U.S. rate accelerated and actually exceeded the rates of increase for Canada, France, Germany, and the United Kingdom. Japan and Italy still had somewhat larger average rates of increase.

Japan has been the leading country in manufacturing productivity improvement throughout the postwar period, averaging over 8 percent per year from 1950 to 1966 and over 11 percent per year from 1966 to 1973. The continental European countries—France, Germany, and Italy—have shown roughly similar rates of productivity gain over the postwar period. Over the long term, each of the three has gained at an average rate of 5 to 6 percent per year. France and Italy show a slight acceleration over the period, whereas Germany's rate has slowed up slightly.

Canada's rate of productivity gain has generally varied from 4 to 5 percent per year, with moderate improvement in the rate since 1966. The United Kingdom has shown significant improvement, beginning with a 2.9 percent rate during 1950–66 and rising to 3.7 percent during 1966–73.

While the relationship of the U.S. to other countries in terms of productivity growth has been poor, in terms of unit labor costs it has been favorable. Trends over the past year show that unit labor costs, which reflects the interplay of wage changes as well as productivity changes, have been rising more rapidly abroad that in the United States. For example, Japanese unit labor costs in the first half of 1974 are estimated to be up by 20 percent over the year earlier period, British costs up 15 percent, and Canadian, French, and German costs up by 8 to 9 percent—compared with 7 percent in the United States.

This is primarily because hourly compensation has been rising so much more rapidly abroad than in the U.S. Moreover, these recent changes in unit labor costs were affected substantially by exchange rate changes. The U.S. dollar was devalued in February 1973. Since that time, the German mark further appreciated relative to the dollar, and the French franc, the British pound, and particularly the Japanese yen and the Italian lira depreciated relative to the dollar.

Taking these exchange adjustments into account, unit labor costs were up by over 18 percent since the first half of 1973 in Germany, 9 to 14 percent in Canada, Japan, and the United Kingdom, and 2 percent or less in France and Italy.

Over the postwar period, 1950 to 1973, U.S. unit labor costs have risen at an average rate of 1.9 percent per year. This long term record has been lower than in Japan (2.3 percent) or in Germany, Italy, and the United Kingdom (3 to 4 percent), when trends are calculated on a U.S. dollar basis. The 1950–73 record for Canada (1.2 percent) and France (1.4 percent) are somewhat below the U.S. rate of cost increase.

It would be desirable to have comparative measures of the levels of output per man-hour and related indicators, but such comparisons are not available for the manufacturing sector because of data limitations and technical problems in comparing physical outputs between countries. The only industry for which the Bureau makes level comparisons is the steel industry.

PRODUCTIVITY IN THE STEEL INDUSTRY

The Bureau's study of comparative levels of productivity in the primary iron and steel industry covers the United States, Japan, and the three largest steel producing countries of Western Europe—France, Germany, and the United Kingdom. Because of data gaps, the comparative data for the four foreign countries are presented in terms of ranges, with high and low estimates.

In 1964, the first year for which we have these data, productivity in the Japanese, French, and British steel industries was only about half the U.S. level and in Germany about 60 percent of the U.S. level. However, steel productivity has been rising faster in Japan, France, and Germany than in the United States. Between 1964 and 1973, output per man-hour increased by less than 30 percent in the United States and the United Kingdom, by nearly 70 percent in France and Germany, and by almost 250 percent in Japan. Consequently, as of 1973, output per manhour in the steel industry appears to be above the U.S. level in Japan, approximately three-fourths of the U.S. level in Germany, and two-thirds of the U.S. level in France, while remaining at about half the U.S. level in the United Kingdom.

Because of lower hourly labor costs abroad, the estimated labor cost to produce a comparable ton of steel products in France, Germany, and the United Kingdom in 1964 was about 60 to 70 percent of the U.S. level and in Japan less than 40 percent of the U.S. level. Between 1964 and 1973, hourly costs rose much more in each of the foreign countries than in the United States. Nevertheless, even taking into account the relative appreciation of the Japanese yen, unit labor costs in the Japanese industry were still probably 40 percent or less of U.S. costs in 1973. Unit labor costs in the German steel industry were about equal to U.S. costs in 1973 because of the substantial appreciation in the relative value of the German mark during this period. French unit labor costs were about 85 to 90 percent of the U.S. level; British costs about 65 to 75 percent of the U.S. level.

SUMMARY

To summarize our present situation with regard to productivity, Mr. Chairman, we are currently experiencing a substantial decline in the private sector, the most sustained and severe we have had in the postwar period. This decline is closely associated with the current economic downturn.

Not all sectors have been equally affected. Manufacturing has not experienced any decline over the year and some industries have been able to continue their productivity gains.

TABLE 1.—CHANGES IN PRODUCTIVITY AND RELATED MEASURES—MAJOR SECTORS OF THE PRIVATE ECONOMY

[Percent change from previous quarter at compound annual rate 1973 through 1974 III]

	Total private	Non-farm	Manufacturing
Output per man-hour:			
1972 annual	4.0	4.2	6.2
1973 annual	2.9	2.7	5.9
1973:			
I	6.5	5.2	9.0
II	−1.6	−2.2	3.7
III	−1.5	0	4.9
IV	−.1	−.8	−3.4
1974:			
I	−7.1	−5.2	−.7
II	.6	−3.3	4.5
III	−2.4	−2.2	−.3
Output:			
1972 annual	6.7	7.1	10.0
1973 annual	6.2	6.2	11.0
1973:			
I	10.0	9.4	15.9
II	2.1	2.5	7.6
III	1.6	2.5	4.9
IV	2.3	1.1	1.2
1974:			
I	−7.8	−7.5	−5.8
II	−2.0	−2.9	1.8
III	−2.4	−2.5	−.3
Man-hours:			
1972 annual	2.7	2.7	3.5
1973 annual	3.2	3.4	4.8
1973:			
I	3.3	4.0	6.3
II	3.8	4.8	3.8
III	3.1	2.5	0
Man-hours—Continued			
1973—Continued			
IV	2.4	1.9	4.8
1974:			
I	−.7	−2.4	−5.1
II	−2.5	.4	−2.6
III	.0	−.3	−0
Employment:			
1972 annual	2.5	2.5	2.3
1973 annual	3.3	3.5	4.6
1973:			
I	3.1	4.0	5.6
II	3.2	3.9	4.6
III	3.6	3.2	1.2
IV	3.6	3.2	4.4
1974:			
I	.5	−.6	−2.8
II	−1.1	.9	.4
III	1.2	.9	−1.3
Average weekly hours:			
1972 annual	.1	.2	1.3
1973 annual	−.1	−.1	0
1973:			
I	.2	0	1.0
II	.7	.8	−1.0
III	−.4	−.7	−1.0
IV	−1.2	−1.2	0
1974:			
I	−1.3	−1.9	−2.0
II	−1.5	−.6	−3.0
III	−1.2	−1.2	1.0

Source: Bureau of Labor Statistics.

TABLE 2.—LONG-TERM PRODUCTIVITY GROWTH: RATES OF GROWTH FOR MAJOR SECTORS,[1] SELECTED PERIODS 1948 TO PRESENT

Sector	1948–73	1948–66	1966–73	Distribution of man-hours 1948	1966	1973
Private economy	3.1	3.2	2.4	100.0	100.0	100.0
Farm	5.8	5.8	5.8	17.1	6.8	5.2
Nonfarm sector	2.6	2.7	2.2	82.9	93.2	94.8
Nonfarm sector	2.6	2.7	2.2	100.0	100.0	100.0
Manufacturing	3.0	2.9	3.8	32.8	32.3	29.9
Mining	3.6	4.0	1.6	2.1	1.1	1.0
Construction[2]	1.0	1.9	−.2	6.6	6.4	6.3
Transportation	3.4	3.1	3.4	7.1	4.7	4.4
Communications	5.5	5.7	4.3	1.5	1.5	1.7
Electric, gas and sanitary	5.2	6.0	2.2	1.1	1.1	1.2
Trade[2]	2.8	2.8	2.2	25.1	24.5	25.0
F.I.R.E.[2,3]	1.6	1.9	−.7	4.1	5.3	6.1
Services	1.4	1.4	.9	17.9	20.9	22.2
Government enterprises	1.0	−.2	3.7	1.7	2.2	2.1

[1] Based on least squares trend.
[2] These measures are only useful in understanding the long-term movements in higher aggregates; the output measures on which they are based are so uncertain that productivity measures for these sectors have little independent meaning.
[3] Output includes an imputation for the rental value of owner-occupied dwellings.

Source: Bureau of Labor Statistics.

TABLE 3.—LONG-TERM PRODUCTIVITY GROWTH: EFFECTS OF SHIFTS OF MAN-HOURS AMONG MAJOR SECTORS

	1947–73	1947–66	1966–73
Private economy:			
Average annual growth rate:			
Unadjusted	3.2	3.5	2.5
Adjusted for shifts (farm-to-nonfarm only)	2.9	3.1	2.4
Shift contribution	.3	.4	.1
Shift contribution as percent of total growth rate	9.4	11.4	4.0
Nonfarm economy:			
Average annual, growth rate:			
Unadjusted	2.7	2.8	2.4
Adjusted for shifts	2.7	2.8	2.3
Shift contribution	0	0	.1

Source: Bureau of Labor Statistics.

TABLE 4.—LONG-TERM PRODUCTIVITY GROWTH: CHANGES IN CAPITAL/LABOR RATIO IN PRIVATE ECONOMY 1947–72

[Average annual rate of growth]

	1947–72	1947–66	1966–72
Total private economy:			
Total capital stock [1] per man-hour	3.9	3.8	4.5
Equipment per man-hour	5.1	5.1	5.3
Structures per man-hour	2.9	2.7	3.6
Private nonfarm economy:			
Total capital stock [1] per man-hour	4.0	3.8	4.6
Equipment per man-hour	5.3	5.2	5.5
Structures per man-hour	3.0	2.8	3.7
Manufacturing:			
Total capital stock [1] per man-hour	3.7	3.7	3.8
Equipment per man-hour	5.2	5.4	4.6
Structures per man-hour	2.0	1.9	2.4

[1] Privately owned gross capital stocks, with purchases of government surplus assets at second hand prices in 1958 dollars. See pp. 87–91, "Fixed Nonresidential Business Capital in the United States, 1925–73," Bureau of Economic Analysis, U.S. Department of Commerce, January 1974.

Source: Bureau of Labor Statistics.

TABLE 5.—OUTPUT PER MAN-HOUR IN SELECTED INDUSTRIES, AVERAGE ANNUAL PERCENT CHANGES FOR SELECTED PERIODS, 1960–73

SIC code	Industry title	1960–73	1960–66	1966–73	1972–73
	MINING [1]				
01	Iron mining, crude ore	5.3	6.3	6.1	6.8
101	Iron mining, usable ore	3.1	4.6	3.2	4.8
102	Copper mining, crude ore	4.5	5.1	4.5	—6.8
102	Copper mining, recoverable metal	1.9	3.9	1.1	—7.3
11, 12	Coal mining	2.5	6.1	—1.3	.3
12	Bituminous coal and lignite mining	2.6	6.3	—1.2	.6
	MANUFACTURING				
203	Canning and preserving [2]	2.3	2.9	2.3	3.3
2041	Flour and other grain mill products	4.4	6.4	3.6	—3.6
205	Bakery products	3.3	3.7	2.9	— .4
206	Sugar	3.5	5.3	2.5	—2.8
2071	Candy and other confectionery products	2.7	4.1	1.7	3.0
2082	Malt liquors	6.6	6.6	6.9	8.8
2086	Bottled and canned soft drinks	3.9	3.1	5.4	6.2
211, 212, 213	Tobacco products—total	1.8	3.3	1.2	—1.0
211, 213	Cigarettes, chewing and smoking tobacco	1.0	1.7	.4	—1.3
212	Cigars	3.7	6.2	3.4	—1.0

See footnotes at end of table.

TABLE 5.—OUTPUT PER MAN-HOUR IN SELECTED INDUSTRIES, AVERAGE ANNUAL PERCENT CHANGES FOR SELECTED PERIODS, 1960–73—Continued

SIC code	Industry title	1960–73	1960–66	1966–73	1972–73
2251, 2252	Hosiery	6.5	6.8	6.2	1.3
261, 262, 263, 266	Paper, paperboard and pulp mills	4.4	5.2	4.5	2.4
2653	Corrugated and solid fiber boxes	3.6	3.7	3.7	4.1
2823, 2824	Man-made fibers	6.4	4.3	8.9	7.8
2834	Pharmaceutical preparations [3]	4.9	4.4	5.2	1.4
285	Paints and allied products	2.1	3.2	1.4	—3.9
291	Petroleum refining	5.6	7.6	4.6	9.0
301	Tires and inner tubes	3.3	6.3	1.7	—4.6
314	Footwear	.4	1.0	.3	—3.9
3221	Glass containers	2.4	3.3	1.4	1.3
324	Hydraulic cement	4.2	5.3	3.7	3.3
3271, 3272	Concrete products [3]	4.6	5.0	4.2	9.7
3273	Ready-mixed concrete [3]	2.1	3.2	.8	1.2
331	Steel	2.4	4.1	2.2	10.8
3321	Gray iron foundries	2.4	3.7	2.2	.4
3323	Steel foundries	1.4	3.1	1.3	8.4
3331, 3332, 3333	Primary copper, lead, and zinc	2.0	3.3	3.5	5.2
3334	Primary aluminum	2.8	3.5	3.3	1.2
3352	Aluminum rolling and drawing	5.4	8.0	5.7	12.3
341	Metal cans	1.8	1.1	1.7	5.4
3631, 2, 3, 9	Major household appliances	4.9	6.7	4.6	—2.9
3651	Radio and television receiving sets [4]	6.7	6.5	8.0	9.3
371	Motor vehicles and equipment	3.4	4.1	3.8	2.7
	OTHER				
401, class I	Railroads, revenue traffic	5.4	7.3	4.0	8.4
401, class I	Railroads, car-miles	3.2	4.1	2.4	2.1
4213 Pt	Intercity trucking [5]	2.7	3.5	2.6	4.7
4213 Pt	Intercity trucking, general freight [5]	2.2	3.6	1.9	5.8
451	Air transportation [5]	7.5	10.4	4.8	1.8
4612, 4613	Petroleum pipelines [3]	9.2	10.1	6.3	8.5
481	Telephone communications	5.1	5.9	4.5	4.7
491, 492, 493	Gas and electric utilities	5.5	6.5	4.5	.4

[1] The rates of change for the mining industries are for output per production worker man-hour.
[2] The rates of change are for 1960–72; 1960–66; 1966–72; and 1971–72.
[3] The rates of change are for 1963–73; 1963–66; 1966–73; and 1972–73.
[4] The rates of change are for 1960–71; 1960–66; 1966–71; and 1970–71.
[5] Output per employee.

Note: All average annual rates of change are based on the linear least squares trends of the logarithms of the index numbers.

Source: Bureau of Labor Statistics, U.S Department of Labor.

TABLE 6.—MANUFACTURING OUTPUT PER MAN-HOUR, OUTPUT, AND MAN-HOURS, 1ST HALF 1973 TO 1ST HALF 1974

[Percent change at annual rate, seasonally adjusted]

Period	United States	Canda	Japan	France	Germany	Italy	United Kingdom
Output per man-hour:							
1st half 1973 to 1st half 1974	1.2	2.0	9.4	6.0	3.9	NA	0.6
1st half to 2d half 1973	2.5	—1.1	14.6	5.9	3.8	12.4	—.4
2d half 1973 to 1st half 1974	—.1	5.3	4.4	6.1	4.0	NA	1.7
Output:							
1st half 1973 to 1st half 1974	1.2	4.8	4.6	5.8	.6	12.4	—2.4
1st half to 2d half 1973	4.7	1.5	12.7	5.7	1.7	15.5	1.0
2d half 1973 to 1st half 1974	—2.2	8.2	—3.0	5.8	.4	9.3	—5.9
Man-hours:							
1st half 1973 to 1st half 1974	0	2.7	—4.4	—.2	—3.1	NA	—3.1
1st half to 2d half 1973	2.1	2.6	—1.7	—.1	—2.0	2.9	1.4
2d half 1973 to 1st half 1974	—2.1	2.8	—7.0	—.3	—4.1	NA	—7.4

TABLE 7.—MANUFACTURING UNIT LABOR COSTS AND HOURLY COMPENSATION, 1ST HALF 1973 TO 1ST HALF 1974

[Percent change at annual rate, seasonally adjusted]

Period	United States	Canada	Japan	France	Germany	Italy	United Kingdom
Unit labor costs in national currency:							
1st half 1973 to 1st half 1974	7.2	8.5	19.6	9.1	8.3	NA	15.4
1st half to 2d half 1973	5.3	9.6	12.4	6.0	10.5	19.1	17.2
2d half 1973 to 1st half 1974	9.1	7.5	27.2	11.5	6.2	NA	13.6
Unit labor costs in U.S. dollars:							
1st half 1973 to 1st half 1974	7.2	11.4	14.2	2.1	18.2	NA	9.1
1st half to 2d half 1973	5.3	9.2	13.3	14.1	27.9	19.5	15.0
2d half 1973 to 1st half 1974	9.1	10.7	20.5	−2.4	.6	NA	9.5
Hourly compensation in national currency:							
1st half 1973 to 1st half 1974	8.5	10.8	30.8	15.6	12.5	26.7	16.1
1st half to 2d half 1973	8.0	8.4	28.8	12.8	13.6	33.6	16.8
2d half 1973 to 1st half 1974	9.0	13.2	32.8	18.4	11.3	20.1	15.6

Note: Effect of exchange rate changes on unit labor costs not annualized.

TABLE 8.—MANUFACTURING OUTPUT PER MAN-HOUR, OUTPUT, AND MAN-HOURS, 1950–73

[Average annual percent change]

Country	1950–73	1950–66	1966–73	1966–70	1970–73
Output per man-hour:					
United States	2.9	2.7	3.8	2.2	6.3
Canada	4.1	4.0	4.5	4.7	4.7
Japan	9.4	8.4	11.4	13.9	9.6
France	5.4	4.8	6.1	6.6	6.1
Germany	6.1	6.3	5.5	5.8	6.1
Italy	5.9	5.9	6.1	5.4	8.3
United Kingdom	3.4	2.9	3.7	3.5	5.1
Output:					
United States	3.9	3.4	3.5	2.2	8.0
Canada	5.3	4.9	4.7	4.4	6.6
Japan	14.0	14.8	12.3	16.3	8.9
France	6.2	6.0	6.6	6.8	6.2
Germany	7.7	9.1	5.9	7.6	3.8
Italy	7.7	8.0	6.2	8.3	4.6
United Kingdom	3.1	3.2	2.7	3.4	3.2
Man-hours:					
United States	.9	.6	−.3	0	1.6
Canada	1.2	.9	.1	−.3	1.8
Japan	4.3	5.9	.8	2.2	−.6
France	.8	1.1	.5	.2	.1
Germany	1.5	2.6	.5	1.8	−2.1
Italy	1.7	2.0	.1	2.8	−3.4
United Kingdom	−.3	.3	−1.0	−.1	−1.8

TABLE 9.—MANUFACTURING HOURLY COMPENSATION AND UNIT LABOR COSTS, 1950–73

[Average annual percent change]

Country	1950–73	1950–66	1966–73	1966–70	1970–73
Hourly compensation in national currency:					
United States	4.9	4.6	6.7	6.5	6.8
Canada	5.7	5.2	7.8	7.6	8.0
Japan	11.4	9.4	17.2	16.5	18.2
France	8.9	8.7	10.8	9.8	12.4
Germany	9.2	9.0	11.0	8.6	12.8
Italy	9.4	8.2	14.8	10.9	19.2
United Kingdom	7.2	6.5	10.8	7.8	13.6
Unit labor costs in national currency:					
United States	1.9	1.8	2.8	4.2	.4
Canada	1.5	1.1	3.1	2.7	3.2
Japan	1.9	.9	5.2	2.3	7.9
France	3.4	3.7	4.5	3.0	5.9
Germany	2.9	2.5	5.3	2.7	6.4
Italy	3.3	2.2	8.2	5.2	10.1
United Kingdom	3.7	3.5	6.8	4.2	8.1
Unit labor costs in U.S. dollars:					
United States	1.9	1.8	2.8	4.2	.4
Canada	1.2	.7	4.5	3.4	4.7
Japan	2.3	.9	9.1	2.6	19.0
France	1.4	.7	4.7	.1	14.2
Germany	4.1	2.9	11.1	4.8	18.1
Italy	3.4	2.2	9.3	5.1	13.3
United Kingdom	3.0	3.5	5.2	−.4	9.1

Note: Prepared by U.S. Department of Labor, Bureau of Labor Statistics, Office of Productivity and Technology.

TABLE 10.—RELATIVE OUTPUT PER MAN-HOUR, HOURLY LABOR COSTS, AND UNIT LABOR COSTS IN THE IRON AND STEEL INDUSTRIES OF FIVE COUNTRIES, 1964–73 [1]

[United States=100]

Year	Output per man-hour		Hourly labor cost in U.S. dollars				Unit labor cost in U.S. dollars			
			Constant 1964 exchange rates		Current exchange rates [2]		Constant 1964 exchange rates		Current exchange rates [2]	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
United States: Each year	100	100	100	100	100	100	100	100	100	100
Japan: [3]										
1964	43	54	17	17	17	17	31	40	31	40
1965	43	54	18	19	18	19	34	43	34	43
1966	51	63	20	20	20	20	31	39	31	39
1967	63	78	21	22	21	22	27	35	27	35
1968	68	85	23	24	23	24	27	35	28	35
1969	83	103	26	26	26	26	25	32	25	32
1970	97	120	30	30	30	30	25	31	25	32
1971	94	116	31	31	32	33	26	34	28	35
1972	102	127	30	31	36	37	24	30	29	36
1973 [4]	117	146	35	35	47	47	24	30	32	40
France:										
1964	48	51	34	35	34	35	66	72	66	72
1965	48	52	35	36	35	36	69	75	69	75
1966	50	54	36	37	36	37	67	73	67	73
1967	55	59	37	38	37	38	63	68	63	68
1968	59	63	39	40	39	40	63	68	62	67
1969	64	69	41	41	38	39	59	64	56	61
1970	68	72	44	45	39	40	61	66	54	59
1971	65	69	46	47	41	42	67	73	60	65
1972	66	71	48	49	46	47	68	73	66	71
1973 [4]	63	68	52	53	57	58	76	83	84	91

Germany:										
1964	54	63	37	39	37	39	58	72	58	72
1965	52	61	38	40	38	40	62	77	62	77
1966	52	61	39	42	39	42	64	79	64	79
1967	59	69	39	42	39	42	56	70	56	70
1968	65	75	39	41	39	41	52	64	52	64
1969	71	83	40	43	41	43	49	60	49	61
1970	72	84	47	51	52	55	57	70	62	77
1971	69	80	48	52	55	59	60	75	69	85
1972	72	84	47	50	58	62	56	69	70	86
1973 [4]	72	84	48	52	73	78	58	72	87	107
United Kingdom:										
1964	46	50	29	30	29	30	57	64	57	64
1965	47	51	31	32	31	32	61	68	61	
1966	45	48	32	33	32	33	67	75	67	75
1967	46	50	30	31	30	31	61	68	60	67
1968	48	52	32	33	27	28	61	69	53	59
1969	49	53	32	33	28	29	61	68	52	58
1970	51	55	35	37	30	31	64	72	55	62
1971	47	51	35	36	31	32	69	77	60	67
1972	49	53	37	38	33	34	69	77	62	69
1973 [4]	47	51	39	40	34	35	76	85	67	75

[1] Excluding wire and wire products in the United Kingdom and wheels and axles in West Germany. The ranges in estimates do not allow for differences between the countries in the degree of vertical integration or the quality of steel produced.

[2] Data in national currency converted to U.S. dollars at the average exchange rate for the listed year.

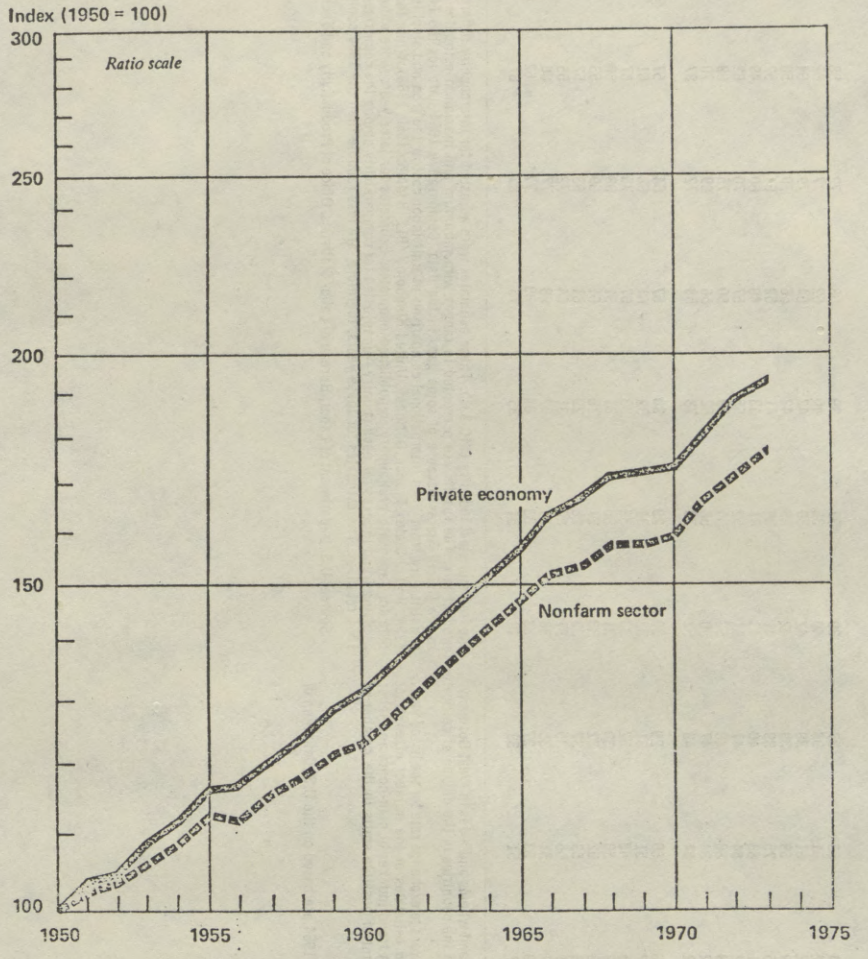
[3] The estimates for 1964 include minimum and maximum estimates of the number of contract workers. The estimates for all other years were derived from trend indexes of man-hours and labor costs that relate to regular workers only and take no account of possible shifts in the number of contract workers relative to regular workers.

[4] Preliminary.

Note: With the exception of a few items, the estimates for 1964 are based on the U.S. definition of the iron and steel industry (SIC 331). These estimates were adjusted for intercountry differences in product mix. The results are presented in ranges with minimum and maximum estimates relative to the United States because of some gaps in the data. Comparative 1964 data for the European countries are from "An international comparison of unit labor cost in the iron and steel industry, 1964: United States, France, Germany, United Kingdom" (BLS Bulletin 1580, 1968). While the 1964 data for Japan are preliminary unpublished estimates. Estimates for later years were obtained by applying trend indexes for each country—unadjusted for comparability among the countries—to the 1964 relatives. The estimates for these years, therefore, are less reliable than the 1964 comparison.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Office of Productivity and Technology.

CHART 1.—Output per Man-Hour in the Private Economy and the Nonfarm Sector, 1950–73

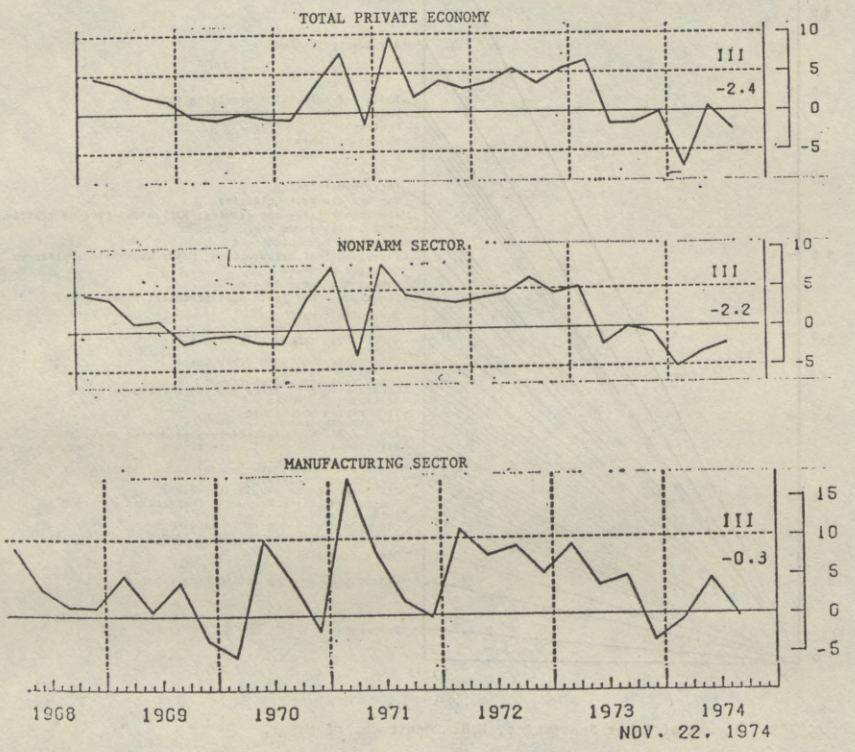


Source: U.S. Department of Labor, Bureau of Labor Statistics.

CHART 2.—Changes in Output per Man-Hour in The Total Private Economy, the Nonfarm Sector and in Manufacturing

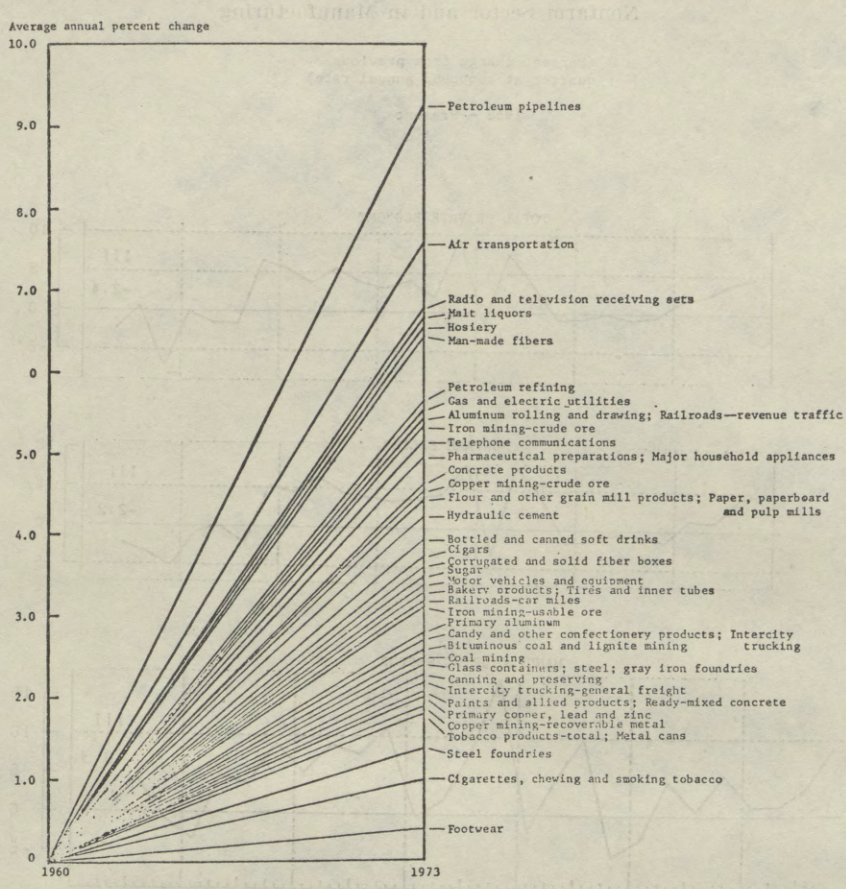
(Percent change from previous quarter at compound annual rate)

1968 - Present



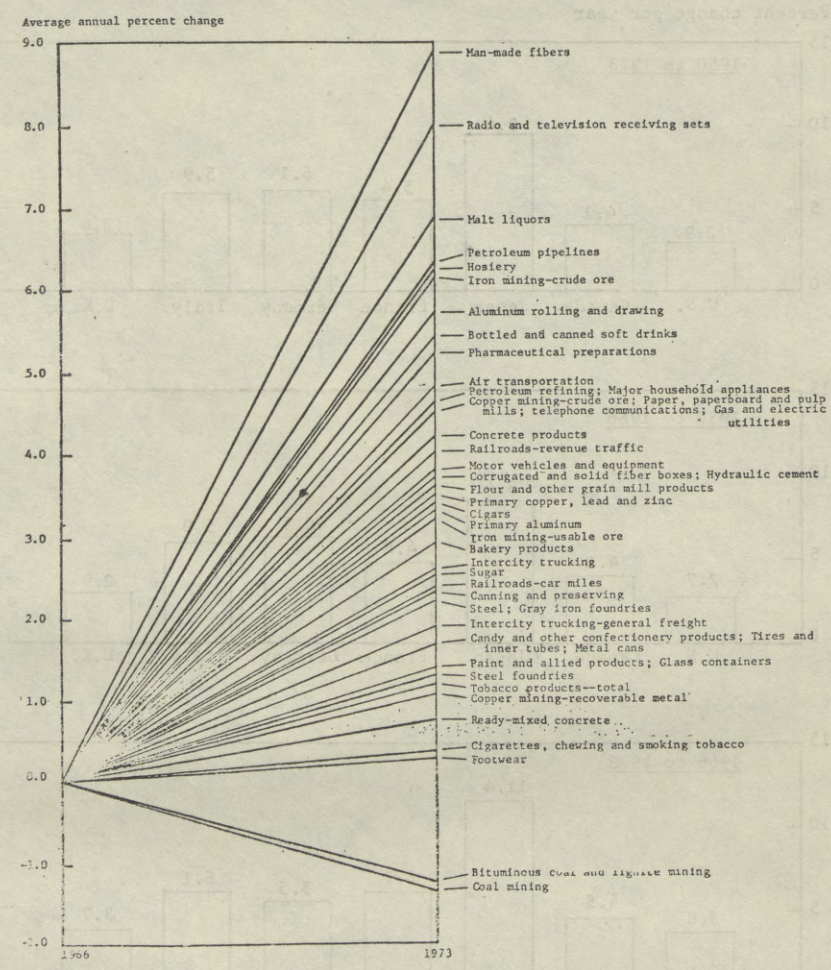
Source: Bureau of Labor Statistic

CHART 3.—Growth in Output Per Man-Hour in Selected Industries, 1960–73



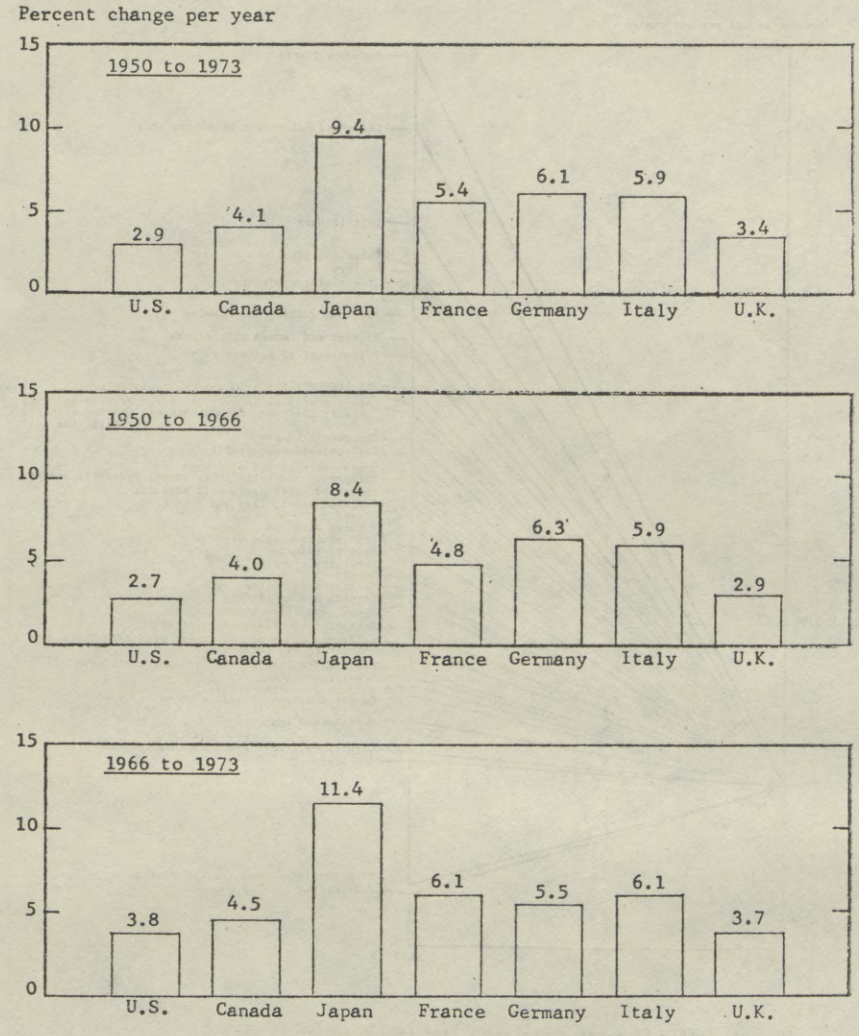
SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

CHART 4.—Growth in Output Per Man-Hour in Selected Industries, 1966–73



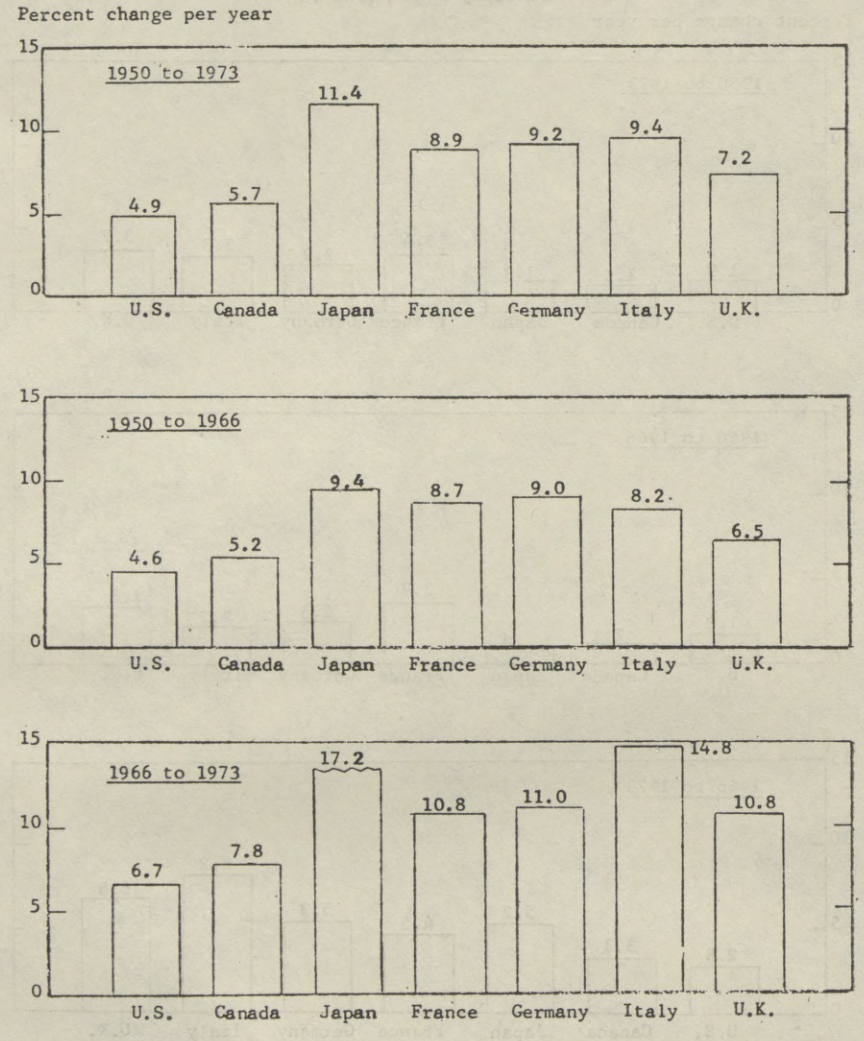
SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

CHART 5.—Rates of Change in Output per Man-Hour in Manufacturing, 1950–73



SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

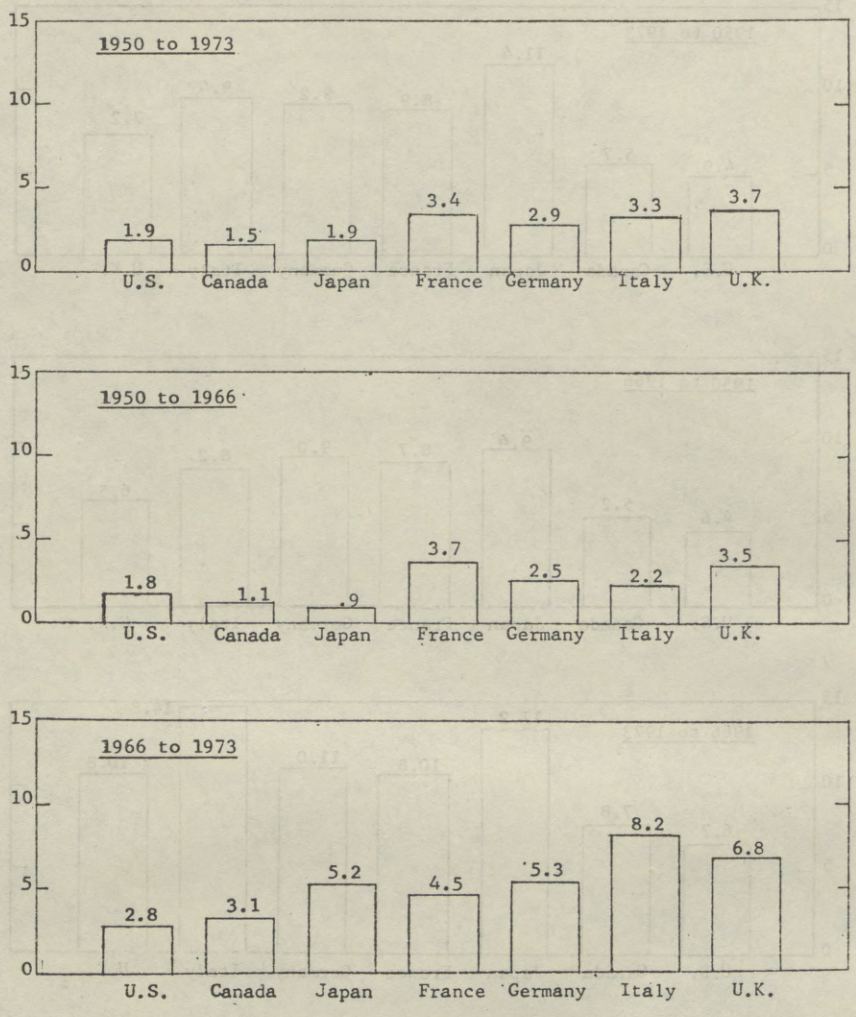
CHART 6.—Rates of Change in Hourly Compensation in Manufacturing, National Currency Basis, 1950–73



SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

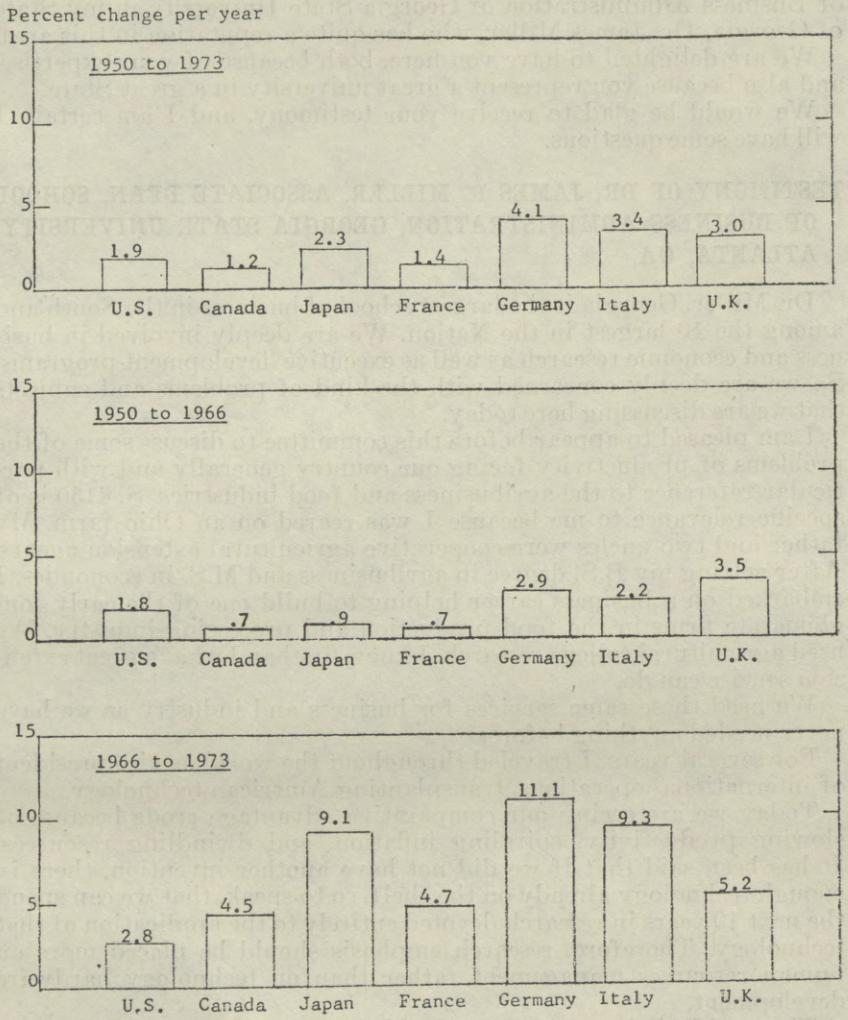
CHART 7.—Rates of Change in Unit Labor Costs in Manufacturing, National Currency Basis, 1950–73

Percent change per year



SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

CHART 8.—Rates of Change in Unit Labor Costs in Manufacturing, U.S. Dollar Basis, 1950–73



SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

Senator NUNN. Our next witness is the associate dean of the School of Business Administration of Georgia State University in my State of Georgia, Dr. James Miller, who has quite a reputation in this area.

We are delighted to have you here, both because of your expertise, and also because you represent a great university in a great State.

We would be glad to receive your testimony, and I am certain I will have some questions.

TESTIMONY OF DR. JAMES R. MILLER, ASSOCIATE DEAN, SCHOOL OF BUSINESS ADMINISTRATION, GEORGIA STATE UNIVERSITY, ATLANTA, GA.

Dr. Miller. Georgia is the largest school of business in the South and among the 10 largest in the Nation. We are deeply involved in business and economic research as well as executive development programs. So we are deeply concerned with the kind of problems and subjects that we are discussing here today.

I am pleased to appear before this committee to discuss some of the problems of productivity facing our country generally and with particular reference to the agribusiness and food industries. S. 4130 is of specific relevance to me because I was reared on an Ohio farm. My father and two uncles were cooperative agricultural extension agents. After getting my B.S. degree in agribusiness and M.S. in economics, I embarked on a business career helping to build one of the early conglomerate firms in the food production and processing industry. We used agricultural college research. I know firsthand what a great extension service can do.

We need these same services for business and industry as we have never needed anything before.

For several years, I traveled throughout the world as vice president of international operations, transplanting American technology.

Today we are seeing our comparative advantage erode because of slowing productivity, spiraling inflation, and dwindling resources. It has been said that if we did not have another invention, there is enough technology already on the shelf, so to speak, that we can spend the next 10 years in research devoted entirely to the application of that technology. Therefore, research emphasis should be placed more on human resources management rather than on technology hardware development.

The world's information base doubled from A.D. 1 to the A.D. 1750 It doubled again by 1900, again by 1950, again by 1965, and again by 1973. This means that the knowledge has doubled in 150 years, 50 years, 15 years, and now 8 years. This in and of itself causes tremendous pressures on society, Government administrators, business executives, and of course, you legislators.

Yet, productivity which was once steadily improving, has begun to decline. Output per man-hour in the U.S. total economy rose to an annual increase of 3 percent in the years of 1950 to 1972. However, taking only the last years of 1965 to 1972, it had slipped back to 2.3 percent. Why is this occurring, you ask? There are a number of reasons, none of which is simplistic or mutually exclusive.

One basic reason is that we became an affluent society in the words of Dr. Kenneth Galbraith. In 1972, with a total consumer disposable

income of $728.6 billion, about 21.4 percent or $156 billion was spent on miscellaneous services. The government sector and service sector are rapidly becoming the Nation's largest employers. By 1985 three times more people will be engaged in service than in the manufacturing. This is a first. Service by its very nature is labor intensive and not easily mechanized to improve productivity.

At the same time, the consumer spent 15.9 percent, or $116 billion on food. The U.S. food bill breaks out roughly at one-third each for production, transportation and processing; and distribution to the consumer. However, productivity improvements have been dramatic. The farm sector shows an average annual increase of 5.7 percent from the years 1950 to 1972. Yet during recent years, limits have been reached and input costs have increased, which has slowed that annual rate to 5.0 percent from 1965 to 1972.

Still, during 1965 to 1972, productivity in supermarkets increased only 1.2 percent and 1 percent in grocery distribution centers. This is largely because—since the post World War II development of supermarkets and suburban shopping centers—little if any innovation has taken place.

Again, concurrent rationale says that there has been little economic justification or social benefit demanded during affluent times to force change.

But, during this same period of development, there has been much concentration among firms, which was not formerly true. When fewer but larger organizations develop through horizontal and vertical integration, much internal efficiency can be gained which contributes to profit but not necessarily contribute to productivity.

At the same time, there have been many local, State, and Federal regulations added over the years which were well intended when many small producers and processors comprised most of the output. But geographical shifts in production have taken place with transportation and preservation technology. Large producers and large marketers are now inhibited by overlapping and contradictory regulations. Today there are over 2,000 separate Federal regulations applicable to food. A single change by a single State in the required sausage label ingredient listing cost one company $75,000 annually to ship from out-of-State plants.

These need to be studied as my research organization proposes to do through funding from the National Science Foundation, using the case example of the poultry industry.

The food industry incurs some $6 billion worth of transportation costs annually. To give you one quick glimpse at loss of productivity in these times of shortage of energy and railroad cars, there were reported last September over 800 trucks a week from the Southeast carrying poultry to northern markets that were returned empty. Again, why, you ask? There are a number of reasons, not the least of which are ICC regulations.

The farm producer has been faced with doubling of his main input costs on fuel and chemicals. New equipment is near impossible to obtain in less than a year. There is an imminent shortage of managerial talent in agribusiness a well as in other industries.

The consumer is faced with increasing food costs, 15 percent last year, and current headlines forecast another 15 percent for 1975. But

going back to my comments about the huge flood of information available to us today, many of our data bases developed during the 1930's are obsolete for today's needs. Therefore, publicized forecasts seem to be less and less accurate, thus further eroding consumer confidence.

In the middle is the middle man, the business man, the service sector. Conflicts between labor and management, conflicts in the distribution channels, hostility and frustration among employees, lack of business and governmental cooperation on critical issues, and general frustration on the part of business on how to tap the resources of universities are only part of the reasons why productivity in the United States is suffering.

This bill is only one of many steps needed to take corrective action.

Senator NUNN. Thank you very much, Dr. Miller.

I appreciate very much your outstanding record in this overall field. I am particularly interested in your view of the county agent kind of concept. Expressing it very generally, that we are trying to grasp for in this legislation. I think you have been here long enough in the hearings to have heard me say probably once or twice that the last thing, I think, we need is a real big Federal bureaucracy trying to handle it from Washington. What we had in mind, at least I have, is trying to develop and stimulate a marrying between the technical ability in our schools around the country, business and technical, and the critical needs for industry, somewhat on the pattern we have done in the space effort, the military effort and otherwise.

This is just a first draft effort in this legislation. We will be developing it, hopefully, very rapidly.

What do you visualize in this field? I know you expressed your support for this general thrust, but what particular suggestions do you have?

Mr. MILLER. When you embark upon extension service kind of programs, you very, very quickly learn that you are in a complex environment. The businessman is very, very busy. Oft times long range corporate planning is getting things done yesterday. Yet they are interested in learning and being able to tap what is going on within universities, and being able to find out what is going on in other industries in particular, because the industrial espionage, if you will, the G–2 when you are in industry, of knowing what is going on in your industry is pretty precise, but that only helps you in your day to day kinds of things.

What is needed in order to get into improvements in productivity is the transfer of technology from industry to industry. How can you use technology of one industry in another industry? And here is where you need an organization of people who can communicate with the business executive, people who can carry on applied research and use demonstration projects similar to the agricultural model. But the model is very, very similar, but the sensitivities and the problems, I think, are much greater. It is a much greater problem because it is like dealing with a cobweb; and when you are going into a problem like this, one of my early recommendations would be, to really take the state of your arts and you do some research to find out really where we are.

Senator NUNN. Do you think we need some pilot projects in these areas—several around the country—before we embark on a national program?

Dr. MILLER. Well, I would not say before you embark totally on a national program, but I would say pilot projects would be one of your early programs, yes, sir.

And here again there are a number of universities who work very, very closely with the business community and chambers of commerce and various organizations within a State which we find very cooperative, and I am sure this is true in other parts of the country.

Senator NUNN. With this growing trend in terms of the service ratio to manufacturing ratio, in terms of our overall employment and GNP and so forth, are we going to be able to really address productivity in the service area as well as the industrial area?

I know we have had a lot of experience in individual organizations, labor unions, business, and so forth. Also we have done an awful lot in the industrial areas as well as the agricultural area. But the service area is a different kind of a problem. How do we tackle that?

Dr. MILLER. I do not have any quick answers for you, sir. It is a different ballgame. It is very, very different, and I think the thing we want to be very careful of is that we do not take the traditional efficiency production—and I heard this morning the terms productivity and so forth. I think we need to be very careful that we do not use traditional models to try to design and come up with answers in the service field which do not apply themselves quickly to the traditional line. I think you have to back off and take some fresh new looks at these kinds of activities in order to be able to come up with some fresh new answers.

Senator NUNN. Thank you very much, Dr. Miller. I appreciate your interest, and I hope you keep us informed of your opinions as we develop this legislation.

We particularly appreciate your making the trip here for this purpose.

Dr. MILLER. Thank you very much. The pleasure is mine.

Senator NUNN. We have a vote now.

Dr. Miller, I am sure you are going to be interested in our next witness, if you have time to stay. This is Mr. Elmer Staats who is the Comptroller General. He is tackling this problem we talked about in the service industry on a very meaningful scale. He is, of course, not only the Comptroller General, but is a man who has considerable experience in all phases of business. I am particularly glad that he has gotten a head start in trying to do something about productivity in the Federal Government.

We also have joining Mr. Staats; Mr. Dwight Ink, who is the Deputy Administrator of the General Services Administration, one of the key Federal agencies in the overall structure of our Government, and Mr. Bernard Rosen, who is Executive Director of the U.S. Civil Service Commission.

We are going to hear about the Federal Government and their productivity efforts—or our productivity efforts.

I have got to go vote now. I think it might be better if the panelists would come on up and have a seat, and then as soon as I can get back, we can start.

Mr. Staats, and the others, if you would come up.

[A brief recess was taken.]

Senator NUNN. I think I had already introduced everybody. I hope we will not have any more interruptions until we conclude the hearing, but we cannot guarantee that.

We will lead off with you, Mr. Staats, and go from there.

TESTIMONY OF HON. ELMER B. STAATS, COMPTROLLER GENERAL OF THE UNITED STATES, ACCOMPANIED BY THOMAS MORRIS, ASSISTANT COMPTROLLER GENERAL; DWIGHT INK, DEPUTY ADMINISTRATOR, GENERAL SERVICES ADMINISTRATION; AND BERNARD ROSEN, EXECUTIVE DIRECTOR, CIVIL SERVICE COMMISSION

Mr. STAATS. Thank you very much, Mr. Chairman.

First of all, I would like to say how pleased we all were that you and Senator Percy and others who joined with you introduced Senate bills 4130 and 4212 to strengthen national level leadership aimed at improving both the public and private sector productivity.

I have been interested in the concept of a center such as would be proposed by both bills since Jack Grayson, who is Dean of the School of Business Administration at SMU and a consultant to the General Accounting Office, began advocating this idea some time ago.

I am also pleased to be able to appear today in company with Mr. Dwight Ink and Mr. Bernard Rosen from the General Service Administration and Civil Service Commission, respectively, and, of course, Mr. Mark of the Bureau of Labor Statistics, and Mr. Tom Morris, Assistant Comptroller General, who has taken the lead within the GAO and within the Government in the work that has been done in measuring and improving productivity in the Federal Government. This same group appeared before the subcommittee on Priorities and Economies of the Joint Economic Committee exactly 1 year ago today to outline progress on this project; we are happy to have this opportunity to appear here today.

Title I of both bills states clearly the concern over the current decline in national productivity and the critical importance of authoritative policies and programs to improve productivity to attack the problems of inflation and to enhance our international competitiveness, job security, and the quality of work life.

Both bills make a case for a stronger national commitment and expert leadership and are responsive to President Ford's statement on this matter in his October 8 address to the Congress. I hope these hearings will lay the foundation for designing the stronger statutory underpinning which is needed.

I would like to divide my brief comments into two parts: First, a discussion of why GAO is concerned with improving national productivity; and second, a review of the objectives of the two bills and our suggestions on them for the committee's consideration.

On the first point, GAO has a major interest in Federal productivity both because of its regular audit programs and because of the joint Federal project which I will discuss later. To a lesser degree, we have contacts with performance improvement programs at State and local levels. We are also brought into contact with productivity efforts of many private sector organizations.

Since 1970 we have been a partner with the Office of Management and Budget, the Civil Service Commission, the Bureau of Labor Statistics and more recently, the General Services Administration, in fostering efforts to measure and enhance the productivity of Federal activities.

Today we have an ongoing program in which participating agencies collaborate in an annual review of the productivity trends of about 200 Federal activities having 850 measurable outputs. These organizations employ 1.7 million personnel, representing the output of about two-thirds of all Federal employees.

We annually examine the trends and report to the President and the Congress on observed causes of productivity gains and losses and on any actions which are recommended to foster improved productivity.

We found last year an overall gain in productivity averaging over 1.5 percent, but about half of the activities reviewed had shown productivity gains and about half had declined. We have learned that no organization stands still and that progress demands constant attention to such improvements—the keys to which are: long range planning; introduction of better systems; installation of modern equipment; more effective work organization; and techniques for improving employee skills, job satisfaction, and incentives.

The Federal Government has much to learn from its own experience and from systematic study of the practices of non-Federal organizations. The present National Commission on Productivity and Work Quality has been very supportive, but a still stronger national organization would be of value in advancing these efforts.

We have been encouraged to see the rapid growth in interest in productivity improvement among State and local governments and the strong leadership taken by their national associations. The stress given to improved State and local programs by the bills you are considering is very appropriate. This is particularly true of S. 4130 with its concept of productivity centers at the State level.

There are some 39,000 jurisdictions, many of which perform similar, if not identical, functions. One of every six American workers is employed by the public sector. Government purchases of goods and services now absorb about 22 percent of the Gross National Product, and Government payrolls are close to $150 billion. This is the second fastest growing segment of our economy, following services in general.

Many elements of the Federal structure are making some contribution to State and local government improvements, although in a very loosely coordinated fashion. This includes, for example, grant programs of the National Science Foundation, grants by the Department of Housing and Urban Development under the section 701 program, the excellent work of the Civil Service Commission under the Intergovernmental Personnel Act, and various other technical assistance programs. GAO is working with local jurisdictions to introduce the use of performance auditing techniques and has participated in productivity improvement demonstrations and projects.

The National Commission on Productivity has, from the outset of its work, given priority attention to public sector productivity problems and has made a valuable contribution in selected areas. But I am sure we all agree that the efforts I have mentioned are only a beginning toward exploiting the vast opportunities for improved economy and effectiveness in State and local government operations.

I would like to refer to the Federal interest in manufacturing technology. The Procurement Commission—of which I was a member—found expenditures on procurement by Government agencies to be $57.5 billion in fiscal year 1972 with the Department of Defense, the Atomic Energy Commission, and the National Aeronautics and Space Administration being the largest purchasers of goods and services from the private sector.

Since manufacturing technology is an important factor in future costs of complex systems, GAO is currently examining programs in the United States and other countries concerned with advancing the state of the art, particularly in the manufacture of parts and components produced in medium and small lots. We are giving special attention to the potential for further application of computers to design and manufacturing processes. The increased output may be five times as great as under today's methods.

While the United States has long been the pioneer in the development of these advanced tools and probably enjoys the highest state of technological achievement in the world today, we have not established a focal point to oversee research into advanced manufacturing technology—either for the Government's account or for the private sector.

Other nations are beginning to do this, notably West Germany and Japan. We understand that there is a proposed government program in Japan to develop an unmanned manufacturing facility by about the mid-1980s, at a reported cost of $100 million. It is of interest that this is a joint public and private effort. There is no comparable national program in the United States, although there are 10 or more Federal agencies interested in this subject. Hence, this is another illustration of the need for a strongly established productivity leadership at the national level.

Senator NUNN. Mr. Staats, this looks like that is a good stopping point. It is going to take about 10 minutes for a vote, and I will be right back.

[A brief recess was taken.]

Senator NUNN. Let us take up where we were.

Mr. STAATS. I will turn now to our views with respect to the two bills which are before you, S. 4130 and S. 4212. The first question which naturally occurs is: Why is a new organizational approach needed? That is, why does the present National Commission not meet these requirements?

Since the National Commission on Productivity was created in June 1970, it has constantly struggled to maintain its identity and even minimal financial support for its efforts. In fiscal year 1973 it had an extremely modest budget of $2.5 million and a 20-member staff. In 1974 it was terminated and absorbed by the Cost of Living Council. It has recently been reborn with a $2 million budget, but still with a very small staff. Such a stop-and-go existence, coupled with a low financial base, certainly is not conducive to maintaining a consistent and effective program.

I should say that we were very pleased at the announcement last Thursday of the restructuring of the Commission during a Commission meeting which the President attended. This offers hope of a much stronger effort and obviously Presidential support. This could be very

helpful, but the limitation of $5 million in the authorization and the $2 million appropriation, I think, still signify a very minimal effort that can be undertaken by this Commission.

Senator NUNN. I might add at this point that, when I introduced this bill several weeks ago, I reached the same conclusions exactly about the Commission that you have just expressed here. That was the reason that I, without having any other or better place to put it, put it in the Commerce Department in the hopes it would have some kind of continuity, but I am very receptive to a change. If the Commission is really going to have Presidential backing and the Presidential ear, that would be very important. If we can restructure this Commission in some form of a Center that would be beefed up and could do the job, then I am certainly flexible on the question of where it is located.

Mr. STAATS. It is thus clear that the time has come for a stronger commitment by the Congress and the executive branch. Both proposed bills have many important points which should be incorporated in defining a proper charter for a more vigorous National Productivity Program. Without singling out individual points from each bill, we can perhaps be most helpful at this time by (1) stressing those principles which we believe are most relevant to establishing a revised organization and (2) making several suggestions for the committee's consideration in the final drafting of a bill to be considered in the next session—which we understand to be your objective here today.

Key principles suggested for a National Productivity Center and Leadership Program: first, the Center should be an independent agency replacing the existing Productivity Commission and with direct and authoritative access to the Director of the Office of Management and Budget, the Council of Economic Advisers, and to the heads of principal departments and agencies concerned. These agencies include the Departments of Commerce, Labor, Treasury, Housing and Urban Development, Health, Education, and Welfare, and Defense; National Science Foundation; National Aeronautics and Space Administration; Atomic Energy Commission; Civil Service Commission; General Services Administration; and GAO.

Second, we favor a small, but fully empowered, board of directors, appointed by the President and confirmed by the Senate. Its membership, as envisioned in S. 4212, should be representative of private sector management, public sector management, and labor. I also urge that a top educator be included on this knowledgeable team which will perceive the opportunities for advancing national productivity and will understand how to apply the results of the Center's work.

Third, the mission of the Center should be broadly stated. We are particularly impressed with the definitions and mission goals presented in S. 4212 which stress the importance of equal emphasis on programs and projects designed to improve the utilization of technology and those designed to achieve improvements in the utilization of human resources and work quality. The statute should be free of regulatory detail, such as the requirement for productivity impact statements. Such matters should be left for later determination rather than be part of the statute.

Fourth, the Center should have a life expectancy and adequate funding for at least 5 years so that it can be held accountable for

bringing to fruition long leadtime efforts which are frequently the nature of productivity research and application.

Finally, the Center's professional staff should be the most capable that can be brought together for this period. The suggested limitation of 100, we believe, is too restrictive—although we readily agree that maximum use should be made of available funds for grants and contracts.

As to the functions of the Center, both bills spell out in excellent fashion the role of the Center as (1) a constructive coordinator and expert catalyst to identify and disseminate knowledge, (2) the sponsor of education and training activities, and (3) the sponsor and financer of demonstration projects and research projects of the type which other organizations are unable to support due to the leadtime, financial requirements, or any other reason. We also applaud the emphasis given to proper documentation and measurement of results.

Some suggestions for further consideration by the committee: The principal need which is not specifically addressed in either bill is development of a corps of personnel with leadership and analytical skills, who would be motivated to work on projects to improve performance in productivity, particularly in the public sector. This would include engineers, behavioral scientists, public administrators, management generalists, and so on.

At a recent conference of public sector leaders, which canvassed the prime opportunities for productivity improvement in the public sector, the need for "capacity building" as described above was stressed as perhaps the single most important requirement for significant improvements. Thus, the charter for the new Center should acknowledge the importance of managerial and analytical skills—working with universities, as well as public and private organizations—and charge the Center with a responsibility for fostering programs to produce such trained personnel.

Another frequently discussed issue is the extent to which, and when, the Center should be divorced from Federal management and primary reliance on Federal funding. Dr. Grayson, in a recent lecture to the GAO staff, offered the goal of making such a Center self-supporting after 5 years.

It is of interest that, in Japan, over 90 percent of the support of the Japan Productivity Center is from private sources and that, in Germany, Israel, and Norway, private support is reported to be one-third to one-half. This poses a challenge to us. One alternative would be for the National Productivity Center to underwrite the establishment of both national- and State-level centers which would become self-supporting. S. 4130 envisions such authority for the States. Of course, regional and perhaps metropolitan centers should not be precluded in appropriate situations.

Another alternative which has been proposed is to establish the National Productivity Center, at the outset, as a government corporation to give it more independence of the Federal structure, while holding it accountable to the Congress and the President. In any event, it would appear wise to authorize and encourage the National Productivity Center to engage in cost-sharing, to require reimbursement for technical assistance not related to research and demonstration projects, and to encourage private financing.

The final suggestion which we have is that further development of productivity measures, and the conducting of research into designing better measures, should stress the importance of assessing trends in the quality of performance and results of programs, especially in the public sector. Simple productivity indices expressed as "output per unit of input" are essential and must be continued. We must, however, learn how to measure program effectiveness and how to apply appropriate measures of progress against program objectives. We likewise need to continue our search for techniques of measuring employee attitudes and "quality of work" factors.

In conclusion, Mr. Chairman, we have, as you can see, a great interest in the subject of these hearings. We would be pleased to assist the Committee in its efforts to resolve the issues, which the hearings have identified, leading to further consideration of this subject in the next session of the Congress.

Mr. Chairman, I understand Mr. Ink and Mr. Rosen have brief statements, and it might be useful to hear from them before we open it up for general discussion and questions.

Senator NUNN. I would like to do that because we may be interrupted again. I would like very much to be able to get through the testimony. Then if we are interrupted again and we have completed the testimony, I know all of you gentlemen have other schedules. I will be in communication with you and will be asking a lot of questions as we develop this.

I do regret very much the delay.

Mr. Ink, would you go ahead and proceed?

TESTIMONY OF DWIGHT INK, DEPUTY ADMINISTRATOR, GENERAL SERVICES ADMINISTRATION

Mr. INK. Mr. Chairman, I have an 11-page statement, and if it would be helpful to the committee, rather than reading that, I would be happy to highlight it.

Senator NUNN. If we could do that, and perhaps if we could highlight both of these, we might have a chance to discuss them a little bit before the next vote.

Mr. INK. I will try to highlight it in less than 11 pages.

Senator NUNN. Fine. The entire statement will be admitted to the record, without objection, at the end of your testimony.

Mr. INK. We are heavily involved within the executive branch in the government-wide efforts to emphasize and develop a program in productivity. We issued a call for data from the different agencies that is used in measuring productivity. We are working with the different agencies in developing management operating procedures that improve productivity and the improvement of productivity techniques.

We are particularly concerned with utilization of equipment, such as ADP, to improve productivity. We have established a clearinghouse in these areas. I do not know if we have given the committee a copy of our book on this, but if we have not, we would be happy to provide the committee with this bibliography from the clearinghouse.

We are undertaking workshops. The first regional workshop, developed in conjunction with our colleagues, was held in Atlanta at an institution you may have heard about. It is Georgia State, and we had

some very fine facilities there yesterday, and very fine attendance from a number of different agencies. So we have, as I say, very strong involvement and interest in this area and look upon ourselves as a partner with OMB, Civil Service Commission, BLS, and GAO, with encouragement and help from the National Commission on Productivity and Work Quality.

I would like particularly to single out the leadership of Elmer Staats and Tom Morris in this inter-agency effort, which has moved forward over the last several years.

We believe strongly that productivity should be given strong emphasis, and I think our work demonstrates our sincerity in that belief. But we also believe it should be done only in relation to other factors, some of which Mr. Staats mentioned, and also in the recognition that there are a number of different purposes served by a productivity effort.

With respect to purposes, productivity is of obvious utility in analyzing the Nation's economy. I think most people are now becoming quite aware of its usefulness, at least its potential usefulness, in fighting inflation.

We also look forward to being able to utilize productivity more effectively than we do now as one tool in the allocation of resources. We are not nearly as far along here as we would like to be. Certainly it is extremely useful in many, many aspects of improving the management of resources. As Mr. Staats said, about 60 percent of the civilian workforce of the Federal Government is now covered by some form of productivity program.

But to utilize productivity properly, there are other factors with which productivity needs to be meshed, which we think are important. First—and I did not mention this in my written testimony—it needs to be related to other management techniques, such as value engineering, for reducing overhead. These factors all contribute to productivity improvement and to better management.

Second, employee considerations through work quality which is recognized by S. 4212 is exceedingly important. It is not just a useful relationship; it is essential. I think Mr. Rosen will speak to this more. I simply want to emphasize in this respect the very important role of the Civil Service Commission insofar as the Federal program is concerned. I believe that a major reason our current effort has moved forward as well as it has is because of the Civil Service Commission involvement (and through the Civil Service Commission, a better awareness of the thinking, the viewpoints of Federal employees in communication with the unions, thus increasing the concern and attention given to the quality of work environment). I believe that this is one major reason that prior efforts were not very successful, whereas this one has been very, very encouraging.

Third, program effectiveness, which Mr. Staats emphasized as an overall goal, is very, very important to keep in mind as we move forward with productivity. After all, productivity is only one in a number of important factors, such as social indicators, for example, many of which are not quantifiable, but which must be considered in determining whether or not we are meeting program needs.

The increased output of federally assisted housing that we announced from time to time several years ago—masked for a considerable time the fact that we were experiencing at the same time a rapid

increase in foreclosures. Very serious housing problems were mounting because we were preoccupied with the sheer output-input ratio.

Now, this was not a sound productivity program. A strong productivity program would have been very sensitive to any impact that the increase in output would have had on the quality of the program. Certainly, the importance of an intergovernmental approach, of the industry-Government partnership, and the involvement of universities is obvious.

We agree with the committee view—and again reiterated by Mr. Staats—that greater commitment is needed by both the executive branch and by Congress in this area. We believe the committee is moving generally in the right direction, particularly with respect to S. 4212. We believe it is desirable to establish an independent agency, similar to that envisaged in S. 4212, either by revamping the existing Commission or a totally new organization. I think one can arrive at almost the same point through either route.

I would like to urge that in moving in that direction, however, a careful look be given to some of the variations and some of the possible additions to the system that Mr. Staats was mentioning.

I would caution—something, which again I suppose, is obvious—that big bureaucracies generally start from very small ones, and it is almost always the intent when something is first set up to begin small and keep it small. Therefore, it is very important in drafting legislation to build into it certain provisions and a structural approach and objectives which will tend to avoid those things that lead to a mushrooming bureaucracy.

Senator NUNN. Does that mean GSA would be a lot smaller now if we could go back and restructure it from the original statute?

Mr. INK. Well, one of the problems in GSA is that you amalgamated a number of groups that already existed. Now, I suspect that if you had set up GSA from scratch a number of years ago, everyone would have pledged themselves to keeping it small, to a few hundred people, and it probably still would have ended up at about 40,000.

Senator NUNN. I am being somewhat facetious, but I do think from the very beginning we may well need something like Mr. Staats and you have pointed out in terms of phase-out of public financing. That would be a very commendable sort of a self-destruct mechanism over a period of time, but I think we have to have at least 4 or 5 years before we will be able to get to that point.

I have another vote. I would like very much to be able to complete this, and I know all of you would. If you could interrupt there and then get a summary from Mr. Rosen, then maybe we can conclude the hearings. Were you almost through?

Mr. INK. Yes, but that is fine. Go ahead.

[The prepared statement of Mr. Ink, with information subsequently supplied follows:]

PREPARED STATEMENT OF DWIGHT A. INK, DEPUTY ADMINISTRATOR, GENERAL SERVICES ADMINISTRATION

Mr. Chairman and members of the committee, I appreciate the opportunity to appear before this Committee today to present the viewpoint of the General Services Administration concerning S. 4130, The National Productivity Act of 1974; and S. 4212, The National Center for Productivity and Economic Competition Act.

We in GSA have been actively engaged in a major Government-wide effort to measure and enhance the productivity of Federal agencies for some time. I would like to take this opportunity to highlight these efforts.

In May 1973, the President issued Executive Order 11717 which reassigned to GSA a series of management functions previously performed by the Office of Management and Budget. In his accompanying statement, the President directed GSA to assume a broader management role by becoming the President's "principal instrument for developing better systems for providing administrative support to all executive branch activities."

This Executive order set the stage for the assumption of a major Federal productivity management role by GSA. Since 1971, the Civil Service Commission, the General Accounting Office, the Bureau of Labor Statistics, and the Office of Management and Budget had participated in the Joint Project to Measure and Enhance Productivity in the Federal Government. The Joint Project came to an end on June 30, 1973, with the publication of a final summary report which recommended the continuation and expansion of productivity improvement activities on a *permanent* basis throughout Government.

The first step in implementing these recommendations was taken by Roy Ash who, in his July 9, 1973, memorandum to executive departments and agencies, defined responsibility for carrying out these activities to the General Services Administration, the Civil Service Commission, the Bureau of Labor Statistics, and the Joint Financial Management Improvement Program, which is composed of representatives from the Office of Management and Budget, the General Accounting Office, the Civil Service Commission, the Department of the Treasury, and the General Services Administration. This Government-wide program, designed to measure and enhance Federal productivity, is now fully operational. Working cooperatively, CSC, OMB, GSA, GAO, and the Bureau of Labor Statistics have put together a productivity measurement and analysis system that covers over 60 percent of the Federal civilian work force. The number of participating organizations has increased from 187 to 200 and the total number of output indicators has risen from 774 to over 850.

As a result of the active involvement of several Government organizations in directing this project, and with the support of all Government departments and agencies, we have learned much about Federal productivity and its many implications. Most importantly, we can now fully appreciate the need for measuring productivity and the resultant usefulness of our efforts.

First, productivity measurement provides a basis for assessing the results of management actions. Productivity measurement of the Federal establishment is a sizeable program but when we consider the size of total Government at State and local level together with the Federal level, the magnitude of productivity measurement is very significant. Today, some 13 million or ⅙ of our Nation's total work force are employees of Federal, State, and local government. Thus, the promotion and use of productivity measurement at all levels of Government can have a very significant management effect. Productivity measurement provides a useful means for summarizing results of past organizational efforts and reveals to management emerging trends so that actions can be taken to influence those trends.

A second key reason for measuring productivity is its usefulness in helping to analyze future investment or other changes in organization and management practices so that an assessment may be made of prospective benefits versus the time and cost of obtaining them. By analyzing the costs of productivity increases and decreases, management can readily examine what management techniques or processes were useful and those which need further study. It provides a valuable diagnostic tool to measure efficiency.

Third, measuring Federal productivity contributes to greater understanding of governmental operations. It provides useful information to top officials of the Government, members of Congress, economic analysts, and the general public as to the proper use of the taxpayer's money. Our efforts have certainly refuted some of the arguments and negative public impressions about the productivity of the Federal work force.

Finally, perhaps the most important use of productivity measurement is in helping to assess the worth of Government activity. In its simplest form, productivity is a measure of efficiency. Here we are concerned with the question of, "are we getting the best output for the input?" Productivity in its fundamental form is concerned with this relationship of output to input, but it is very

important to remember that we are also concerned with a bigger question and that is—"are we doing the right thing?" and, if so, we are achieving nonquantifiable objectives as well as high output. These questions address the aspect of program effectiveness in addition to just efficiency. In assessing program effectiveness, we are concerned with the impact or public benefit of the program and how the governmental activity is achieving its goals and objectives. It is this area to which we must continually direct our ultimate thoughts and actions. From the very beginning of this project, we have called attention to this aspect and have continually emphasized that an integral tie-in be made between program effectiveness and productivity measurement.

Over the long pull, another important use of productivity data will be in manpower and budget planning leading to resource allocation. We have not reached that point, but as the quality of the measures improve, and managers at various levels gain increased understanding and competence in productivity measurement and use, we are confident that maximum benefits can be derived from this major undertaking.

As part of the overall Federal productivity effort, the General Services Administration has been involved in the program. We are concentrating our energies in several areas. The first of these is in providing guidance and assistance to Federal agencies in developing and using work measurement and productivity measurement systems. The second area is in developing productivity enhancement programs with respect to Government procedures especially in the acquisition and use of capital equipment. We have established a productivity clearinghouse which has as its main objective the interchange of capital investment knowledge and productivity measurement information among Federal agencies. Through this clearinghouse, we have compiled information from the Federal agencies relating to capital equipment use and technology. Last month, we published a comprehensive bibliography listing documents from throughout the Federal sector pertaining to capital equipment use and agency procedures for acquisition. At the present time, we are completing a study designed to improve the acquisition and management of capital equipment by Federal agencies.

Just yesterday, representatives from CSC, GSA, BLS, NCOP, and JFMIP conducted a pilot productivity seminar in the City of Atlanta for over 150 Federal regional officials. The purpose of the seminar, sponsored by the Atlanta Federal Executive Board, was to promote the sharing of productivity related ideas and technology among agencies at the field level. It is our plan to conduct similar productivity seminars in the nine other Federal regions.

We have also provided limited technical assistance to State and local governments interested in measuring and improving productivity on a limited basis. For example, we have recently reviewed and recommended modifications to the integrated Management by Objectives program developed by the Norfolk Housing and Redevelopment Authority.

As you can see from this background, we in GSA are interested in developing ideas from both bills.

S. 4130—The National Productivity Act of 1974

I would first like to discuss S. 4130, The National Productivity Act of 1974. We agree with the bill's basic philosophy of encouraging economic productivity provided such growth is consistent with other economic, environmental, and social needs. However, this bill does not acknowledge, and its passage may adversely affect, on-going Federal efforts designed to promote productivity improvement in both the public and private sectors, although I am sure this is not intended.

Specifically, the bill would enact requirements for detailed productivity impact statements for virtually every executive and legislative proposal, formal one-time productivity reports and periodic productivity reports from every part of the executive branch, as well as other mandated procedures. It is questionable whether the results achieved would warrant the vast amount of additional paperwork which would be so easily generated. This is particularly true of the productivity impact statements in view of Executive Order 11821, signed by the President on November 27, 1974. This order requires that all major legislative proposals, regulations, and rules emanating from the executive branch include a statement certifying that the inflationary impact has been carefully considered in accordance with criteria and procedures to be developed by the Office of Management and Budget. Since the productivity impact statements required by the bill are similar in nature to the inflation impact statement required under E.O.

11821, we feel that this section of the bill will result in costly and unnecessary duplication of effort. Moreover, this requirement could significantly delay needed Federal action.

The bill also proposes a National Productivity Center (NPC) within the Department of Commerce. We have not had sufficient time to conduct an in-depth assessment of the organizational effectiveness of this arrangement. But we suspect that an independent agency would be better able to work with interested groups than would the proposed Center in Commerce. The functions of the proposed Center would appear to duplicate the functions currently being carried out by the National Commission on Productivity and Work Quality. Additionally, since the bill makes no mention of on-going Federal agency efforts to measure and enhance productivity, relationships among Federal agencies involved in these efforts should be clarified with respect to the proposed National Productivity Center. Finally, the provision of funds to the States exclusively for productivity runs counter to objectives of this Administration in reducing the use of categorical grants.

S. 4212, National Center for Productivity and Economic Competition Act

I would now like to say a few words concerning S. 4212, The National Center for Productivity and Economic Competition Act. Again, we agree with the basic themes of this bill to (1) promote labor, industry, and Government efforts to improve national productivity and work quality; and (2) identify structural obstacles to economic efficiency and competition in the United States. We prefer this bill to S. 4130, and we believe that it would represent a major improvement over existing arrangements. However, we have not analyzed it sufficiently in depth to have reached the firm conclusion that this approach cannot be improved upon. No reference has been made to other on-going Federal efforts to measure and enhance productivity in both the private and public sectors of our economy. Indeed, the present institutional arrangement, with increased statutory authority and funding, may be equally effective in achieving the purposes of this bill.

In summary, Mr. Chairman, as I have previously stated, we in GSA agree with the intent of each of these bills to improve the organization of the Nation's productivity efforts. However, important as productivity is, it is only a building block, a measurement tool, and not the end in itself. Our efforts in the Federal sector must be directed ultimately to program effectiveness and achievement of program goals and objectives. The means by which we attain these ends, and fulfill the needs and resolve the problems of the private and public sectors of our economy, lead us into far reaching areas concerning programs of all agencies. Some of our Government agencies are primarily concerned with the private sector. Other Government organizations direct most of their efforts to the public arena and some are mixed in their daily endeavors. Thus, the question of an organizational structure to promote the Nation's productivity, both in the public and private sectors, is very complex and has many dimensions. I can readily agree that current organizational arrangements are not entirely satisfactory. There is need for better leadership and increased focus. There is need to better relate the public and private concern. It may well be that creating one organization to assume overall leadership responsibility will help solve our problems, but we must remember that the needs and objectives of the private sector may be different than the public sector. Furthermore, it is necessary to examine the responsibilities of existing governmental organizations. What would happen to the very effective work done by General Accounting Office? What of the important OMB and CSC roles? I do agree, however, we must look to the private sector as well as the public sector in seeking a solution to this problem so that our mutual efforts can be better related. Therefore, we do welcome the serious exploration of some type of stronger focus and believe S. 4212 moves in the right general direction.

While we are not prepared to support S. 4130 and S. 4212 as presently drafted, we would have no objection to a bill similar to S. 4212 provided that consideration is given to the following:

1. The blanket support for any type of productivity improvement project, which appears to be suggested, could create spending problems.

2. The examination of regulatory impediments may duplicate the efforts of the proposed National Commission on Regulatory Reform.

3. It is not clear whether Federal productivity activities are to be funded or simply coordinated through the Center. If it is solely coordination, we feel that funding level is excessive.

4. Insufficient justification has been made in the bill for the development of a Federal Productivity Extension Service.

It may also develop that, in the course of considering S. 4212, some variation of the organizational arrangement will emerge that also merits serious consideration.

I would like to close by extending my appreciation to this Committee for its interest in, and support of, productivity improvement efforts.

This concludes my prepared statement, Mr. Chairman. I will be happy to respond to any questions you may have.

UNITED STATES OF AMERICA,
GENERAL SERVICES ADMINISTRATION,
Washington, D.C., December 27, 1974.

Hon. SAM J. ERVIN, JR.,
Chairman, Committee on Government Operations,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: I appreciated the opportunity of appearing before the Senate Committee on Government Operations on December 17, 1974, to comment on two Senate bills presently being considered by the Committee: S. 4130, the "National Productivity Act of 1974," and S. 4212, the "National Center for Productivity and Work Quality Art."

The members of the Committee are to be commended for their efforts to focus attention on the subject of productivity, an area of vital concern to both the private and public sectors of the American economy. As stated in my testimony before the Committee, we in GSA agree with the intent of each of these bills to improve the organization of the Nation's productivity efforts. While not prepared to support S. 4130 and S. 4212 as presently drafted, we would welcome the opportunity to assist the Committee in resolving the issues that surfaced during the course of the hearings.

As we move ahead in the resolution of these issues, we urge keeping in mind that, as important as productivity is in improving the management of programs, it is only a building block and a measuring tool, not the end in itself. Our basic efforts among the Federal departments and agencies must, it seems to us, be directed to increasing the *effectiveness* of individual Federal programs. If we overstructure and overformalize the productivity aspect of program effectiveness, we could inadvertently focus disproportionate emphasis on productivity in relation to other important factors, such as social indicators and nonquantifiable aspects of program quality. Therefore, we strongly recommend proceeding with improved productivity, but only in the context of its contribution, along with other factors, to program effectiveness insofar as its application to program management is concerned. Productivity, of course, has other uses such as economic analyses to which this note of caution has little relevance.

We are delighted at the emphasis that the Committee is giving to work quality, because no productivity program can, or should, succeed without strong emphasis on employee considerations.

In your letter inviting GSA to testify before the Committee, you asked that we express our views concerning a series of questions attached to the letter. We have enclosed our response to these questions. Additionally, I am forwarding to you a recently published document, the productivity clearinghouse bibliography,[1] designed to foster increased interagency communication on matters relating to Federal productivity improvement in the area of capital equipment acquisition and utilization.

We extend our congratulations to the Committee for its initiative and effort to strengthen nationwide efforts to improve productivity.

Sincerely,

DWIGHT A. INK,
Deputy Administrator.

QUESTIONS SUBMITTED BY GOVERNMENT OPERATIONS COMMITTEE TO HON. DWIGHT A. INK, DEPUTY ADMINISTRATOR, GENERAL SERVICES ADMINISTRATION

1. Question. Is there a need for a coordinated Government-backed productivity effort?

[1] Retained in the files of the committee.

Answer. Yes; there is need for such a coordinated effort. As you know, a coordinated Federal productivity improvement program has been underway since 1971, when the Civil Service Commission, General Accounting Office, and the Office of Management and Budget agreed to participate in the Joint Project to Measure and Enhance Federal Productivity. The Joint Project came to an end on June 30, 1973, with the publication of a final summary report which recommended the continuation and expansion of productivity improvement activities on a *permanent* basis throughout Government.

Implementation of these recommendations began in July 1973 when OMB Director Roy Ash issued a memorandum to departments and agencies, defining responsibilities for carrying out these activities as follows:

Office of Management and Budget (OMB)—General policy overview.

Civil Service Commission (CSC)—Human aspects of productivity improvement.

General Services Administration (GSA)—Mechanization, measurement systems, and methods and procedural aspects of productivity improvement.

Bureau of Labor Statistics (BLS)—Analyzing productivity measurement data and constructing indices.

Joint Financial Management Improvement Program (JFMIP) (composed of representatives from OMB, CSC, GSA, the General Accounting Office, and the Department of the Treasury)—Identifying and evaluating the causal factors affecting productivity.

This Federal program to measure and enhance productivity is well underway. Substantial accomplishments—such as the development of a Federal productivity measurement system, the establishment of information clearinghouses in both GSA and CSC, the provision of technical assistance to State and local governments, and improvements in Federal processes, procedures, and communication linkages—have resulted from this closely coordinated effort by those central agencies in the Federal structure sharing both the responsibility and concern for national productivity improvement.

We admit that current organizational arrangements are not entirely satisfactory. We believe there is a need for better leadership and increased focus. We also need to better relate the public and private concern. It may well be that creating one organization to assume overall leadership responsibility will help solve our problems, but we must keep in mind that the needs and the objectives of the public sector may differ from the private sector. However, we must look to the private sector as well as the public sector to attain the goal of better relating our mutual efforts. We do, therefore, welcome a serious exploration of some form of stronger focus that will provide the increased coordination we seek.

2. Question. What major Government department, if any, should be tasked with providing leadership in this area?

Answer. If the term "major Government department" refers to the executive branch departments (i.e., USDA, Commerce, DOD, HEW, HUD, etc.), we believe that placing leadership responsibility for this productivity effort in a "line" department is one of several alternatives. S. 4130, for example, would establish a National Productivity Center within the Department of Commerce. We have not had sufficient time to conduct an in-depth assessment of the organizational effectiveness of this arrangement. But we suspect that an independent agency would be better able to work with interested groups than would the proposed Center in Commerce. Additionally, there is also a need to clarify relationships among Federal agencies involved in present efforts to measure and enhance productivity with respect to such a productivity center.

3. Question. How should the National Commission on Productivity and Work Quality be restructured to provide policy input to the President and the governmental department or unit taking the lead on productivity?

Answer. The intent of both S. 4130 and S. 4212 is to centralize and encourage a systematic approach for improving productivity in the public and private sectors of the U.S. economy. Although we prefer S. 4212 to S. 4130 and believe that it would represent a major improvement over existing arrangements, we have not analyzed it sufficiently in depth to have reached the firm conclusion that this approach cannot be improved upon. However, as we seek the organizational arrangement that is most effective in providing better leadership and increased focus, we must also:

Examine the productivity related responsibilities of existing governmental organizations; and

Take into account the needs and the objectives of the public sector as well as the private sector.

4. Question. What State and local activities should be supported and stimulated in an effort to raise productivity?

Answer. I have listed below several ways in which the Federal Government can support State and local governments in their attempts to increase productivity.

Support State and local government attempts to develop viable, modern State and local government measurement systems unique to their method of governing. The alternative measurement approaches worthy of consideration are: performance, program, cost/effectiveness, cost/benefit, productivity, effectiveness, and line-item.

Support State efforts to establish State-wide systems for measuring local government performance and productivity. The paramount reason is to help local governing bodies, department heads, and citizens see what their governments are doing, and how well they are doing it.

Support attempts to establish systems for uniform accounting and uniform reporting of fiscal performance and productivity information by all local governments to central location within a State.

Support State and local government attempts to improve policymaking and operations.

Support State and local government attempts to more effectively use modern technology.

Support State and local government attempts to improve government planning and evaluation capabilities and procedures. Specifically,

Consideration of multiyear planning programs;

Identification of citizen and community objectives and their systematic use for planning and budgeting services; and

Provision for selecting systematic evaluation of current services and programs.

Support the transfer of technology and information on programs undertaken by one government to other State and local governments throughout the country.

5. Question. What should be the role of institutions of higher education, non-profit private organizations, and profit seeking private organizations?

Answer. We cannot clearly foresee all of the various roles, but the following suggested roles merit consideration.

Institutions of higher education should concentrate on developing effective means, based on the situation at hand, to organize human efforts so as to accomplish social goals. The *primary aim should be to seek ways to combine more efficiently human factor inputs with capital and natural resources to yield increased productivity.* While much is known about human behavior and organizational design, increased research and development efforts are needed to meet future productivity requirements. Higher education has the capacity to fulfill this need. Institutions of higher education should also be concerned with technological and procedural innovations as they relate to such areas as urban problems, health, transportation, pollution, education, employee training, etc.

Non-profit private organizations should be concerned with the problems identified above, but from a narrower focus. Appropriate involvement for these organizations would be short term studies (e.g., year or less) with an end product that would recommend courses of action for the public and private sectors.

Private industry, on the other hand, should play the role of consultant to the public sector by assisting in the transfer of information related to industrial technological innovations, behavioral science concepts and practical applications, etc.

6. Question. What role should management and labor play?

Answer. Since the Civil Service Commission has primary Federal responsibility for this matter, we defer to the Civil Service Commission in responding to this question.

7. Question. How much research and development is needed? In what direction?

Additional resources must be provided for research and development activities primary to create/devleop new techniques and improved methods that will ultimately bring about increases in productivity in both the public and private sectors. Specific areas that may warrant research and development activity are:

PUBLIC SECTOR RESEARCH

Identify new technical breakthroughs in the local government market in order to spread this knowledge throughout the country.

Analysis of the underlying structure of public employment and compensation increases over the past 10 to 15 years. Resulting data, when taken together with

measures of changing workloads, will be the necessary first step in the direction of examining the real "purchasing power" of increased government expenditures.

Measurement of budgetary implications of rising employee benefits (retirement and other fringe benefits)—cost to Federal, State, and local governments.

Establishing information and norms necessary for evaluation of public sector compensation levels—relationship between private sector pay scales and benefits, and those existing in the government sector.

Analysis of the structure of employment in the government sector: occupation-skill levels of government employees; male-female participation ratios; capital-labor ratios for different government functions.

Behavioral Science

Seek ways to combine more efficiently human factor inputs with capital and natural resources to yield increased productivity.

Develop new meaningful production incentive systems, profit sharing plans, stock ownership plans.

Technological and Procedural Innovations

Development of breakthroughs in technology related to urban problems. Examples are:

Re-equipment of entire waste disposal systems.

Cleaning polluted air.

Efficient, low-cost modular housing.

Miniaturization of equipment.

Development of solutions to urgent problems in such areas as education, transportation, pollution, and health.

8. Question. What kind of educational and informational activities are needed? What groups should be recipients of these efforts?

Answer. A noticeable lack of resources devoted to productivity oriented educational and informational activities on the part of State and local governments has surfaced during our limited number of technical assistance excursions to these levels of government. This problem could be partially alleviated by a coordinated Federal effort to promote and encourage (through funding, technical assistance visits, etc.) the establishment of State-wide productivity clearinghouses. We see this State-wide productivity clearinghouse serving as a focal point for:

Collecting and disseminating to State and local units of government information relating to productivity improvement;

Conducting periodic productivity seminars and work-shops for State and local government officials; and

Providing technical assistance to State and local units of government wishing to develop new or improve existing productivity measurement and enhancement programs.

9. Question. Should the Federal Government establish a national policy with respect to productivity

Answer. Yes; we in GSA are now actively engaged in developing productivity related policy and guidance to be disseminated to Federal departments and agencies. Within the next few months, GSA policy statements will be issued to Federal agencies concerning the collection of productivity measurement data, the acquisition and management of capital investments, and the improvement of productivity/work measurement systems. There are, of course, other productivity related matters beyond the scope of GSA responsibility, which also need to be translated into statements of national policy.

10. Question. What additional efforts should be encouraged by government at all levels to raise government productivity?

Answer. Three areas of consideration that offer some possibilities for productivity improvement if employed are:

Establishment of interagency and intergovernmental task forces to identify and report on unnecessary and duplicative activities at all levels of government;

Institution of Presidential and Governor awards to reward significant individual and group contributions to Federal, State, and local government productivity; and

Use of wage incentives on a pilot basis in selected agencies at all levels of government.

Senator NUNN. Mr. Rosen, could you summarize? I have glanced through your statement and have read most of it now.

TESTIMONY OF BERNARD ROSEN, EXECUTIVE DIRECTOR, CIVIL SERVICE COMMISSION

Mr. ROSEN. All right, Mr. Chairman, I would be happy to.

We are very pleased to be here and appear before you. Certainly from our experience over the years we feel that we need a national focal point for our separate and cooperative efforts and a coordinating mechanism which would help us to marshall the collective intelligence and energies of our society and bring them to bear on the problems that all of us share in managing these changing technologies and in creating a good and healthy work environment for people.

I would like to just make reference to one or two things that the Commission is doing and then turn to a summary of what we think needs to be given attention to, on page 4 of my testimony, Mr. Chairman.

We have established a clearinghouse on the human aspects of productivity and organizational effectiveness, and it is beginning to do some very good work in terms of disseminating information to government managers on promising techniques for organizational improvement. We want to make sure, Mr. Chairman, that various new approaches are not just fads, which when they are examined carefully really do not bring about the improvements that are touted, and so this is one of our major concerns.

Another major concern, of course, is to actually extend pilot efforts that do show promising efforts, and we are proceeding along this line. We are carrying on extensive training programs for managers so that they can make effective use of the new developments in the behavioral sciences as well as in the management sciences.

Turning, Mr. Chairman, to page 4 of my testimony, I would just like to sum up that in this whole area of improving productivity and the quality of work life, we need to organize ourselves better to use the knowledge we already have and to continue to extend its boundaries. We need to do this in a way that will not stifle diversity or creativity but will stimulate their growth and development.

We need to develop a road map for our research efforts, showing where we are today and where we need to go so that those individuals and organizations who do have the capability and interest in exploring new territory will not be duplicating each others' efforts.

We need—and we need badly, Mr. Chairman—operational models of both measurement and enhancement efforts that can be practically applied to specific situations in the public and private sectors.

We need further to look at our own policies and practices, our rules and regulations to see, within the constraints of our own separate and not necessarily compatible missions, how we can remove whatever is unnecessary, whatever is frustrating to our mutual goal of improving productivity.

And so we would conclude, Mr. Chairman, that we agree with the two measures before this committee, that they are directed toward an end that is commendable, and we support that end.

The specific provisions, however, as well as some other alternatives, need to be more completely reviewed and discussed, and I know you

have every intention to do so, and we will be happy to participate, Mr. Chairman, in your efforts as you move along.

Senator NUNN. All right, thank you Mr. Rosen, we are just trying to make a start.

[The prepared statement of Mr. Rosen and answers to questions submitted by the committee follows:]

PREPARED STATEMENT OF BERNARD ROSEN, EXECUTIVE DIRECTOR, U.S. CIVIL SERVICE COMMISSION

Mr. Chairman, I appreciate this opportunity to appear before this Committee, on behalf of the United States Civil Service Commission, to present our views on the development of a strengthened national effort to stimulate improvements in productivity and quality of work life. The Civil Service Commission is in agreement with the basic objective of both S. 4130 and S. 4212.

For the past 4 years, we have been a partner, with GAO, OMB, and GSA, in collaborative efforts to measure and enhance productivity in the Federal government. We have worked closely with the National Commission on Productivity and Work Quality in developing new approaches to productivity improvement in both the Federal sector and State and local governments; and we are heavily engaged in efforts of our own to improve the personnel management aspects of productivity—the effective utilization of people in government.

From our experience over the years, we feel that we need a national focal point for our separate and collaborative efforts and a coordinating mechanism which would help us to marshal the collective intelligence and energies of our society and bring them to bear on the problems that all of us share in managing changing technologies and in creating a good and healthy work environment for people.

For the most part, up to now, the key players in this effort have been moving out on their own—we in government, business and industry, the academic world, and parts of organized labor have all been active, but our efforts have been fragmented and uncoordinated. We suspect, for example, that there may be overlap or duplication of research efforts because so much is going on in so many different places.

The Civil Service Commission has recently established a Clearinghouse on the human aspects of Productivity and Organizational Effectiveness to serve as a focal point for productivity efforts in government and to disseminate information to government managers on promising techniques for organizational improvement. We first surveyed the Federal establishment to find out what people were doing in this regard and what the results were. One of our concerns is that government managers not blindly accept every new prescription for management improvement that comes along from the behavioral and management sciences. We want to gather evidence to identify those that bring about real improvements and to understand how they work before we advocate their general adoption.

As a result of our survey, we are now launching a long term research and demonstration effort which will look at experiments in such areas as flexible work hours, job redesign, organization development, revised incentive systems, and other promising organization improvement techniques. As we learn how these techniques work and the conditions for their success, we will disseminate that information through the Clearinghouse.

In addition to this R&D effort and the information Clearinghouse, we are making a strong effort to incorporate the analysis of productivity measurement data into our regular personnel management evaluation system. By analyzing productivity increases and declines we will be able to identify problem areas in personnel management and move more quickly toward their solution.

In our courses for managers and in our management sciences curriculum we are focusing on the skills needed for measuring productivity and organizational performance. And we are leading a government-wide effort to measure the productivity of the training function itself.

One further point of information on related developments in the national government—we reviewed 2548 agreements negotiated by Federal agencies and unions of Federal employees and found that 35 agreements include provisions on productivity. These include clauses dealing with work standards and measurement, cost reduction programs, and joint productivity committees.

We are working with State and local governments for improved personnel management under the Intergovernmental Personnel Act in order to improve the capacity and performance of government.

While all these activities are now being carried out in coordination with other government agencies, we feel they will benefit from stronger information linkages not only to our sister agencies but to parallel activities in the private sector. We have much to learn from one another. Our efforts would further be enhanced by cooperative policy leadership among high level representatives from those segments of society which have a deep concern for productivity—business and industry, organized labor, the universities and government.

Mr. Chairman, the National Commission on Productivity and Work Quality was designed originally to fulfill this need for coordination and leadership. It has performed many tasks well within the limits of its resources and its charter. Of course, successful national effort requires clear goals, the identification of individual and collective responsibilities for meeting those goals, and a marshalling of the needed resources.

In this whole area of improving productivity and the quality of work life:

We need to organize ourselves better to use the knowledge we already have and to continue to extend its boundaries.

We need to do this in a way that will not stifle diversity or creativity but will stimulate their growth and development.

We need to develop a road map for our research efforts, showing where we are today and where we need to go so that those individuals and organizations who have the capability and interest in exploring new territory will not be duplicating each others efforts.

We need operational models of both measurement and enhancement efforts that can be practically applied to specific situations in the public and private sectors.

We need further to look at our own policies and practices, our rules and regulations to see, within the constraints of our own separate and not necessarily compatible missions, how we can remove whatever is unnecessary, whatever is frustrating and inhibiting to our mutual goal of improving productivity.

An effort of this magnitude and complexity has to be one with many partners. We do not see this as a task for a single, monolithic organization. Rather, what we believe would be useful is a channeling of leadership, information, and resources to the places where they are needed—a drawing together of the separate parts of our society in a shared, collaborative undertaking, each of us doing what we can do best to improve the whole.

The two measures before the Committee are directed toward that end. Their specific provisions as well as other alternatives will need more complete review and discussion. We would like, Mr. Chairman, to have a further opportunity to comment on the details of the proposed legislation at an appropriate later date.

Thank you, Mr. Chairman. I will be happy to answer any questions.

QUESTIONS OF COMMITTEE ON GOVERNMENT OPERATIONS, TO BERNARD ROSEN, EXECUTIVE DIRECTOR, U.S. CIVIL SERVICE COMMISSION, WITH RESPONSE

Question. How do the Federal employee labor unions feel about the government productivity effort?

Answer. Their major concern is job security, naturally, especially in today's difficult labor market. So they want assurance that increasing their productivity won't mean working themselves out of a job.

But there is also clear evidence that they see a mutuality of interests. Besides being government employees, they are taxpayers, and the union leaders are underscoring the need for improved productivity and increased quality of service to the American public.

They also want to bargain productivity matters. They want management to consult with them and they complain that management frequently overlooks the good ideas that employees have about their jobs.

They are also concerned about what they consider to be arbitrary personnel ceilings and with contracting work out. This again hits at the job security issue.

But clearly they are supportive of the national need and want to participate in productivity improvement efforts.

Senator NUNN. I have found out over a period of time, you get a lot of attention, at least within government, if not other places, by introducing something, it has to be started.

I think we have seen more progress in the six weeks—on productivity—since my bill was introduced than we have in the past year-and-a-half, at least from the point of view of people, getting their attention, and getting some movement.

The President's statement on inflation impact, I believe, was late November. Now, the impact of inflation, it seems to me, is certainly related to a productivity impact statement. Of course, the bill had already been introduced when you made that statement. I know Mr. Ink had something in his statement which I read about the duplication there, and I certainly agree, there would be a duplication. I want to find out more about what the President intends, and how it is going to be implemented.

It seems to me what we really need is an economic impact statement. Inflation is the main problem now, but if we are building something in the future, inflation may not be such a problem. We have to know what the inflationary effect of certain actions also is, so I think an economic statement is almost synonymous with a productivity statement and would encompass both what the President has in mind as well as the productivity-recession. But we do not need them all. I do not see how anybody could go through the mental process of determining the effect on inflation without also going through the mental process simultaneously, determining the overall economic effect and the productivity effect.

Certainly it is not my intention to require a duplicate effort. If any of you do, within your agencies, have jurisdiction over the development of that program, if you could submit for the record any comments you might have about how the President is going to try to implement the program, and who is going to be responsible for it.

If you do not have that jurisdiction, if you could let us know, we will try to find the information elsewhere. Do you know offhand who has got jurisdiction over implementing that Inflationary Impact Study? neously, determining the overall economic effect and the productivity

Mr. INK. OMB has the responsibility for implementing that.

Senator NUNN. Well, each agency, I assume would have to be involved.

Mr. INK. Yes, basic responsibility lies with each agency, which is true of everything we are talking about. The productivity program that is now——

Senator NUNN. Is that going to duplicate to some degree efforts on productivity in both GSA and Civil Service? I mean we have got three agencies already identified right now that are dealing with productivity.

Mr. INK. It does not duplicate our effort, and I do not think it duplicates the Civil Service Commission program.

Mr. ROSEN. No, sir.

Senator NUNN. But you are all going to have a hand in the productivity efforts of the Federal Government?

Mr. ROSEN. Yes, and they are divided rather precisely. We work very closely with the GSA people. Their concern is in the capital investment area, for example. Our concern is in the human areas, Mr. Chairman.

We are able to address these without duplicating each other.

Senator NUNN. Thank you very much for coming. I have got the 5-minute bell up there now. I would like to conclude the hearings, but I look forward to working with you, and I particularly appreciate your effort in determining Federal productivity and leading the way. I think it is very commendable.

Mr. STAATS. Mr. Chairman, if it would be helpful, we would be glad to work with your staff in responding to specific questions that you have not had a chance to develop today.

Senator NUNN. Who in your organization shall we work with?

Mr. STAATS. Mr. Tom Morris.

Senator NUNN. Thank you very much.

[The information referred to follows:]

QUESTIONS OF THE COMMITTEE ON GOVERNMENT OPERATIONS, U.S. SENATE, TO ELMER B. STAATS, COMPTROLLER GENERAL OF THE UNITED STATES, WITH RESPONSE

Question. Does the GAO have plans for auditing the productivity efforts of Federal agencies?

Answer. About half of GAO's audit effort is devoted to reviews of economy and efficiency in Federal activities, including their utilization of human and material resources. In this respect we devote a great deal of attention to performance and productivity improvements by searching out opportunities for greater economy in functions such as purchasing, maintenance, base operations, ADP facilities, personnel management and many others.

In respect to formal productivity systems, we view our participation in the JFMIP (Joint Financial Management Improvement Program), where an annual review of Federal productivity trends will take place, as an important contribution to productivity measurement and analysis.

Question. How will GAO assist agencies to measure and enhance productivity?

Answer. GAO will actively participate in the efforts of the Joint Financial Management Improvement Program whose objective is to prepare an annual review of trends in productivity and to identify ways of enhancing productivity in selected functional areas, including mass clerical operations, industrial activities, Government-operated health care activities, administrative services, etc.

Question. What, in your opinion, are the major obstacles to productivity improvement in the Federal government?

Answer. Based on our analysis of the factors causing productivity increases and decreases, the major obstacles to productivity may be summarized as follows:

1. Lack of proper incentives for both managers and employees to improve productivity
2. Organizational and administrative rigidities which hamper management efforts
3. Difficulty in obtaining funds for capital equipment and facilities on a timely basis
4. Sudden changes in program or workload requirements
5. Lack of attention toward performance measurements as a management tool for identifying opportunities for productivity improvements

It is our opinion that these obstacles are applicable to all parts of the public sector.

Question. Will a strong emphasis on productivity lead to a decrease in quality of service?

Answer. It must be remembered that productivity measures are simply an after-the-fact scorekeeping device, measuring the efficiency with which resources are utilized. They do not reveal whether the task was worth doing, the quality of the completed task, or who benefited. Therefore, it is very important to assess these factors, as well as to measure productivity. It is especially important in service operations that the quality of the service and customer satisfaction be measured. Without such measures, the productivity of an operation may be increasing at the sacrifice of quality.

We recently conducted a workshop on quality measurement, attended by over 250 agency representatives to demonstrate various approaches to quality measurement and to discuss how managers should relate measures of quality to productivity. If a manager is to make accurate decisions on tradeoffs between quality and productivity, then he must have available to him both measures. In this way he can continually assess the impact of productivity change on quality.

Several agencies have developed comprehensive quality measurement systems to complement the productivity measurement system, such as the Postal Service and Social Security Administration. We are providing technical assistance to several other agencies to develop quality measures.

Question. Can you compare the productivity of similar functional areas of Government with that of the private sector? For example, health care, printing, and clerical operations?

Answer. We hope so, and we are presently looking at such areas as power generation, ADP operations, library operations, printing, hospitals, and administrative functions to see if comparisons are feasible.

Question. What is the Federal government doing to enlist the cooperation of organized labor in efforts to measure and improve productivity?

Answer. Each year we invite Union representatives to attend a detailed briefing on the past year's results. We discuss not only the measurement effort but problems involved in improving productivity. In addition, in all experiments we have conducted on the behavioral aspects of productivity improvement; we invite involvement and support of appropriate Unions.

Question. Are there opportunities for productivity gains in manufacturing plants working on government contracts?

Answer. GAO has been interested in applying industrial engineering techniques to make government more effective in negotiating non-competitive contracts as well as spot-lighting opportunities for increased efficiency in defense contractor plants.

In 1969 GAO issued a report to Congress pointing out the benefits of making "should cost" studies and since then we have been monitoring the practices of military departments applying this technique.

We believe there are significant opportunities to encourage greater productivity by equipping contracting officers with industrial engineering survey data which highlight cost saving possibilities. We also believe that the military services should make periodic industrial management surveys of contractor's facilities to highlight methods by which costs can be reduced through the evaluation of equipment usage, layout and material flow, quality assurance techniques, and others.

Question. What is GAO planning to do in the area you just described?

Answer. GAO is now in the process of initiating industrial management reviews of several defense contractors engaged in the production of small military missiles. The objectives of this review are:

1. To identify, through the application of industrial engineering and financial management practices and principles, ineffective, uneconomical, and inefficient areas of the contractor's operations, and where possible recommend improvements that will result in greater efficiency and economy.

2. To gather contractor data to develop quantitative management performance indicators.

3. Determine the extent the manager is employing material conservation practices and programs.

Question. Why do you think stronger Federal leadership is important in the area of productivity?

Answer. I believe these hearings have demonstrated from many different perspectives an agreement on the need for a strong central productivity effort stimulating both the public and private sectors. The major objective of this effort must be to do more with less resources while preserving acceptable standards of quality.

We need an aggressive, knowledgeable leadership group stimulating the best efforts of managers to affect such improvements, communicating the most successful practices, providing recognition for accomplishment, coordinating the many efforts now taking place and finally investing in long leadtime research and demonstration projects which are beyond the capacity of individual organizations.

Question. Why is GAO concentrating on the manufacture of parts and components produced in medium and small lots?

Answer. Manufacturing may be generally divided into two types of industries; i.e., continuous process industries, such as oil and steel refining, and those which make discrete parts, such as the automobile, machinery and equipment industries.

In our opinion, the continuous process industries are adequately capitalized and they have well developed applications of automated techniques. The same may be said of the high volume, mass production discrete parts industries.

However, over 80 percent of the manufacturing establishments in the country are small firms employing less than 500 people. It is these small firms which we believe have the best potential for improved productivity through the application of manufacturing techniques developed during the late 1950s and early 1960s.

Question. Have you found well developed productivity centers in other countries?

Answer. We have found that in both Europe and Japan there are either well developed Government operated or Government supported productivity centers. In addition to formal productivity centers, there are also well developed—but less formal—institutional arrangements in those areas amongst the Government, universities, private industry, and labor for encouraging technological developments and diffusion of technology throughout their industrial bases.

The European productivity centers have associated together in a "European Association of National Productivity Centers." The Association members meet periodically to exchange information and experience and to arrange cooperation among the participating bodies. The Association has a staff with offices in the Belgian Productivity Centre. The Association issues publications on an irregular basis, publishes an annual program and report, and publishes a monthly newsletter, "Europroductivity."

Senator NUNN. These hearings will be concluded. For anybody who has anything to add for the record, we will keep the record open for at least another 3 weeks.

Thank you very much.

[Whereupon, at 4:50 p.m., the committee was adjourned, subject to the call of the Chair.]

APPENDIX

[From the Congressional Record, Oct. 10, 1974]

REMARKS OF SENATOR NUNN ON INTRODUCING BILL S. 4130

Mr. NUNN. Mr. President, I introduce on behalf of myself, Senators Bartlett, Chiles, and Domenici, a bill to establish a Federal productivity policy; to provide for a review of Federal laws, regulations, and policies; to establish a National Productivity Center within the Department of Commerce; to authoirze a program of grants; in order to promote productivity growth in all sectors of the economy; and for other purposes.

On several earlier occasions I have addressed this body on the importance of productivity growth as one element of a comprehensive action plan to combat our Nation's economic problems. The reports by each of the presummit chairman to the President at the Summit on Inflation almost unanimously recommended some action with respect to productivity. The President, in his address to the Congress, noted the importance of productivity and commented upon the continuation of the National Commission of Productivity and Work Quality. I am disappointed that he did not have a more definitive statement on productivity. It is imperative to increase our national productivity for the country to ever have an increase in real income. I am, therefore, introducing detailed legislation addressing this specific problem.

Many have attributed the success of the American economy since the end of World War II to the fact that productivity has almost doubled in the past 25 years. Productivity in the private economic sector has grown at a rate of 3.1 percent per year since 1947. In 1969 and 1970, productivity growth declined, but experienced some increase in 1971 and 1972. It declined again in 1973 and that decline has continued in 1974. A comparison of U.S. productivity growth rates with those of other industrialized countries reflects a more alarming decline compared to the growth rates in Japan and Western Europe, the United States has definitely moved to the bottom of the charts.

A healthy rate of productivity growth means that our economy can support a steadily rising rate of wages without necessarily forcing a major increase in prices. It also means this Nation's products are more competitive in world markets. The absence of productivity growth during this past year has intensified inflationary pressures throughout the economy and decreased our competitive edge with exports in a crucial balance-of-trade area.

No single action—law, Executive order, or private decision—can possibly have a prompt positive effect on productivity growth. However, I believe there exist a series of coordinated actions which can have a beneficial long-term effect on productivity growth if they are pursued promptly. I have studied the recommendations contained in the various summaries contributed by each of the presummits at the Conference on Inflation. I believe they are useful in formulating legislation designed to deal with productivity growth and I recommend them to my fellow Senators. I have also considered a number of proposals provided by those with whom I met in Pittsburgh at the business and manufacturing presummit and others submitted to me by fellow Georgians and other interested Americans.

The series of coordinated actions which I believe essential would address each of the major factors affecting productivity. These include:

(a) Capital Investment.
(b) Technological advances.
(c) Work Force skills.
(d) Structure of private industry.
(e) Labor and management programs.
(f) Government programs.

A new focus on productivity and its impact is needed, John M. Stewart, former Executive Director of the National Commission on Productivity and now a management consultant, was quoted by Industry Week of July 8, 1974, as follows:

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Among the 2.5 million civilian employees within the federal government, there is no department or person with any responsibility for evaluating or even monitoring the effect of federal actions upon the ability of the U.S. private sector to create wealth—let alone upon productivity improvement or a climate to facilitate the creation of wealth.

> We should then seek to bring about an entity in government with the power to challenge the actions of government on the basis of productivity impact . . .

The summary presented by the Labor Conference on Inflation stated:

> The potential of such efforts as the National Commission on Productivity to improve productivity is high, but the NCOP itself has been moribund. Its revitalization or the instituting of a new body interested in the problem would be a useful step toward improving the productivity of American industry. Joint management-labor planning in this area would be helpful, but an essential spur to such an effort is aid by the federal government. Even now, productivity improvement has been built into some contracts, and this should expand, provided the worker is protected.

The National Commission on Productivity and Work Quality has done some excellent pioneering efforts. But it has suffered from lack of staff, lack of funds, uncertainty as to continued existence, and numerous changes in direction, some congressionally mandated. It can continue to perform a useful role in advising the President and examining national policy.

The framework for an action program must be a strong Federal policy with respect to productivity and widespread recognition of the need to consider the impact of Government laws, regulations, and policy on productivity. Mr. Lee Loevinger, of Hogan and Hartson, probably said it best in his statement to the Business and Manufacturing Conference on Inflation when he stated:

> Mainly, however, it is because Government action takes place through numerous agencies and is based on numerous statutes, each of which is concerned with a particular field or subject and that each agency is pursuing particular objectives within its own field and simply does not recognize or believe that overall economic productivity, efficiency and price stability is a significant part of its responsibility. In effect, each agency says we will enforce our own rules and problems of productivity. Efficiency and inflation are not our job. Unfortunately, in reviewing agency action, courts almost invariably take the same attitude.

Thus, legislation dealing with productivity must provide an effective declaration of Federal policy which provides guidance for Federal agencies and for judicial review. Such guidance should be accompanied by a requirement for review of all existing laws, regulations, and policies. This review would insure consistency with that policy and include recommendations for legislative action to provide that consistency. Such a review should not be limited to the past and present. A continuing review, including a regular periodic review and request for legislative action, would provide the means to continually update statutes and regulations to insure their applicability to modern day methods and technologies.

This is nothing new in legislation. The Environmental Protection Act provided such a declaration of policy, agency, and court guidance.

Mr. President, the legislation I am introducing provides a declaration of Federal policy and a requirement to review existing laws and regulations to insure consistency with that policy.

James R. Miller, associate dean of the School of Business Administration of Georgia State University, writing in an editorial in May–June 1974 issue of the Atlanta Economic Review, which was devoted to productivity, job enrichment, and worker participation, stated:

> What is not quickly recognized by the casual observer is that to review the research studies and to communicate with persons involved in this subject, in industries and universities, in the United States and abroad, requires a great deal of time and effort.

Illustrative of the lack of dissemination of this information is a comment by Richard C. Gerstenberg, chairman of the board and chief executive officer of General Motors:

> I've been actually astonished at how few of the major companies we've met who even know what productivity is.

Thus, there is a pressing need to gather, analyze, and disseminate productivity information. And, there is a pressing need to provide technical assistance and the results of research and development, especially at the local level to industry

and Government. A national focal point for information gathering and dissemination is needed. More importantly, education, information dissemination and technical assistance at the local level is needed. It is not enough to educate and inform. The problems need analysis and solution. Local technical assistance can be the answer to this need. Mr. President, the legislation I am introducing provides for a small National Productivity Center within the Department of Commerce to carry out the national level functions.

D. C. Burnham, chairman of the Westinghouse Electric Corp., in a thoughtful and very useful statement to the Business and Manufacturing Conference on Inflation, made the following observations concerning productivity and agriculture:

> To determine how we should proceed to improve productivity in the future, let us examine how we have achieved past progress. The tremendous advance in American agriculture was no accident. It was the result of a massive effort aimed directly at productivity improvement.
>
> That effort began when Abraham Lincoln signed two acts in 1862. One created the Department of Agriculture and the other established, through grants of public land, state colleges throughout the country primarily for agriculture and the mechanical arts. A third legislative act, a generation later in 1887, provided for agricultural experiment stations wherein the research and new methods developed at the colleges could be tested under carefully controlled conditions.
>
> The fourth important piece of legislation which completed the organization of this major productivity movement came in 1914 with the Agricultural Extension Act. It created a network of County Agents—skilled agricultural experts who could go out to the farmer and work with him on his own farm, instructing in new and improved methods, helping organize 4-H Clubs for the youth, and agricultural societies and granges for the adults.
>
> The remarkable part of the century-long productivity effort is that it successfully reached millions of independent farmers scattered throughout the United States and sold them on the idea of putting new and better methods into use. It achieved this despite the natural conservatism of the farmer and despite the handicaps of slow communication and great distances.
>
> This indicates that the most important element in productivity improvement is planning and organization. It doesn't just happen. In agriculture it has been achieved by 100 years of emphasis on planning, organization and research.

I was especially interested in his remarks because of my knowledge of a very interesting program being conducted by the Georgia Institute of Technology, Engineering Experiment Station.

In order to speed up the delivery of improved technology, the representatives of the Georgia Tech Experiment Station, functioning essentially as "county extension agents," visit companies and trade groups throughout the State and identify specific productivity problems. Next, they assist the industry in finding and implementing solutions to deal with these problems.

The Georgia program is already achieving meaningful productivity gains in several industries. I believe that this concept can be employed throughout our country by drawng upon the expertise of the academic community or by establishing separate State or regional productivity centers to assist industries in the implementation of improved technology and management systems to increase productivity.

Mr. President, the legislation I am introducing provides for a program of grants to assist institutions of higher learnings possessing such engineering experiment stations, regular engineering, business, and public administration schools, to establish productivity centers to provide information and technical assistance at the local level to meet this need and provide assistance to local, especially small- and medium-size manufacturing and service industries and governmental units.

R. L. Yobs, assistant director of the Georgia Tech Engineering Experiment Station, commented in a letter to me as follows:

> Creativity is an essential ingredient in the improvement of productivity and both state and national program policy should encourage new and innovative approaches.
>
> In addition to these comments, we would also observe that while organizations of independent laboratories or consulting engineers are sometimes critical of public programs of assistance to industry, we have found it

possible in our experience not to compete with the interests of such groups. In fact, we often act as a broker in relating an industrial need to a consulting organization.

Thus, I believe an active, creative program of assistance at the State and local levels could greatly benefit in increasing productivity, use available institutions of higher education, and not affect, but rather complement private sector services of a similar nature.

This "extension service" of information and technical assistance should be aided by an active Federal, State, local, and private research and development program funded through Federal and matching grants. Research and other efforts by the National Science Foundation such as the research applied to national needs program should be actively encouraged. This legislation contains a grant program to provide such research and development aid.

Outstanding efforts to achieve increased productivity growth by individuals, institutions, industries, and governments should be recognized at the Presidential level by presentation of an appropriate award. This would further serve to educate and inform the American people concerning the importance of productivity. It would also provide recognition and incentive to those who invest time and effort and contribute creatively to the raising of productivity growth rates. An award program is provided by this legislation.

In order to insure that government at all levels contribute to this effort, some provision should be included in legislation for the establishment in the Federal agencies of a small staff to actively pursue the upgrading of inhouse productivity. Similar State and local efforts should be encouraged. Some outstanding efforts have been undertaken at local levels and these should be broadly publicized to encourage similar efforts by others.

This legislation provides for establishment of a staff, from existing resources, within each Federal agency to achieve these goals.

In summary, this legislation provides for:

(a) A strong federal policy statement on productivity as guidance to federal agencies and courts in measuring and considering the impact of laws, regulations and policies on productivity;

(b) A review of all existing and future laws, regulations and policies to insure compatibility with the federally declared productivity policy;

(c) A national focal point for gathering, disseminating productivity information, coordinating research and development, providing grants, insuring that federal policy is being carried out, and preparing annual and other reports required by law;

(d) A grant program to provide for research and development and information gathering;

(e) A grant program to provide for state and local initiatives principally using institutions of higher education to establish productivity centers and technical assistance programs; and

(f) A federal agency effort to increase internal productivity.

93D CONGRESS
2D SESSION

S. 4130

IN THE SENATE OF THE UNITED STATES

OCTOBER 10, 1974

Mr. NUNN (for himself, Mr. BARTLETT, Mr. CHILES, and Mr. DOMENICI) introduced the following bill; which was read twice and referred to the Committee on Government Operations

A BILL

To establish a Federal productivity policy; to provide for a review of Federal laws, regulations, and policies; to establish a National Productivity Center within the Department of Commerce; to authorize a program of grants; in order to promote productivity growth in all sectors of the economy; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Productivity Act of 1974".

TITLE I—STATEMENT OF FINDINGS AND PURPOSES

SEC. 101 The Congress finds that—

(1) the decline in the rate of productivity growth

in the United States has contributed to inflation and adversely affected the competitive position of the United States in world markets;

(2) the accumulation of laws, regulations, and procedures over the years has in the aggregate adversely affected productivity growth;

(3) the production base of the United States has not improved nor implemented new technology at a pace consistent with increased productivity growth;

(4) industry, services, and government have all suffered a decline in productivity growth;

(5) failure to consider the impact of proposed governmental action on productivity has been a significant factor in the decline in productivity;

(6) productivity and its effect on the economy, inflation, and the competitive position of the United States in world markets is little understood by all elements of American society and information on productivity improvement difficult to obtain.

SEC. 102. The purposes of this Act are:

(1) to establish a national policy which will encourage productivity growth consistent with economic needs and the needs to protect the environment and the work force;

(2) to promote efforts which will stimulate the

adoption of new methods and technology by all sectors of the economy, industry, services, and government; to promote efforts to continuously review and improve the efficiency and morale within all sectors of the economy;

(3) to increase the understanding of the role of productivity and its importance to the Nation; and

(4) to establish a National Productivity Center within the Department of Commerce.

SEC. 103. The Congress, recognizing the importance of productivity to all sectors of the Nation's economy, particularly the importance of new technology, better management, improved labor relations, governmental regulation, and efficient allocation of capital; and recognizing further the importance of coordinating the need to promote a high rate of productivity growth with the need to preserve the environment and promote the health and safety of the work force, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general economic welfare, to provide the stimulus to a high rate of productivity growth, and fulfill the social, economic, and other needs of all Americans, present and future.

SEC. 104. In order to carry out the policy set forth in this Act, it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to improve the coordinate Federal plans, functions, programs, and resources to the end that the Nation may:

(1) assure for all Americans a sound and productive economy;

(2) provide for a sustained, high rate of productivity growth in all sectors of the Nation's economy;

(3) achieve a balance between the need to preserve the environment and provide for the safety of the work force and the need to insure a high rate of productivity growth;

(4) provide for the most efficient application of capital to achieve the balance cited in clause (3);

(5) achieve a balance between the need for new technology and the need of the work force for stability and utilization of existing skills or acquisition of new, upgraded skills;

(6) enhance industrial capacity to provide the most efficient production base, insure the quality and supply of renewable resources and promote the maximum reuse of depletable resources.

SEC. 105. The Congress recognizes that a high rate of

productivity growth is essential to a stable, sound economy capable of providing for the general welfare, health, and happiness of all Americans.

TITLE II—COOPERATION OF AGENCIES; REPORTS; AVAILABILITY OF INFORMATION; RECOMMENDATIONS; INTERNATIONAL AND NATIONAL COORDINATION OF EFFORTS

SEC. 201. The Congress authorizes and directs that, to the fullest extent possible:

(1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in the Act, and

(2) all agencies of the Federal Government shall:

(A) use a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences, engineering disciplines, safety and environmental design arts in planning and decisionmaking which may have an impact on productivity;

(B) identify and develop methods and procedures, in consultation with the National Productivity Center established by title III of this Act, which will provide for the standards and measurements to be used in assessing the impact of proposed actions on productivity;

(C) include in every recommendation or report on proposals for legislation, in every major program recommendation contained in the President's budget and other major Federal actions significantly affecting productivity, a detailed statement by the responsible official on:

(i) the impact on productivity of the proposed action,

(ii) any adverse economic effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,

(iv) the relationship between the maintenance and enhancement of long-term productivity and effects on the environment,

(v) the efforts made to provide a systematic and comprehensive approach incorporating all relevant considerations including efficiency, energy, environment, and safety considerations,

(vi) the benefits to be gained by the proposed action versus the cost of implementation, the anticipated short-term capital requirements versus the anticipated life of the proposed action, and the expected life of the proposed action

versus the expected initiation of successor action,

(vii) prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any productivity impact involved. Copies of such statement and the comments and views of the appropriate Federal, State, and local agencies which are authorized to develop and promote productivity growth, shall be made available to the President, the Secretary of Commerce, the National Productivity Center, and to the public as provided by section 552 of title 5, and shall accompany the proposal through the existing agency review processes. In the case of proposed legislation, said statement shall accompany the legislation when submitted to the Congress.

(D) study, develop, and describe appropriate alternatives to recommend courses of action in any proposal which involves unresolved conflicts concerning the impact on productivity of proposed actions;

(E) recognize the importance of productivity in any proposed long-term solution to the economic crisis facing the world and, where consistent with the interests of the United States, provide appropriate support to initiatives, resolutions, and programs designed to maximize regional and international cooperation in anticipating and preventing adverse actions affecting productivity;

(F) make available to States, counties, municipalities, institutions, industry, and individuals, advice and information useful in maintaining, enhancing, and promoting sustained productivity growth;

(G) generate and use productivity information in the planning and development of projects and programs to enhance internal productivity;

(H) assist the National Productivity Center established by title III of this Act;

(I) establish a small, directorate level staff to promote internal productivity, study present organization to improve operations, review, and reinvigorate present incentive, suggestion, safety, and other programs designed to enhance internal productivity, and provide for improved operations, maintain a current awareness program on productivity improvement in general as well as Federal

level studies to improve governmental efficiency undertaken in accordance with legislation or Presidential direction and provide for the adoption and implementation of those recommendations of such studies which are applicable to the agency.

SEC. 202. All agencies of the Federal Government shall review their present statutory authority, administrative regulations, and current policies and procedures for the purpose of determining whether there are any deficiencies or inconsistencies therein which prohibit full compliance with the purposes and provisions of this Act and shall propose to the President not later than July 1, 1975, such measures as may be necessary to bring their authority and policies into conformity with the intent, purposes, and procedures set forth in this Act. Thereafter all agencies shall provide for continuous review and shall propose to the President at least once every four years such measures as may be necessary to bring their authority and policies into conformity with the intent, purposes, and procedures set forth in this Act and determined to be appropriate in light of the most recent advances in areas affecting productivity.

SEC. 203. Nothing in this title shall in any way affect the specific statutory obligations of any Federal agency (1) to comply with productivity policy, (2) to coordinate or consult with any other Federal or State agency, or (3)

to act, or refrain from acting contingent upon the recommendations or certification of any other Federal or State agency.

SEC. 301. The President shall transmit to the Congress annually beginning July 1, 1975, a productivity report (hereinafter referred to as the "report") which shall set forth (1) the status and condition of the major factors affecting productivity, including, but not limited to, capital investments, technological advances, structure of private industry, labor programs, management programs, government programs; (2) current and forseeable trends in the quality, quantity, management, and use of these elements and the effects of these trends on the economic and other requirements of the Nation; (3) the adequacy of the productive base of the Nation for fulfilling the economic requirements of the Nation in the light of anticipated growth and available resources; (4) a review of the programs and activities (including regulatory activities) of the Federal Government, the State and local governments, industry, labor, and other nongovernmental entities or individuals, with particular reference to their effect on productivity; and (5) a program for remedying deficiencies of existing programs and activities, together with recommendations for legislation.

SEC. 302. (a) There is established within the Department of Commerce the National Productivity Center (here-

inafter referred to as the "Center"). The Center shall be headed by a Director, who shall be appointed from civilian life by the President by and with the advice and consent of the Senate. Under the supervision and direction of the Secretary of Commerce, the Director shall be responsible for the exercise of all powers and the discharge of all duties of the Center, and shall have authority and control over all personnel and activities thereof.

(2) There shall be in the Center a Deputy Director, who shall be appointed from civilian life by the President, by and with the advice and consent of the Senate and shall perform such duties and exercise such powers as the Director may prescribe. The Deputy Director shall act for, and exercise the powers of, the Director during his absence or disability.

(3) In carrying out his functions the Director shall assist and advise the Secretary of Commerce and the President on policies and programs of the Federal Government affecting productivity by—

(A) assisting the Federal agencies and departments in appraising the effectiveness of existing and proposed programs, policies, and activities of the Federal Government and those specific major projects designated by the President which do not require individual project authorization by Congress, which affect productivity;

(B) reviewing the adequacy of existing standards

and measures for productivity and providing for the monitoring of productivity consistent with those standards and measures in order to achieve effective coverage and efficient use of research facilities and other resources;

(C) promoting the advancement of scientific knowledge of the effects of actions and technology on productivity and encourage the development of new techniques and technology to improve productivity;

(D) assisting in coordinating among the Federal departments and agencies those programs and activities which affect, promote, and improve productivity;

(E) collecting, collating, analyzing, interpreting, and disseminating data and information on productivity;

(F) administering grants to States and localities in accordance with section 307 of this Act;

(G) conducting an annual National Conference on Productivity; and

(H) preparing the annual report required in section 301 of this title.

SEC. 303. In exercising his powers, functions, and duties under this title, the Director shall—

(1) consult with the National Commission on Productivity and Work Quality;

(2) use, to the fullest extent possible, the services, facilities, and information (including statistical infor-

mation) of public and private agencies and organizations, and individuals, in order that duplication of effort and expense may be avoided, and assuring that the Agency's activities will not unnecessarily overlap or conflict with similar activities authorized by law and performed by other established agencies.

SEC. 304. Unless otherwise provided by law, the Director is authorized to employ no more than one hundred personnel, including consultants and experts, to carry out the functions of the Agency as provided by this Act.

SEC. 305. Each productivity report required by this title shall, upon transmittal to Congress, be referred to each standing committee having jurisdiction over any part of the subject matter of the report.

SEC. 306. (a) It is the purposes of this section to provide for and encourage research and development for the purpose of improving productivity, adoption of new technology, and dissemination of information concerning new developments and technology associated with productivity improvement.

(b) The National Productivity Center, is authorized—

(1) to make grants to, or enter into contracts with, public agencies, institutions of higher education, or private organizations, to conduct research, demonstrations, or special projects pertaining to the purposes described

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in this title, including the development of new or improved methods, techniques, systems, equipment, and devices to improve and stimulate productivity growth;

(2) to make continuing studies and to establish with the National Science Foundation programs of research to develop new or improved methods, techniques, systems, equipment, and devices to improve and stimulate productivity growth, including, but not limited to, the effectiveness of projects or programs carried out under this title;

(3) to make recommendations for action which can be taken by Federal, State, and local governments, industry, labor, and other private organizations and persons to improve and stimulate productivity growth;

(4) to conduct special workshops, conferences, and other forums for the presentation and dissemination of information resulting from research, demonstrations, and special projects authorized by this title;

(5) to carry out a program of collection and dissemination of information obtained by the Center or other Federal agencies, public agencies, institutions of higher education, or private organizations engaged in projects under this title, including information related to new or improved methods, techniques, systems, equipment, and devices to improve and stimulate productivity growth.

(c) A grant authorized under this section may be up to 100 per centum of the total cost of each project for which such grant is made. The Center shall require, whenever feasible, as a condition of approval of a grant under this subtitle, that the recipient contribute money, facilities, or services to carry out the purposes for which the grant is sought.

SEC. 307. (a) It is the purpose of this section to encourage States, units of general local government, and institutions of higher education, to develop and implement centers, programs, and projects to improve and stimulate productivity growth, dissemination of information, and make available technical assistance to government, labor, industry, and other organizations and persons to improve and stimulate productivity growth.

(b) (1) A State, unit of general local government, or institution of higher education, desiring to receive a grant under this section for any fiscal year shall, consistent with the basic criteria which the Center establishes under this title, incorporate its application for such grant in a comprehensive plan consistent with the purposes, policies, and goals of this Act.

(2) The Center shall, after consultation with appropriate elements of the Federal Government, State and local governments, by regulation prescribe basic criteria for applicants and grantees under this title. In prescribing these basic cri-

teria, the Center shall place special emphasis on the use of institutions of higher education, especially those possessing engineering schools, engineering experiment stations, business schools, or schools of public administration, to provide centers to plan, demonstrate, and carry out projects and programs consistent with the purposes, policies, and goals of this Act. The use of post-high school technical and vocational schools enjoying accreditation from recognized authorities is also encouraged.

(c) The funds available in each fiscal year to make grants under this section shall be allocated by the Center as follows:

(1) 35 per centum of the funds shall be available for grants to institutions of higher education possessing schools, stations, or similar departments as described in subsection (b) (2) of this section which agree to establish a productivity center to carry out the purposes described in subsection (b) (2) ; and

(2) 65 per centum of the funds may be made available, as the Center may determine, to appropriate State agencies qualifying as a State Productivity Center, units of general local government, institutions of higher education, or combinations of such units, according to the criteria and on the terms and conditions the Center determines consistent with this title.

(d) Any grant made from funds available under this section may be up to 65 per centum of the cost of the program or project for which such grant is made. No funds awarded under this title may be used for building construction or land acquisition.

(e) A State Productivity Center is an agency established or designated by a State for the purposes of establishing productivity centers, carrying out plans, demonstrations, programs, projects, and technical assistance consistent with the purposes, policies, and goals of this Act.

(f) If the Center determines, on the basis of information available to it during any fiscal year, that a portion of the funds granted to an applicant for that fiscal year will not be required by the applicant or will become available by virtue of the application of regulations established by the Center to govern noncompliance by an applicant or grantee, that portion shall be available for reallocation under this section.

(g) The Center shall by regulation prescribe the basic criteria for determination of noncompliance by grantees and applicants including appropriate provisions for notice and hearing with respect to such determination.

SEC. 308. Unless otherwise provided in this title, the Center shall carry out the programs provided for in this

section during the fiscal year ending June 30, 1975, and the three succeeding fiscal years.

SEC. 309. Not later than December 31 of each year, the Center shall report to the President and to the Congress on activities pursuant to the provisions of this title during the preceding fiscal year.

SEC. 310. There are authorized to be appropriated such sums as are necessary to carry out the purposes of this Act, but such sums in the aggregate shall not exceed $10,000,000 for the fiscal year ending June 30, 1975; $20,000,000 for the fiscal year ending June 30, 1976; $25,000,000 for the fiscal year ending June 30, 1977. Funds appropriated for any fiscal year shall remain available for obligation until expended.

TITLE IV—NATIONAL PRODUCTIVITY AWARD, APPROPRIATIONS

SEC. 401. The President may award, and present in the name of Congress, an award of appropriate design, which shall be known as the National Productivity Award, to any public or private organization, governmental unit, or individual, which in its performance, has distinguished itself by exceptional efforts and contributions to the growth of the Nation's productivity.

ADVISORY COMMISSION ON INTERGOVERNMENTAL RELATIONS,
Washington, D.C., November 22, 1974.

Hon. SAM J. ERVIN, Jr.,
Chairman, Committee on Government Operations,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Thank you for referring S. 4130, the "National Productivity Act of 1974," to our Commission for review. This Act, in part, would (1) create a permanent organization within the Federal government to focus upon productivity issues in all sectors of the economy, (2) require an annual report from the President to the Congress concerning productivity, (3) require detailed productivity impact reports on major legislative proposals, including the President's budget, and (4) establish a Federal grant program to support State and local governments and other groups in developing productivity improvement programs and projects throughout the nation.

The Commission has not considered the specific issues raised in this bill, but it has viewed the increasingly uncontrolled numbers of separate categorical grant programs as a major factor in complicating the administration of all levels of government, threatening the efficiency of their operations. Based upon this general concern, the staff wishes to offer the following comments on S. 4130.

First, a permanent productivity effort is undoubtedly needed, and several have already been established. For example, the Civil Service Commission supports Federal training and intergovernmental personnel programs aimed at improving the utilization of governmental manpower. The ongoing Joint Financial Management Improvement Program sponsored by OMB, GAO and Treasury help to improve and streamline financial management procedures for maximum efficiency. ACIR's own studies try to suggest how intergovernmental frictions can be minimized to improve program effectiveness and efficiency. The statistics provided by departments such as Commerce, Labor and HEW, assist private as well as governmental managers in making realistic decisions. The National Bureau of Standards provides the basis for consistent measurements needed to run the economy efficiently. Public transportation programs are essential to efficient commerce. So is the postal system and national defense. Planning requirements and coordination procedures in Federal-aid programs also are designed to promote efficiency and effectiveness. The list is endless; it permeates the whole government.

Several temporary commissions—including the Brownlow Commission, both Hoover Commissions, the Ash Council, and the present National Commission on Productivity—have also contributed significantly to programs for greater efficiency and productivity in government, and the latter is ranging well beyond the bounds of government into other major sectors of the economy. This broadening scope of productivity work has international as well as national, State and local implications, and is certainly of major intergovernmental importance.

Thus, if significant gains are to be made, responsibility for increased productivity must be conceived as an integral part of management at all levels—Federal, State, local and private. While a permanent National Productivity Center within one line department or agency of the Federal government, as is proposed in S. 4130 (Department of Commerce), might be appropriate for performing technical research into efficient and effective ways of doing things, and might adequately interact with the private sector (perhaps through an advisory committee), it would probably have greater difficulty interacting with other parts of government beyond the department's purview and providing the essential spur to increased productivity, which could come through broad oversight and independent prodding of management toward improved productivity rates. This latter role is more suitable for organizations with overarching responsibilities—like the Executive Office of the President, the Council of Economic Advisors, or a permanent version of the National Commission on Productivity. This latter organization might be best equipped for the "prodding" role because it would be uninhibited by management responsibilities of its own, and it could bring a wide range of interests together on a formal basis for cooperatively developing broad based recommendations. These interests should include public and private; Federal, State and local; executive and legislative. Such an approach would help to satisfy our intergovernmental concerns about productivity improvement programs.

Of course, if an independent commission is used as the permanent vehicle, its annual report would most appropriately go to both the Congress and the

President, while the President's position on it would be developed most appropriately within the Administration itself and reflected in the President's budget, his legislative program, and his special messages to Congress. Since the end product of improved productivity, is a stronger economy, some thought also should be given to coordination between the annual productivity report and the President's economic report.

The productivity impact reports on major legislative proposals (including the President's budget) which would be required by S. 4130, themselves could be a hindrance to productivity unless handled very carefully. For example, previously enacted requirements for impact statements in other fields (notably the environment) have proved difficult, time consuming, and costly to develop, and the same could very well be true in this case. While there is no doubt that Congress needs a productivity assessment of legislation pending before it, the amount of detail required should be realistically assessed. In addition, the State and local government inputs to the productivity impact statements (required in S. 4130) would be produced through "existing agency review processes," but these reviews remain internal to the Administration until the actual bills are introduced. Thus, some new procedure would appear to be needed. Since prepublication reviews of proposed administrative regulations by State and local governments do take place through a process administered by ACIR under OMB Circular A–85, perhaps this procedure could be applied to proposed legislation.

With respect to the new grant program for productivity work outside the Federal government, it should be made clear that funds could be made available to Indian tribes, since few organizations are in greater need for such assistance. Any new program of this type also should be explicitly related to other grant programs with similar objectives. Such related programs would include, for example, grants under the Intergovernmental Personnel Act of 1970 and Section 701 of the Housing Act. Joint funding simplification provisions similar to those in the newly revised "701" legislation also should be added to the productivity grant program to authorize joint administration of related grant awards.

We believe it is very important to establish a permanent national focus on productivity growth, and hope these comments will help in the development of legislation appropriate to that end.

Sincerely yours,

WAYNE F. ANDERSON, *Executive Director.*

[From the Congressional Record, Dec. 4, 1974]

Remarks of Senator Percy on Introducing Bill S. 4212

Mr. Percy. Mr. President, the American economy is beset by distortions. Indicators of unemployment are rising. Inflation, while marginally declining, continues to sap our economic vitality, and tragically cut away at the incomes and well-being of all Americans.

One of the most disquieting economic trends I have observed, however, is the declining rate of America's productivity growth. Increasing output per man-hour is by definition the key to noninflationary real growth and a rising standard of living for all Americans. Yet, I must report that productivity statistics for the U.S. economy indicate a sharp drop in productivity during the past several quarters.

Since 1947 the average rate of productivity growth in the total private economy has been 3.2 percent. However, in the past 20 years the figure has dropped to 2.9 percent, and for the past 10 and 5 years, the figures are 2.8 percent and 2.4 percent respectively. In the past year—third quarter 1973 to third quarter 1974—the Nation's productivity has actually fallen by 2.5 percent.

Mr. President, these statistics send out a resoundingly clear message. American productivity is unacceptably low. As a result, the United States ranks ninth among all the industralized nations in terms of its productivity gains. We must act now to improve our performance.

I have been encouraged by President Ford's pledge to revitalize the National Commission on Productivity and Work Quality in his major economic address to the Nation on October 8, particularly because I was an author of the legislation that gave the Productivity Commission its initial authorization in 1971, and again when the Commission was reauthorized in this Congress.

Even though I have been a founder of the National Commission on Productivity and Work Quality, I have come to the conclusion that the existing Commission is sadly lacking in statutory authority, and in funding. Operating on its current basis—only $2 million for this fiscal year—it has simply been unable to operate effectively to make any inroads against the massive problem of increasing American productivity. It has almost of necessity been relegated to the role of funding studies, though it has done notable and even landmark work in some areas.

For these reasons, I am today introducing a bill to create a National Center for Productivity and Work Quality. This Center would supersede the existing National Commission on Productivity and Work Quality, which is in the Executive Office of the President. The bill does not, therefore, create still another new agency. It takes an existing agency and creates it in a new form, as an independent agency in the executive branch. The new Center would be administered by a board of 10 directors. The board members would include the Secretary of Commerce, the Secretary of Labor, the Secretary of the Treasury, three private members from industry, three private members representing labor, and the Director of the Federal Mediation and Conciliation Service.

The function of the Center would be to develop a national policy for and to coordinate all efforts for the Federal Government to increase productivity growth and improve work quality. In line with President Ford's program to control inflation, the National Productivity and Work Quality Center is charged to study, examine, and identify all existing statutory and regulatory impairments to increased productivity growth and to recommend to Congress legislation which would remove such obstacles.

To carry out its functions, the Center would have the authorization to make grants to private and public academic institutions, private industry, and labor unions to implement technological research programs, and to encourage programs for increased human resource utilization. Its fiscal year 1975 funding would be $10 million, increasing to $20 million in fiscal year 1976, and $25 million in each of the next 3 fiscal years.

Thus, the new Center would have several key missions. It would bend every effort toward creating labor/management cooperative efforts and increased quality of work in every plant across the country. It would promote productivity within Federal, State and local governments, an area full of potential efficiency gains for the American people. It would identify structural obstacles to economic competition, thus carrying out one of the main elements of President Ford's economic summit message: that is, that we must begin a concerted, massive attack on the structural barriers to economic efficiency and competition that abound throughout the American economy.

Mr. President, I am delighted to be joined in this effort by the distinguished junior Senator from Georgia (Mr. NUNN), who also introduced a creative and important bill to improve the organization of the Nation's productivity effort, and by Senators RIBICOFF and JAVITS. Senator JAVITS has worked with particular distinction in this field. I do not know of a stronger advocate for increased productivity through joint labor-management cooperation.

The Government Operations Committee will schedule hearings on our two bills during this month. We will at that time provide the basis for further action during the coming Congress in this critically important area.

[COMMITTEE PRINT NO. 1]

DECEMBER 13, 1974

93D CONGRESS
2D SESSION

S. 4212

IN THE SENATE OF THE UNITED STATES

DECEMBER 4, 1974

Mr. PERCY (for himself, Mr. JAVITS, Mr. NUNN, Mr. RIBICOFF, Mr. MATHIAS, Mr. DOMENICI, and Mr. JOHNSTON) introduced the following bill; which was read twice and referred to the Committee on Government Operations

[Omit the part struck through and insert the part printed in italic]

A BILL

To reorganize the executive branch to establish a National Center for Productivity and Work Quality; to provide for a review of the activities of all Federal agencies including implementation of all Federal laws, regulations, and policies which impede the productive performance and efficiency of the American economy; to encourage joint labor, industry, and Government efforts to improve national productivity and work quality; to establish a Federal policy with respect to continued productivity growth and improved utilization of human resources in the United States; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Center for Productivity and ~~Economic Competition~~ *Work Quality* Act".

TITLE I—GENERAL PROVISIONS

DECLARATION OF FINDINGS

SEC. 101. The Congress finds that—

(1) the continued growth in productivity of the economy of the United States is essential to the social and economic welfare, health, and happiness of the American people, and of the world economy;

(2) in the face of mounting worldwide material shortages, with their serious inflationary result, increased efficiency in the utilization of the Nation's resources is of paramount importance to fight inflation and reduce costs;

(3) since 1965, the rate of productivity growth of the United States has been consistently behind and lower than that of most industrial nations in the world, which have used and are using their increased productivity to compete more effectively with United States labor and industry;

(4) continued growth in the productivity of the Nation's economy is essential to American labor in order to maintain and increase jobs and employment, stabilize the cost of living, and provide job security and improved quality of worklife to the American worker;

(5) the rate of productivity growth in the United States is currently declining still further in a period

of stagnation and is thereby contributing to, instead of counteracting, increasing slowdown and increasing serious unemployment;

(6) there is an urgent national need to identify, examine, and revise or eliminate the many serious public and private structural forces which currently impede, inhibit, limit, penalize, or prevent growth of productivity, work quality, and economic effectiveness in the public and private sectors of the United States;

(7) work quality, or the qualitative and institutional conditions affecting human beings at work considerably influences the performance of work, and thereby considerably affects and influences productivity;

(8) economic incentives for employees, which may consist of a number of systems, methods, and formulas for sharing of profits and the fruits of productivity gains with labor, considerably influence the performance of work and thereby considerably affect and influence productivity;

(9) influential and well-funded centers for productivity, all involving business, labor, and government have been in existence in West Germany, Japan, Sweden, Norway, France, and Israel for years;

(10) private businesses, labor unions, and public agencies actively seeking to identify, define, and initiate

internal programs to achieve fuller utilization of their technological or human resources or both should be provided encouragement, counsel, and significant encouragement by the Federal Government;

(11) there is national need to identify, encourage, and support all social, economic, scientific, business, labor, and governmental practices, inventions, systems, and techniques which might or do contribute to new growth of productivity, work quality, and economic effectiveness in the public and private sectors of the United States;

(12) as urged by the President, the utilization of the resources of qualified institutions of higher learning to help identify, define, and inaugurate active programs with respect to productivity and worker-related matters to more fully utilize our national technological and human resources should be encouraged and supported by the Federal Government;

(13) precise, standardized, measurement of productivity, and work quality is essential to sound evaluation and understanding of the productive factors which most influence growth of productivity and work quality, and those American institutions seeking to improve measurement theories, practices, and techniques should be en-

couraged and supported by the Federal Government; and

(14) there is a need to promote efforts to gather, retain, and widely disseminate useful information about past and current national achievements in productivity growth and work quality improvements and a public educational and information effort should be federally undertaken.

DEFINITIONS

SEC. 102. As used in this Act—

(1) the term "productivity growth" means an increase of the rate of production of goods or services, by an organization, enterprise, industry, or national economy, without increasing the cost of producing such goods or services, with a resultant continuing decrease of the cost per unit produced;

(2) the term "improved work quality" means improved employee safety and health, improved worker-management relations, improved worker initiative and motivation, improved nature, structure, and conditions of work and work organizations, increased morale and employee enjoyment of work, diminished dissatisfaction or discontent with work and working conditions, diminished absenteeism and turnover, and improved utilization

of employees themselves to seek and achieve a better quality of life at work and a better work product, all of which considerably contribute to improved work performance and productivity growth;

(3) the term "structural economic imbalances" means any existing Federal, State, and local law, regulation, statute, code, or practice, any business or labor code, contract, cartel, convention, or practice and any other legal or mandated social or economic practices which, however effective to other social or economic ends, obstructs, impedes, impairs, inhibits, limits, or penalizes productivity growth, competition, or effective economic performance in the public or private sectors of the United States;

(4) the term "Center" means the National Center for Productivity and Work Quality; and

(5) the term "Board" means the Board of Directors of the Center.

STATEMENT OF PURPOSE

SEC. 103. The purpose of this Act is to establish a National Center for Productivity and Work Quality, in order to consolidate in one governmental unit the responsibility—

(1) to identify, establish, and promulgate a national policy for short-term and long-range productivity growth and improved work quality in the United States which is

consistent with the needs, rights, and best interests of labor, industry, and government, with the needs of the society and the economy, with the need to protect the environment, the needs of employees to secure and maintain safety, health, job security and equitable compensation, and the need of employers to derive an adequate return on investment;

(2) to identify, recommend ways to correct, and correct those public and private structural imbalances which impede public and private productivity growth, improved work quality, and the effective performance of the society and the economy, in a manner consistent with Center policy;

(3) to identify ways and means for more effective collaborative joint effort by labor and industry to effect growth in productivity and improved work quality, in a manner consistent with Center policy;

(4) to identify, encourage, and support development and implementation of all useful technologies, systems, incentives, methods, and techniques for enhancing growth of productivity and improving work quality in the public and private sectors of the United States, in a manner consistent with Center policy;

(5) to maximize the contributions of the Federal Government to productivity growth and improved work

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quality in both the private and public sector, including the Federal Establishment; and

(6) to increase public understanding of productivity and work quality, the ways in which productivity and work quality can be improved, and the urgency of such improvement in all sectors of the economy, in a manner consistent with Center policy.

TITLE II—NATIONAL CENTER FOR PRODUCTIVITY AND ~~ECONOMIC COMPETITION~~ *WORK QUALITY*

CENTER ESTABLISHED

SEC. 201. There is hereby established as an independent establishment of the executive branch of the Government the National Center for Productivity and Work Quality. The Center shall be under the general supervision of a Board of Directors.

BOARD OF DIRECTORS

SEC. 202. (a) The Board shall be comprised of—

(1) the Secretary of Commerce;

(2) the Secretary of Labor;

(3) the Secretary of the Treasury;

(4) three members who shall be appointed by the President, by and with the consent of the Senate, from among distinguished private individuals in manufacturing and service industries;

(5) three members who shall be appointed by the

President, by and with the consent of the Senate, from among distinguished private individuals in manufacturing and service unions; and

(6) the director of the Federal Mediation and Conciliation Service by virtue of his responsibility under the Labor Management Relations Act, 1947 to encourage discussion between labor and management on issues external to the collective-bargaining process.

(b) The appointed members of the Board should be selected from among the highest leadership in the industrial and labor communities. Not more than five members of the Board shall be members of the same political party.

(c) The appointed members of the Board shall be appointed for two-year terms. Each such member may be appointed for one additional term; members other than appointed members shall serve as long as such member is the head of the agency represented on the Board.

(d) The President shall select a Chairman for a two-year term. No Chairman may succeed himself as Chairman.

(e) Any member appointed to fill a vacancy occurring before the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of that term.

(f) (1) Each appointed member of the Board shall

be compensated at the daily rate provided for GS–18 of the General Schedule under section 5332 of title 5 of the United States Code, including traveltime, for each day they are engaged in the performance of their duties as members of the Board and shall be entitled to reimbursement for travel, subsistence, and other necessary expenses incurred by them in carrying out the duties of the Board.

(2) Other members of the Board shall serve without compensation but shall be reimbursed for travel, subsistence, and other necessary expenses incurred by them in carrying out the duties of the Board.

(g) Nothing herein shall constrain the Board to organize itself into subcommittees or to create any such other internal suborganization as it deems necessary.

EXECUTIVE DIRECTOR

SEC. 203. (a) There shall be in the Center an Executive Director, who shall be appointed by the President after consultation with the Board, without regard to political affiliation and solely on the basis of fitness to perform the duties and functions of the office, from among individuals with experience in such fields as labor-management relations, industrial relations, industrial engineering, the sociology of work or labor economics, or related experience.

(b) Under the direction of the Board, the Executive Director shall be responsible for the exercise of all powers

and the discharge of all duties of the Center as set forth in this Act, and shall have authority over and control of all of the Center staff and their activities. The Executive Director shall maintain budgets and allocate available funds as appropriate in pursuance of the provisions of this Act.

(c) The Executive Director shall attend and participate in such determinations of the Board as the Board may direct but shall not be a voting member of the Board.

(d) The Executive Director shall be compensated at a rate not to exceed that provided for Executive Level IV under section 5332 of title 5 of the United States Code, and shall have no other employment, public or private, during the tenure of his appointment.

STAFF

SEC. 204. The Center shall maintain a full-time staff, including a Deputy Director, appointed by the Executive Director, which shall perform such functions of the Center as the Executive Director may prescribe. The Deputy Director shall act for and exercise the powers of the Executive Director during his absence.

PARTICIPATION ENCOURAGED

SEC. 205. It is the intent of the Congress that the Center so established shall seek to maximize the active participation and expert contribution, in equal measure, of labor, industry, and the Federal, State, and local governments of the United

States in all its efforts and functions pursuant to this Act, in order that the Center will provide the national focus and impetus for a tripartite labor-industry-government effort. The Center shall seek to devise policies, functions, grants, and other ways and means to further provisions of this section and to develop and maintain the Center as an impartial, nonpolitical, social, and economic service organization, which within the limits of feasibility shall encourage and support all who seek to improve the productivity growth and work quality of any workplace, industry, or government entity in the United States.

FUNCTIONS OF THE CENTER

SEC. 206. It shall be the function of the Center, in a manner determined by the Board and the Executive Director—

(1) to develop and establish a national policy for the growth of productivity and the improvement of work quality in the public and private sectors of the United States pursuant to the purposes of this Act;

(2) to assist actively in the establishment of efforts in the public or private sector, specifically designed to improve cooperation between labor and management in the achievement of continued productivity growth and improved work quality in American workplaces, including national, regional, local, industry, or other labor-management productivity and work quality committees,

conferences, councils, and other joined efforts pursuant to the purposes of this Act;

(3) to identify, encourage, and support to the fullest extent feasible, all efforts by organizations and enterprises in the public and private sectors seeking to improve utilization of the technological and human resources of such organizations and enterprises, through counsel, information, and supporting grants and contracts for development and implementation of such efforts pursuant to the purposes of this Act;

(4) to study, examine, and identify—

(A) existing Federal, State, and local statutory and regulatory impediments, inhibitions, and impairments to the growth of productivity and improved work quality and the effective economic performance of the public and private sectors of the United States, and to propose to the President, to Congress, and to the appropriate departments and agencies of the Federal Government any legislation or revision of regulations the Center determines will contribute to carrying out the purposes of this Act;

(B) Federal, State, and local fiscal policies, statutes, and regulations which could be revised or improved to encourage and facilitate increased economic effectiveness and encourage or reward indus-

try and labor initiative, or both, to develop methods, techniques, and systems for the improved utilization of technological and human resources in the private sector, and to recommend to the President and to the Congress such legislation as the Center determines will contribute to carrying out the purposes of this Act;

(C) existing or new plans, systems, formulae, and other methods, including profit-sharing programs for employees, incentive systems, to share fully and equitably with labor the benefits of productivity gains and to recommend to the President and to the Congress legislation necessary to encourage the development of such plans, systems, formulae, and other compensation methods;

(5) to encourage and coordinate all activities in the various departments and agencies of the Federal Government, including the Department of Labor, the Department of Commerce, the Department of Health, Education, and Welfare, the National Science Foundation, the Federal Mediation and Conciliation Service, and all other departments and agencies which are now or may appropriately be supporting programs of productivity growth or improved work quality in the public or private sectors, in order to eliminate interagency duplication of

effort and cost, and to maximize the effectiveness of all Federal programs and activities;

(6) to identify, develop, and support activities in the various departments and agencies within the Federal Establishment, appropriate programs, systems, and techniques for continuing improvement of productivity and of work quality within such departments and agencies, including—

(A) initiating with the collaboration of each department or agency and qualified consultants under grant or contract, the design, development, and implementation of specific programs for such internal improvements in each such department or agency, and providing support for their implementation; and

(B) designing, with the aid of qualified consultants under grant or contract, measurement techniques or systems, and the application of such new measurement techniques or systems or of extant measurement techniques or systems, to the evaluation of the impact and achievement of the programs within the Federal Establishment described in subparagraph 5(A) of this section;

(6) to identify, select, and support research or demonstration programs, or both, initiated and imple-

mented by qualified educational institutions and other qualified public or private organizations designed to—

(A) increase the productivity growth of the public or private sectors of the American economy through improved and innovative utilization of technological resources;

(B) increase the productivity growth of the public or private sectors of the American economy through improved or innovative utilization of human resources;

(C) expand or refine, or both, existing knowledge of the measurement of productivity and work quality in the public or private sectors and develop new systems and techniques for such measurement; or

(D) utilize existing or develop and utilize new measurement techniques and systems to assess and evaluate ongoing or new research and demonstration programs seeking to improve productivity and work quality, including but not limited to application to programs developed pursuant to this Act;

(7) to develop and implement within the Center a national clearinghouse for all data and information relating to productivity and work quality activities in the public and private sectors here and abroad, in order that

such information shall be immediately retrievable by the Center upon request of any organization or individual;

(8) to initiate, develop, and implement a significant and visible public information program;

(9) to initiate, develop, and implement a national, regional, and local technical assistance, referral and extension service available to business, labor organizations, and State and local governments or units thereof across the Nation, seeking specific assistance or referral to expert guidance in the formulation and establishment of internal programs to achieve productivity growth or improved work quality, or both; and

(10) to maintain liaison with all organizations here and abroad, and particularly with productivity centers, involved in efforts to increase productivity and improve work quality, in order to exchange information about techniques, systems, social and technological innovations in productivity and work quality.

GRANTS AND CONTRACTS

SEC. 207. In order to carry out the provisions of this Act, the Executive Director subject to the supervision and direction of the Board, is authorized to—

(1) without regard to Federal procurement statutes and regulations, enter into contracts with, and make grants to academic institutions and other public and pri-

vate entities qualified as expert in productivity growth, improved work quality, or the measurement of effort and impact in those areas, for—

(A) the development and implementation of applied technological research or demonstration programs or projects to create or develop new or improved methods, systems, machines, equipment, or other technology for increased productivity, which can be measured and their impact assessed, and which can be applied elsewhere to achieve increased productivity in other workplaces, organizations, industries, or sectors;

(B) the development and implementation of applied research or demonstration programs or projects to create or develop systems, methods, models, or methods for increased utilization and development of human resources and improved work quality which can be measured and their impact assessed, and which can be applied elsewhere to achieve improved utilization of human resources as improved work quality, or both, in other workplaces, organizations, industries, or sectors;

(C) the development and implementation of research programs to produce systems, techiques,

and technology for improved measurement and definition of productivity and work quality; or

(D) the development and implementation of research programs to produce systems, techniques, instruments, and technology for the measurement and evaluation of programs described in this paragraph;

(2) without regard to Federal procurement statutes and regulations, enter into contracts with, and make grants to, proprietorships, partnerships, corporations, labor unions, government agencies, for—

(A) the development and implementation of demonstration projects or other programs in plants, offices, and other workplaces which seek to achieve productivity growth through improved technology or improved utilization of technological resources and which can be measured and applied elsewhere in the public or private sector;

(B) the development, and implementation of demonstration projects or other programs in plants, offices, or other workplaces which seek to improve utilization and development of human resources, particularly through efforts to improve work qual-

ity, and which can be measured and applied elsewhere in the public or private sector.

LIMITATION ON GRANTS AND CONTRACTS

SEC. 208. (a) No contracts will be entered into and no grants may be made under this Act unless—

(1) the Board or the Executive Director when the Board so directs, determines that the activities, projects, or programs to be assisted will be likely to produce technological or sociological methods, instruments, systems, or techniques useful to and of potential benefit to other users in the public or private sectors, and

(2) the contractor or grantee agrees either to measure the demonstration program and maintain improvement data, or to accept external measurement of each such program provided by the Center, and

(3) the contractor or grantee agrees that all information relating to any innovation, achievement, breakthrough, or success or failure generated in the course of any Center-funded demonstration program shall be public information, available to all.

(b) No payment shall be made pursuant to the provisions of this Act for any of the functions pursuant to this Act for a period of over five years, except that with the concurrence of at least two-thirds of the members of the Board of

the Center, certain contracts or grants may be extended beyond such period.

(c) All grants or contracts in excess of $100,000 shall require the approval of the Board.

(d) To the extent practicable, equal emphasis shall be given to grants made for programs or projects designed to improve utilization of technology to achieve productivity growth and grants made for programs or projects designed to achieve improvements in utilization of human resources and work quality.

(e) A grant under this Act may, in exceptional instances, be made for not to exceed 100 per centum of the total cost of each project upon the vote of a majority of the Board. All other grants under this Act may be made only if the recipient agrees to contribute at least one-quarter of the total cost of each project assisted by that grant in money, facilities, or services to carry out the purposes for which the grant is made.

(f) No financial assistance shall be made under this Act to cover the cost of land or building acquisition, procurement of machinery, construction, acquisition of major equipment, except when at least two-thirds of the members of the Board of the Center approve such acquisition, procurement, or construction as necessary and related to the purposes of this Act.

ADMINISTRATIVE PROVISIONS

SEC. 209. (a) In addition to any authority vested in it by other provisions of this Act, the Executive Director, under the supervision and direction of the Board in carrying out the functions of the Center, is authorized to—

(1) prescribe such regulations as it deems necessary;

(2) receive money and other property donated, bequeathed, or devised, without condition or restriction other than that it be for the purposes of the Center and to use, sell, or otherwise dispose of such property for the purpose of carrying out its functions without reference to Federal property disposal statutes;

(3) receive (and use, sell, or otherwise dispose of, in accordance with clause (2)) money or other property donated, bequeathed, or devised to the Center, except for such money and other property which includes a condition that the Center use other funds of the Center for the purpose of the gift, in which case two-thirds of the members of the Board of the Center must approve such donations;

(4) appoint and fix the compensation of such personnel as may be necessary to carry out the provisions of the Act in accordance with the provisions of title 5, United States Code, governing appointments in the

competitive service, and the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, except that the Executive Director may appoint and fix the compensation of a reasonable number of personnel without regard to the provisions of title 5, United States Code, governing appointments in the competitive service, and without regard to the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, but no individual so appointed shall receive compensation in excess of the rate received by the Deputy Director of the Center;

(5) obtain the services of experts and consultants in accordance with the provisions of section 3109 of title 5, United States Code, at rates for individuals not to exceed $200 per diem;

(6) accept and utilize the services of voluntary and noncompensated personnel and reimburse them for travel expenses, including per diem, as authorized by section 5703 of title 5, United States Code;

(7) utilize, on a reimbursable basis the services, equipment, personnel, and facilities of any other department or agency of the United States;

(8) enter into contracts, grants, or other arrange-

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ments, or modifications thereof, to carry out the provisions of this Act, and such contracts or modifications thereof may with the concurrence of two-thirds of the members of the Board of the Center be entered into without performance or other bonds and without regard to section 3709 of the Revised Statutes, as amended (41 U.S.C. 5); and

(9) make advances, progress, and other payments which the Board deems necessary under this Act without regard to the provisions of section 3648 of the Revised Statutes, as amended (31 U.S.C. 529).

(b) The Center shall submit to the President and Congress an annual report of its operations under this Act, which shall include a detailed statement of all private and public funds received and expended by it, together with such recommendations as the Center deems appropriate.

TITLE III—MISCELLANEOUS PROVISIONS

TRANSFERS

SEC. 301. Notwithstanding any other provisions of law, the duties, functions, and personnel of the National Commission on Productivity and Work Quality are transferred to the Center, and the Commission is abolished.

FEDERAL AGENCY ASSISTANCE

SEC. 302. Each department, agency, and independent instrumentality of the Federal Government shall appoint a

qualified individual to serve as liaison with the Center, in order to facilitate the Center to carry out its functions under this Act.

ADMINISTRATIVE COST CEILING

SEC. 303. In each fiscal year the Center shall allocate a minimum amount of funds appropriated to the Center for the payment of staff and other personnel, including members of the Board.

AUTHORIZATION

SEC. 304. There are authorized to be appropriated to the Center such sums as may be necessary to carry out the purpose of this Act, but not to exceed $10,000,000 for the fiscal year 1975; $20,000,000 for the fiscal year 1976; $25,000,000 for the fiscal year 1977; $25,000,000 for the fiscal year 1978; $25,000,000 for the fiscal year 1979. Funds appropriated for any fiscal year shall remain available for obligation until expended.

ADVISORY COMMISSION ON INTERGOVERNMENTAL RELATIONS,
Washington, D.C., December 30, 1974.

Hon. SAM J. ERVIN, Jr.,
Chairman, Committee on Government Operations, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Thank you for referring S. 4212, the "National Center for Productivity and Economic Competition Act" to our Commission for review. Like S. 4130 which we reviewed earlier, this new bill would create a permanent organization within the Federal government to focus upon productivity issues in all sectors of the economy. While our Commission has not considered the specific issues raised in either of these bills, it has viewed the continuing uncontrolled numbers of separate categorical grant programs as a major factor in complicating the administration of all levels of government, threatening the efficiency of their operations. Based upon this general concern, the staff wishes to offer the following comments on S. 4212.

As mentioned in our review of the earlier bill, a permanent productivity effort is undoubtedly neeeded, and several already have been established. We believe it is very important to focus these many efforts through a permanent unit in the Federal government.

S. 4212 would establish this unit under an independent board of directors within the Federal executive branch. This would be preferable to a subordinate unit within any individual Federal department, as proposed in the earlier bill, because it could provide for equal praticipation by the several Federal agencies involved as well as by national interest groups. We note, however, that in the make-up of this independent board, there is no provision for State and local governments to be represented, despite the fact that their activities would be major elements of concern to the board along with Federal, union, and industry efforts. In fact, a very large share of the Federal government's domestic program is carried out by the work of State and local governments supported by Federal financial assistance; so neglect of these governmental sectors would seriously limit the potential for Federal productivity improvements. This deficiency could be overcome easily by appointing two or three elected State officials and two or three elected local government officials in a manner similar to that by which ACIR members are appointed. This would still leave the board with a manageable number of members not exceeding 16. Our Commission works well with 26 members, and we find that the contributions of State and local officials are vital. We note that "full participation" by State and local officials, as well as by many others, is provided for in section 205, but as desirable as it is, it is not quite the same as balance in the membership of the board itself.

Consistent with expanding the membership to include State and local government representatives, it would be desirable to authorize the National Center to make recommendations to State and local governments—as well as to industry and labor—in addition to the recommendations to the President and to the Congress already provided for under Section 206.

The Federal agency liaison provided in Section 302 is essential.

With respect to Section 203(a), we wonder why the executive director would not be appointed by the board under which he would work, rather than by the President. To avoid confusion of authority, either the board or the executive director should be in charge, but not both. Of course, another way to approach this would be to put the executive director clearly in charge while making the board advisory. This section of the bill should be more clearly thought out before enactment.

In Section 206(5), you might wish to consider amending the language of the first line to read as follows, "to encourage coordination of all activities in the". The point here is simply that only the President can actually coordinate activities of the various departments and agencies; the new National Productivity Center will be a staff agency rather than an operating unit.

Another small point of clarification arises in Section 102 (2) where the definition of "improved work quality" is given. The definition cited there is in terms of improving the quality of working conditions rather than the quality of work performance. Perhaps two separate definitions should be given for these two important but separate concepts. While the quality of working conditions certainly helps to improve productivity, quality control and zero defect concepts also help to increase productivity by reducing waste.

S. 4212, like the earlier bill, would provide an annual report to the President and the Congress. However, the concept of this report is considerably different in

the two bills. In S. 4212, the report is simply an administrative provision of a very general nature, while in S. 4130 the report is a major productivity analysis comparable to the President's economic report or the annual report of the Council on Environmental Quality. The latter clearly would be preferable.

S. 4130 proposed that productivity impact reports be submitted for major Federal action proposals. While we had some misgivings about that proposal in terms of avoiding excessive detail and the possible slowing down of governmental processes, the basic purpose is a good one. The Federal budget and proposed new legislation should be considered in light of their productivity implications.

Finally, S. 4212 takes an "extension service" approach to field operations, rather than the approach in S. 4130 which would use grants to State and local governments for establishing decentralized productivity centers throughout the nation. Of course, grants to States and local governments as well as to other groups are also authorized by S. 4212, but it is implied that these would be a much less significant part of the program than under the earlier bill. Both approaches have their advantages and disadvantages, but we have little to offer at this time concerning which might be more preferable. However, we do feel that this is a subject which should be thoroughly explored in any hearing which might be held on these bills.

I hope these comments will help in the development of appropriate legislation to establish a permanent national productivity program.

Sincerely yours,

WAYNE F. ANDERSON, *Executive Director.*

PREPARED STATEMENT OF PERRY MCCRANIE, PRESIDENT, GEORGIA POULTRY FEDERATION

Mr. Chairman, and members of the Committee, my name is Perry McCranie. I am a Georgia egg producer and this year am serving as President of the Georgia Poultry Federation. The Federation has five member associations—Georgia Egg Association, Georgia Poultry Feed Council, Georgia Poultry Improvement Association, Georgia Poultry Producers Association and Georgia Turkey Association.

It was encouraging to us to learn that Senator Nunn, Senator Percy, and others introduced bills to create a National Productivity Center. The Productivity Program of the Engineering Experiment Station at Georgia Tech has been a tremendous help and boost to the poultry industry. The work in progress and possible impact on productivity are among the brighter spots on a dark horizon.

Favorable reports have been produced on four of the five Georgia Tech poultry research projects on which priorities were set and work planned and reviewed in joint sessions with representatives of Georgia Tech, the Georgia Department of Agriculture, and the Georgia Poultry Federation. A survey in advance of the other projects brought helpful information including some which indicated there was no need for the other project at the time.

Field testing on one of the projects will be staged at a Gainesville processing plant shortly.

Conducted for the Georgia Department of Agriculture by the Engineering Experiment Station of the Georgia Institute of Technology, the five projects dealt with increased automation in broiler processing, improvements in turkey harvesting methods, the feasibility of marketing eggs by weight rather than by the dozen, and two approaches for the utilization of poultry manure as an energy source.

They were based upon recommendations from poultry industry leadership as to the most desirable directions and priorities for poultry-related research that would have the greatest impact on productivity. The Georgia Poultry Federation served as the collection and evaluation agency for these recommendations.

Federation officials and member firms have also provided assistance, equipment, supplies, and test sites throughout the course of the research effort.

The project on poultry processing equipment deals with the development of a system for automatically transferring broilers from the killing-picking line to

the eviscerating line in order to further reduce the need for scarce, costly hand labor and eliminate an area of possible cross-contamination between birds in poultry processing plants.

Conducted by the Engineering Experiment Station's Sensor Systems Division it has produced a laboratory model that was demonstrated to Federation officials in August and will soon receive the in-plant test.

Research on the utilization of poultry manure in a dual economic-environmental role that would eliminate a waste material while producing an energy source was approached through both "pyrolysis," or heat decomposition, and through digestion by anaerobic bacteria; organisms that function in the absence of oxygen.

The Tech researchers' reports indicate that the pyrolysis method did not prove promising for economical fuel production, though it did show potential for cost-effective disposal of the manure. The method utilizing digestion by anaerobic bacteria, however, "showed much promise" as an energy production source, the Tech officials say.

The turkey harvesting project concerned problems associated with loading turkeys for transport to the processing plant; a process that represents an increasing labor problem and is believed responsible for most of the downgrading of birds at the processing plant—the second largest cost item in turkey production.

Focused initially on loading with regard to existing house design and contouring and the current absence of a tukey processing plant in Georgia, the report of this project favored the use of mechanical rather than air harvesting methods until a turkey processing plant is built in Georgia, and recommended the development and testing of a number of modifications and supplements to existing conventional mechanical loading equipment.

The fifth project, the analysis of egg marketing methods with a view toward the possibility of marketing by weight, revealed that such marketing would not have a strong customer acceptance at this time. Accordingly, a projected subsequent effort to develop equipment for use in marketing by weight was determined not to be feasible at this time.

The Georgia Tech program could be used as a model for a National Productivity Program in many industries. Federal funds and assistance could make the Tech program even more beneficial.

We commend Senators Nunn, Percy, Bartlett, Chiles, Domenici, Javits, and Ribicoff for the introduction of these bills.

A National Productivity Center could render valuable service in planning and implementing a national productivity policy. The requirement of a detailed productivity impact statement for every major legislative proposal, program recommendation, and regulation should be implemented as soon as possible.

Thank you for the opportunity of presenting this statement. We urge action by the Senate Committee on Government Operations and the Congress to establish a Federal productivity policy, provide for productivity impact review, to create a National Productivity Center, and to authorize research grants and assistance.

PREPARED STATEMENT OF JAMES T. MCINTYRE, JR., DIRECTOR, OFFICE OF PLANNING AND BUDGET, STATE OF GEORGIA

I appreciate the opportunity to comment on the legislative proposals of Senators Percy and Nunn (S. 4212 and 4130) and regret, because of a long-standing previous commitment, that I was unable to appear personally before you.

Both bills favor establishment of a National Productivity Center to formulate and coordinate national productivity policy, with Senator Percy's bill establishing an independent agency for that purpose. Though both proposals also agree on general productivity concepts and on the facts surrounding the recent decline in U.S. productivity, they differ on the role government should play to improve our nation's overall productivity. Senator Percy's bill has as a principal thrust improved communications among industry, labor, and government as a means to improve the quality of work and conditions governing productivity, while Senator Nunn's bill emphasizes government support for professionally-initiated techno-

logical repair for small and medium-sized firms. Despite these slight differences in approach, both bills provide a foundation for a broad scale attack on one of the economy's most serious problems, and I am in strong support of the spirit of these bills.

Since behaviors and policies once conducive to growth in productivity may in time become opposing due to changes in the economic environment, a regular assessment of federal, state, and local policies that affect productivity is desirable. Senator Percy, however, seems to think that the productivity influences of government (and of labor and business) are separable from other forces government exerts on the use of our resources. I believe such a separation is artificial. Although S. 4212 describes at length the roll of government, industry, and labor in productivity growth, it underestimates to some extent the importance of consumer influence. With productivity varying from one industry to another, buyer choices directly affect the behavior of aggregate productivity. Any National Productivity Center should take into account the role of the consumer.

Senator Nunn's S. 4130 calls for productivity-impact statements for *all* major federal programs. Considering the vast amount of paperwork already demanded by our federal agencies, an all-inclusive requirement does not seem practical or desirable. However, selective productivity impact-statements would be valuable for those federal programs which have a direct impact on productivity. In many instances, the cost-benefit analyses already required by many government agencies might achieve the Senator's purpose. In addition, it should be recognized that the productivity of many public goods cannot be measured in narrow economic terms. For example, although the economic value of a program for individual psychological counseling might be low, the social value attached to it may make its support preferable to that of a high-productivity control program using electronic direction devices.

The information clearinghouse established by both bills is highly desirable and should be a top priority of a National Productivity Center. In the private sector, while there is reluctance to spend resources on investigation of new techniques, there is an even greater hesitancy to share information and knowledge gained by the research that is conducted. It is clear that private businesses and labor unions very often have a vested interest in keeping such information private in order to protect the status quo. In the public sector, many good research and demonstration projects are never tested because of inadequate publicity.

Since visibility is the key to any national effort, I would favor Senator Percy's notion of creating a separate and independent National Productivity Center. The first task of this body should be to identify criteria for determining those public programs which directly impact productivity so a clear and understandable national public policy can be formulated and adopted. These criteria should be used to determine which public programs should be required to prepare productivity-impact statements. This process should prevent the proliferation of unnecessary paperwork for federal programs whose impact on productivity is not clearly and readily definable.

Although the aims of both bills are laudable, the size of the task to be undertaken must be kept in true perspective. The present government outlay for goods and services is over $300 billion with a total U.S. output approaching $1,500 billion. Private business is already spending about $12 billion annually on research and development, and the federal government adds about $20 billion more (with $1.8 billion going to university research each year).

Despite the magnitude of existing efforts, both proposed bills maintain that outlays of from only $10 to $30 million a year can have a significant impact on improving all aspects of our national productivity. Senator Percy would distribute these funds to the public and the private sector whereas Senator Nunn's proposal would favor targeting the bulk of these resources to regional productivity centers formed around public educational institutions. In light of the substantial effort already being put forth on R&D nationally, an addition of only $10 million nationally would have to be *very* carefully placed in order to significantly improve U.S. productivity. I assume the limitation of federal funds explains why the resources requested are limited to the research stage. However, to give information and advice to business, labor, and governments is one thing. To have them accept and utilize it is another. The small business which is counseled by a professional school, for example, may be receptive to the findings but still lack the ability to take innovative action. In larger businesses, knowledge is a minor factor in slowing productivity growth. Unless steps are taken to aid the implementation of what is discovered, the overall impact of either the Percy or the Nunn grant-and-advice system may prove to be woefully weak.

The broad goal of the National Productivity Center in both bills is to promote market structures which encourage innovation and the implementation of new techniques that enhance overall U.S. productivity. Since analysis suggests that very large firms are less innovative than medium-sized and smaller firms, some federal action should be taken to encourage greater competition among large firms. Since any major change in large industry would require substantial capital, the Center's very limited resources could be most effectively spent on the medium-sized and smaller firms as proposed by Senator Nunn. Perhaps, the best investment of the Center's staff-time on large industry might be toward the identification of possible antitrust activities for pursuit by the Justice Department so that more competitive markets might be created.

Because of the state resources already invested and the probable availability of existing and new local resources, utilization of Senator Nunn's Regioal Productivity Centers in our institutions of higher learning presents the best mechanism for disbursement of the Center's research and development funds. This would encourage federal/state/local cooperation and further stretch the resources made available under the bill. Channeling of these federal monies to the Regional Productivity Centers should not necessarily preclude further subcontracts to private consultants.

I do believe a substantial amount of money should be earmarked for giving widespread publicity to the appropriate industries on the findings of the research programs conducted. With the National Center acting as a clearinghouse for the regional centers, highly successful techniques could be quickly identified. The Center could then act as an advocate for increased appropriations (in cooperation with other federal agencies) to those existing public programs that aid in the implementation of new productivity techniques. New government loan programs and revisions of existing tax laws to favor industries who wish to increase productivity are two other alternatives that could be encouraged by the Center.

If resources are carefully targeted with existing state expenditures, and if priority is given to maximum publicity of successful projects, the proposed productivity centers could be the catalyst that causes a coordinated attack on our national productivity problem. These would lend technical expertise to small and medium-sized firms, thus stimulating them to seek technological improvements in their private markets. This will result in more viable competition.

In conclusion, the enactment of the concepts contained in these bills would clearly set a national goal around which public support could be rallied. Such an important first step, more than anything else, would inspire public confidence that Congressional action is being taken to solve our present national economic problems. However, enactment of productivity legislation should clearly be labeled as only a beginning—not a panacea.

I hope the Congress has the courage to use Senator Nunn's and Senator Percy's efforts as the beginning of a coordinated attack on other impediments to increased national productivity, such as sagging aggregate demand, monopoly power, protective tariffs, and labor's resistance to technological change. With proper Congressional follow-up, the Senator's proposed legislation will go a long way toward meeting the goal of favorably affecting our national productivity.

PREPARED STATEMENT OF D. C. BURNHAM, CHAIRMAN, WESTINGHOUSE ELECTRIC CORP.

I welcome this opportunity to set forth my views regarding the importance of productivity and the need to improve it. We can have only what we produce. Some people think that just redistributing—spreading around—what we have will somehow give everybody more. That's a myth. Unless we produce more goods and services next year than we did this year, we won't have more, no matter what happens to prices or wages. The gains in *real wages* are all due to productivity improvement. Inflationary gains in wages benefit no one.

Improving productivity may be realized slowly, but it is a lasting remedy that has a tremendous cumulative effect. Improvements made next year are added to the improvements of this year and last year. For example, if we improve our output of goods and services per person by just two percent a year, the cumulative effect of that annual two percent increase would produce a 724 percent in productivity in 100 years. That's relatively short span in the determination of a nation's progress in the course of history.

U.S. agriculture offers the greatest example of continuous productivity improvement over such a period of time. About 100 years ago, our government began setting up land-grant colleges and initiating a long-range program to improve farming. Better seeds, better farm equipment, soil enrichment, crop rotation all added up to a basic productivity improvement program. Averaging about six percent a year for the last 100 years, that program has been so successful that now it only requires a little over four percent of the work force in the United States to raise the food needed to feed all the rest of us. In 1870, nearly 50 percent of the people were needed to do that job.

The great productivity advance on our farms freed people to move into cities and provide the manpower for the development that made the United States the greatest industrial nation in the world. But the big advantage we used to have over the rest of the world in industrial productivity has been disappearing. Other nations are rapidly catching up.

Before the recent crisis in oil dealt Japan a severe blow, that country had startled the world with its industrial accomplishments. Highly motivated and dedicated to improving their productivity, the Japanese have not been afraid to copy and learn from others and to change their methods. From 1965 to 1970, for example, productivity in Japan rose 14.2 percent a year compared with 2.1 percent a year in the United States.

In Europe, productivity gains in a 10-year period ranged from five to eight percent a year.

Of course, other nations encounter the same sort of problems we have, but businessmen overseas are intensifying their productivity improvement efforts. Competition with U.S. business in the years immediately ahead will remain intense. Only a step-up in the rate of our productivity improvement can safeguard American jobs by assuring continued exports. Enhanced productivity here also could attract capital investments from aboard and create more U.S. jobs.

Improving productivity is a job for everyone because it involves what everyone does. Unfortunately, however, what is everyone's responsibility also may be *no one's* responsibility. Actually, I believe people want to participate; that they want to be more productive. We have therefore a unique national opportunity I am optimistic that the revitalized National Commission on Productivity and Work Quality can help provide the leadership and inspiration which are needed to exploit that opportunity.

To determine how we should proceed, let us examine how we achieved past progress. The tremendous advance in American agriculture was no accident; it was the result of a massive effort aimed directly at productivity improvement.

That effort began when Abraham Lincoln signed two acts in 1862. One created the Department of Agriculture and the other established, through grants of public land, state colleges throughout the country primarily for agriculture and the mechanical arts. A generation later in 1887. Congress provided for agricultural experiment stations wherein the research and new methods developed at the colleges could be tested under carefully controlled conditions. The Agricutural Extension Act of 1914 created a network of County Agents—skilled agricultural experts who worked directly with the farmer, advising him of new and improved methods, and helped organize 4-H Clubs for youth, and agricultural societies and granges for adults.

The remarkable part of that century-long productivity effort is that it successfully reached millions of independent farmers scattered throughout the U.S. Despite farmers' natural conservatism and the handicaps of slow communication and great distances, they were persuaded to revolutionize American farming.

This experience indicates that the most important element in productivity improvement is planning and organization. It doesn't just happen. In agriculture it has been achieved by 100 years of emphasis on planning, organization, and research.

The organized approach to productivity improvement in American industry began with Frederick W. Taylor, who has been called the father of industrial engineering. He showed how the proper organization, based on detailed knowledge of how a job is done and on breaking it down into its basic elements, can bring improved efficiency.

Another pioneer in scientific management was Henry Laurence Gantt, who developed knowledge that could be used to motivate and control human effort. His Task and Bonus incentive pay plan became well known throughout the

world. And the Gantt Chart, a simple device for precisely anticipating and recording performance, speeded the building of cargo ships during World War I. This was the forerunner of the PERT charts which helped put American astronauts on the moon in our day.

Also there were the Gilbreaths—Lillian and Frank—who carefully studied people's movements as they worked. Examining movies frame by frame, they broke the job down into very small elements, even to finger movements, so that each movement could be questioned and perhaps simplified or eliminated. Then they could scientifically change the method used to do the task.

The only way to get continuous, cumulative productivity improvement is through changes in method, and in industrial productivity this involves four factors: product design, machinery and equipment, the skill and effectiveness of the worker, and production volume. High productivity in the factory is a combination of these four elements.

Even though American industry remains the most productive in the world, its rate of improvement in recent years has dropped well behind that of other nations. We should move vigorously to increase our rate of improvement from the zero to two percent level of recent years to the three to five percent rate that will keep us competitive with other nations and enable us to continue to raise the real income of our people.

But actions limited to the industrial segment of the American economy alone would be insufficient to reduce inflationary pressures. We also must direct our attention and ingenuity to the services, where today nearly twice as many are employed than in manufacturing. It is here that inflation has hit the hardest—principally because pay increases for service employees, to keep up with the rising wages of manufacturing employees, haven't been matched by anything near proportionate improvement in productivity.

Not only has less attention been paid to increasing productivity in the services, we lack effective ways of measuring the rate of productivity there. In health care, education and police protection, for example, there is no convenient unit of output which can be related to the manpower required.

What then should be done to improve productivity in the United States? Although the principal responsibility should remain in the private sector, particularly in the relationship between management and labor, there is much for government to do, especially in terms of planning, coordination and leadership. We require a program to promote productivity improvement on a major scale, perhaps comparable to the national effort in agriculture that began a century ago. Specifically, the government should lead in (1) *promoting public understanding*, (2) *removing current obstacles*, (3) *preventing new obstacles*, and (4) *applying incentives*.

1. The government must take the lead to develop *public understanding* that productivity is essential to the economic well-being of all the people of the country.

Every government department should sponsor a productivity program in its field of activity, whether it be health, housing, transportation, postal service or whatever.

The government should support research and development in regard to productivity measurement techniques in the services, especially in government itself, and better means of worker motivation in industry. Experimentation should be encouraged, and the government should give wide publicity to successful examples of improvement.

2. A concerted effort should be made to *remove existing roadblocks and restrictions* to productivity improvement—such as restrictive work practices and obsolete standards.

Labor unions and management should be encouraged and required to work together to eliminate practices that control output and inhibit the use of more productive methods and equipment. Legislation needed to help accomplish this should be enacted.

Congress, in its oversight responsibilities, should insist that regulatory agencies eliminate obsolete rules and procedures which inhibit productivity. Fortunately, the Presdent's proposal for a National Commission on Regulatory Reform is aimed precisely at this, and I hope your committee will help speed the necessary authorizing legislation.

3. The government should take steps to *prevent the imposition of new obstacles* to productivity improvement. I applaud the President's new policy to require

government agencies to consider the inflationary impact of all new regulatory and legislative proposals. In this connection, the Office of Management and Budget should apply a productivity yardstick, similar in concept to the cost-benefit ratio applied to public works projects.

Congressional committees might well include in their reports an assessment of the productivity impact of legislation they approve, similar to the cost estimates already included in committee reports.

4. *Positive incentives* for increased productivity should be provided. Specifically, Congress should raise the seven percent investment credit to 10 percent, and the base of investments eligible for the credit should be expanded to encourage modernization of plant and equipment. Greater flexibility to accelerate depreciation should be permitted to encourage replacement of obsolescent equipment. Similarly, small business should be permitted to retain more earnings for the same purpose. Government contracts should provide funds specifically for development of better ways to do the job called for. These moves are not "give-aways" to industry; on the contrary, they would enable our economy to be more competitive worldwide and to make possible higher real wages for everyone.

It has been said that the root cause of inflation in our country is that Americans are demanding more from their economy than the economy is producing. Raising wages, prices and taxes won't get more things produced. That will only cause more inflation unless, at the same time, the economy starts producing more. The only way to boost real income is to improve productivity.

And we do that by working smarter.

The Role of Productivity in Controlling Inflation—A Data Resources Study Paper

(By Otto Eckstein and Nikki Shields)

It has long been recognized that productivity gains serve as an offset to increasing costs, and that consequently good productivity performance reduces the inflationary bias of an economy. Ever since inflation once again became a problem ten years ago, government policy has recognized the potential role of productivity.

This paper relates the contribution of productivity improvement to the contemporary inflation. The economy is caught in a series of difficulties, including the food and energy shortages, the shortage of physical capital in some basic industries, as well as a changed international economy. The potential contribution of productivity to inflation control inevitably depends upon the character of the inflationary process. Also, to the extent that the government develops a policy of stimulating productivity advance, it would be desirable to relate the specific measure to the specific character of the inflation problems. This is the territory which this paper surveys.

A REVIEW OF THE CAUSES OF THE CURRENT INFLATION

The current inflation represents the confluence of a series of unique historical factors with a worldwide business cycle upswing of extraordinary strength and breadth. Probably in the order of importance, the sources of the inflation can be given as follows:

(1) *The world boom.*—Real GNP growth for the eleven advanced countries, including the European Economic Community, Canada, Japan and the United States, averaged 6.1% in 1972 and 1973, the strongest two-year growth burst of the post-war period. (See Table 1.) The extraordinary growth produced a worldwide resource shortage. The growth was produced in large part by excessively stimulating fiscal and monetary policies around the world. Table 2 summarizes the rate of increase of the money supply, in real terms, in the major countries. The real money supply growth was far above sustainable levels, particularly in Japan, Canada and Italy. Table 3 shows the rates of growth of government consumption in a historical perspective. Though the really massive fiscal increase came during the Vietnam War, 1972 represents a second episode of rapid rise, particularly in Japan and the U.S. (These tables are appended at the end of the paper.)

This rapid growth was made possible by the very strong international reserve position of our major trading partners, which was in turn created by huge dollar outflows during the dying days of the Bretton Woods agreement. Therefore trade deficits did not apply the usual discipline.

(2) *Food supply disasters.*—The crop failures in the Soviet Union in 1972 and the losses of protein supplies in other areas of the world combined with the disappearance of United States agricultural surplus stocks to produce an explosion of food prices. After a year of respite, drought in the U.S. produced a second round of surging food prices.

(3) *Oil prices and the embargo.*—The disruption of oil supplies in the fall of 1973 created uncertainties in the minds of households and business which destroyed consumer confidence, deepened a decline of consumer spending, and produced business fears of material shortages causing inventory hoarding. The subsequent quadrupling in the price of crude oil directly added several percentage points to the 1974 inflation rate and indirectly raised the prices of chemicals, steel, cement, textiles, fertilizer, coal, natural gas, electricity, and numerous other goods and services.

(4) *Vietnam.*—In historical terms, the inflationary proces began with the failure to fully finance the Vietnam War during the period of its most rapid buildup in 1966 and 1967. This failure produced the earlier round of inflation which was beginning to abate in 1970–71. In particular, it left the inflation expectations of wage-earners high, and made for an exceptionaly large catchup wage round in 1970–71. Thus, the second round of inflation fell on an already highly sensitized population. This "second round" aspect seems to be a common feature of hyperinflations, corresponding to the experience of 1950, when the Korean War imposed strains on an economy still influenced by the World War II experience.

In assessing the impact of the Vietnam War buildup on the current situation, it should be kept in mind that a full eight years have intervened since that period. If the economy had followed a more normal path of subsequent development, the Vietnam inflation would be no more than a memory.

(5) *Primary processing capacity shortages.*—By late 1972, the American economy experienced shortages of processed industrial materials, including the major metals, chemicals, paper, lumber, rubber, glass and cement. Among the immediate causes of the shortages were the differentials between domestic and world prices caused by price controls and the dollar devaluations.

The roots of the problem were deeper. The lack of capacity was the culmination of a 15-year historical process. Some of these industries overexpanded in the boom of 1955–57 and suffered depressed returns thereafter. They lost favor with the financial community who urged them into typically unsuccessful diversification. The overvalued dollar of the 1960's did serious damage to their competitive position abroad, and gave foreign producers an easy entry here.

These industries also faced the most acute difficulties in adjusting to new and uncertain environmental standards. As a result, investment in these industries was low. The economy ran out of productive capacity in these lines long before total manufacturing capacity and the labor force were fully utilized. (See Table 4.)

(6) *Wages.*—On the whole, wages from negotiated settlements lagged behind prices both during the Vietnam War inflation and during the current episode. But wage catchups provide a continuity which prolongs the inflation process. The catchup settlements of the wage round of 1970–71, particularly in the construction industry, raised unit labor costs and set the stage for the price and wage control adventures. In the year ahead, when the economy will be weak, productivity advancing slowly, and many commodity prices falling, the inevitable wage catchup will again press unit labor costs upward so that the inflation lingers into the recovery phase.

(7) *Medical care costs.*—The introduction of Medicare and Medicaid increased the demand for medical services without compensating increases in supply or changes in the structure of the medical care market. The open-ended nature of reimbursement, particularly for hospital services, the most expensive component of medical care, is largely responsible for these price increases. Hopefully this lesson will influence the design of a national health insurance program.

TABLE 4.—CAPACITY UTILIZATION AND RATES OF RETURN: PRIMARY PROCESSING VERSUS ALL MANUFACTURING

	1955–59	1960–64	1965–69	1970	1971	1972	1973
Capacity utilization:							
All manufacturing	0.838	0.815	0.886	0.783	0.750	0.786	0.830
Primary processing	.855	.824	.889	.815	.793	.846	.897
Textiles	.792	.865	.970	.927	.935	.991	1.062
Paper	.856	.896	.960	.921	.914	.988	1.007
Chemicals	.772	.841	.948	.939	.938	.995	1.021
Petroleum	.846	.878	.918	.938	.939	.961	1.000
Rubber and plastics	.821	.856	.945	.813	.838	.915	.947
Stone, clay, and glass	.919	.898	.955	.912	.932	.992	1.061
After-tax rates of return:							
All manufacturing		9.9	12.3	9.3	9.7	10.6	12.8
Primary processing	11.3	9.7	11.5	9.0	8.7	9.3	12.2
Textiles	4.9	6.3	9.0	5.0	6.4	7.5	9.0
Paper	10.4	8.3	9.8	6.9	4.7	9.0	13.1
Chemicals	13.4	12.8	13.9	11.5	11.8	12.9	15.1
Petroleum	11.9	10.6	12.0	10.1	9.5	8.7	11.7
Rubber and plastics	10.9	9.5	11.4	7.5	9.8	10.8	12.3
Stone, clay, and glass	12.9	9.0	9.5	6.4	8.9	10.3	11.9
Steel and nonferrous metals	10.7	7.2	10.0	7.4	5.1	6.0	10.3

THE ROLE OF PRODUCTIVITY IN LIMITING INFLATION

High productivity performance can serve as a partial offset to inflation problems created by capacity shortages, agricultural problems and other causes. This section discusses some of the dimensions of this aspect of the issue.

Definitions of productivity

Labor Productivity.—Productivity has most commonly been defined as a statistical measure: the ratio of real output to the number of manhours worked. This measure is a crude index of the productivity of labor. In comparisons among countries, differences in labor productivity account for much the largest part of the differences in the standard of living. But this measure does not directly represent the actual efficiency of labor effort. In high labor productivity countries, there is a larger quantity of capital for each worker, better efficiency of organization, better structures of markets, as well as government policies to assure high efficiency of resource allocation. Differences in climate, in the quality of land and availability of natural resources may also account for some differences.

Some differences in labor productivity are directly attributable to differences in the quality of labor. The high productivity country is likely to possess a far greater investment in human resources: formal and informal education, quality of health and diet, and social stability and adjustment.

Total factor productivity.—A more complete measure of productivity is represented by the statistical ratio, total real value of output divided by the total real value of all factor inputs (labor, capital and materials). This measure is a crude index of the effectiveness of total resource use. In actual implementation, as in the studies by Kendrick, it mainly reflects the efficiency of the capital factor along with the traditional labor input. From the point of view of measuring the rate of progress of resource use, total factor productivity is clearly a superior measure to labor productivity alone. It should be noted that none of the statistical ratios provide explicit theories for the reasons for productivity advance, of course.

In the following analysis, the focus is on labor productivity, recognizing that its statistical measurement through output per manhour is a crude and incomplete index. However, it does have the merit of emphasizing the link between wages and prices. The data for labor productivity are for the private, nonfarm sector.

THE ROLE OF THE LONG-TERM PRODUCTIVITY TREND IN REDUCING INFLATION

In a period of price stability, the long-run productivity trend accommodates a corresponding increase in nominal wages, without creating an increase in unit labor costs. Even in a period of inflation, the productivity trend offsets at least a portion of the increase in hourly labor costs. Other things equal, a 1% increase in the long-term productivity trend of labor reduces the inflation rate on prices by a percentage equal to 1% times the share of unit labor costs in the total value added. This rule applies to the economy as a whole; labor cost is about two-thirds of total value added. Thus, the elasticity of the price level with regard to the economy-wide labor productivity trend is usually estimated to be near 0.7. The longer the time period over which the adjustment is calculated, the closer the coefficient comes to unity because the capital factor—the principal other factor cost—also becomes cheaper, since physical capital is produced by use of the more productive labor.

The actual process by which higher labor productivity affects price level behavior can be illustrated with the use of the DRI macroeconomic model. A special simulation has been prepared which uses a recent long-term control forecast solution as the baseline, but then modifies it by assuming that a 0.5% improvement has been achieved in the growth rate of labor productivity. Besides affecting unit labor costs, this improvement also produces a 0.3% increase in the growth rate of potential GNP.

The results of the simulation illustrate the stubbornness of inflation. Table 5 summarizes both the baseline forecast and the high productivity simulation. The higher productivity growth, averaging 3.3%, compared to 2.8% in the baseline forecast, reduces the rate of inflation from 4.7% to 4.3% from 1975 to 1990. The major reasons that the inflation is not reduced further are

Shortages of primary processing capacity continue to put pressure on prices over the next five years;

Agricultural commodities never return to the bountiful levels of supply that were characteristic of the fifties and sixties; and

The high wage demands caused by the recent declines in real income set off a wage-price spiral which lasts at least five years.

TABLE 5.—ANALYSIS OF INCREASED PRODUCTIVITY

[Average annual rates of change]

	History					Base-line forecast			High productivity forecast		
	50–55	55–60	60–65	65–70	70–74	75–80	80–85	85. 90	75–80	80–85	85–90
Prices and productivity:											
Implicit GNP deflator	2.6	2.6	1.4	4.1	5.9	5.0	4.6	4.4	4.8	4.2	4.0
Real wages [1]	2.9	2.6	2.7	3.0	1.7	2.6	2.5	2.6	3.1	3.2	3.1
Output per manhour [2]	2.5	1.8	3.4	1.7	2.0	3.0	2.7	2.7	3.5	3.2	3.3
Real GNP and its components:											
GNP	4.3	2.2	4.9	3.2	3.3	4.5	3.8	3.6	5.0	3.9	3.5
Consumption	3.6	2.9	4.7	3.7	3.3	4.5	3.8	3.7	4.9	3.9	3.7
Business fixed investment	3.4	1.7	7.3	3.2	5.4	7.0	4.7	4.4	7.2	4.7	4.2
State and local government	4.6	4.8	5.5	5.7	4.5	4.8	3.8	3.5	5.3	3.7	3.1
Federal Government	20.5	0.3	2.5	2.7	−3.4	1.0	2.8	2.4	3.2	3.2	2.8
Interest rates and money supply: money supply (M1)	3.1	1.3	3.4	5.3	6.0	9.0	8.1	7.9	9.1	7.8	7.4
Average annual levels:											
Bond rate [3]	3.12	4.13	4.42	6.40	7.92	8.77	8.16	8.11	8.62	7.88	7.73
Treasury bill rate	1.50	2.60	3.11	5.25	5.93	6.40	6.40	6.09	6.73	6.50	5.68

[1] Compensation per manhour in the private nonfarm sector deflated by the implicit deflator for personal consumption expenditures.

[2] Output per manhour in the private nonfarm sector.

[3] Average yield on new issues of high grade corporate bonds.

Therefore, even productivity growth of 3.3% annually, which is high by historical standards, cannot alone return the economy to a condition of 3% inflation at full employment.

The initial impact of higher productivity is a reduction in unit labor costs. Wage demands respond with a lag. The simulation assumed that wage demands were determined by the basic wage-price mechanism embodied in the model; hence the simulation did not allow for extraordinary pressure by organized labor to capture directly the increase in productivity. Indirectly, real wages[1] do receive most of the benefit of the productivity improvement. Better unit labor costs cuts prices, raising real purchasing power. Real wage increases average 3.1%, compared to the 3.3% rate of increase in productivity.

The reduction in unit labor costs also has a beneficial effect on business. Profits increase which, in turn, stimulates investment. The higher investment shortens the time required to alleviate the shortages in primary processing capacity, helping later price performance.

The policy assumptions underlying this simulation are that federal spending is aimed at maintaining full employment. Initially federal spending grows faster than in the baseline forecast since the private sector does not respond quickly enough to the higher level of potential GNP to keep the unemployment rate at a politically acceptable level. On the other hand, no changes in monetary policy were required. The lower demands for reserves from the reduction in inflation are offset by the higher demands caused by more real growth. The net effect is lower interest rates because inflationary expectations are reduced.

These simulation studies show that in the current inflation setting, a plausible gain in the long-term productivity trend can solve a part, but only a small part, of the inflation problem. The extended list of causes cited in Section 1 of this paper has brought us to the current situation. Inadequate nationwide productivity performance was not on that list: when the potential benefits from an extra productivity gain are compared to the total inflation, the impact is inevitably rather limited.

Recent productivity performance

Since the late sixties, the growth of productivity has slowed, raising concerns that the long-term trend of productivity advances has shifted downward. However, in large part, the slower productivity growth can be explained by cyclical factors, changes in the composition of the labor force, shifts in the mix of final demands toward services, and changes in the capital-labor ratio. In general, most of these problems are temporary, except for the shifts in final demands, suggesting that there has not been a significant shift in the long-term trend of productivity growth.

(1) *Capital-labor ratio.*—The DRI long-term growth model developed by Jorgenson and Hudson is based on neoclassical growth theory, allowing one to focus on the relationship between the capital-labor ratio and output per manhour. A dynamic simulation with this model shows and explains a production slowdown after 1965. This lower growth of productivity is directly related to a slowdown in improvements in the capital-labor ratio. The capital-labor ratio in 1972 was essentially unchanged from its level in 1966 through its value had fluctuated in the interim. In comparison, the capital-labor ratio grew at a compound annual rate of 1.0% between 1950 and 1966.

The retardation of the capital-labor ratio growth is the product of a low rate of investment at a time when the post-war baby boom entered the labor force. Business fixed investment in constant dollars only grew at a compound annual rate of 2.1% from 1966 to 1972, compared to 7.8% from 1960 to 1966. In the meantime, the labor force grew at 2.2% from 1966 to 1972 compared to 1.4% from 1960 to 1966.

The slow growth of the capital stock from 1966 to 1972 is attributable to cyclical factors, particularly conditions in the capital markets, the diversion of resources to military spending for the Vietnam War, and the problems in processing industries discussed above. However, the recent shortages of capacity, caused by the low rate of investment, have increased the rates of return in capital-short industries and should spur a high rate of investment over the next five years. In fact, until the credit crunch of the past summer sent interest rates soaring, surveys of investment plans indicated a significant increase in the level of investment spending. Most of this intended investment has probably been

[1] Real wages are defined as compensation per manhour in the private nonfarm sector deflated by the implicit price deflator for personal consumption expenditures.

postponed, not foregone. The major risks to DRI's forecast of business fixed investment are problems in the capital market and the erosion of funded depreciation by inflation. (These problems will be studied further at Data Resources, using a new corporate flow-of-funds sector in the DRI quarterly model of the U.S. economy.)

(2) *Changes in the composition of the labor force.*—The composition of the labor force has shifted significantly due to the entrance of the post-war baby boom generation into the labor force and the higher participation of women. (See Table 6.)

TABLE 6.—LABOR FORCE GROWTH

[Compound annual rates in percent]

	1960–73	1973–85 [1]
Total labor force	1.9	1.6
Sex:		
Female	3.1	1.6
Male	1.2	1.6
Age:		
16 to 19	3.7	−1.4
20 to 34	2.8	2.6
35 to 54	0.4	1.4
55 plus	0.9	1.2
Jorgenson-Hudson's labor force adjusted for education	2.6	1.8

AGE AND SEX DISTRIBUTION OF LABOR FORCE

[Compound annual rates in percent]

	1960	1973	1985 [1]
Age:			
16 to 19	7.3	9.5	6.7
20 to 34	31.5	36.9	41.6
35 to 54	43.7	37.6	36.6
55 plus	17.4	15.9	15.2
Sex:			
Female	32.0	37.0	39.0
Male	68.0	63.0	61.0

[1] Based on projections by the Bureau of Labor Statistics.

The absorption of so many new workers has caused significant problems, which are documented elsewhere, including a lower aggregate labor productivity growth. However, the important point to remember is that this problem is almost behind us. The youngest segment of the labor force will decline over the next ten years, and the fastest growing segment will be the better trained, highly productive group, age 20 to 34.

(3) *Cyclical influences on productivity.*—A solution of the productivity equation in the short-run, quarterly DRI macro-economic model indicates that labor productivity has been slightly below its estimated cyclical path, that is to say, productivity has recently done slightly worse, according to this measure, than is normal during a recession. The average error over the last eight quarters is 0.8%. The equation reflects the systematic variations in productivity created by delays and costs of hiring and firing as output changes over the cycle, and the increased fixity or "overhead" nature of labor.

These modest deviations can easily be explained by the peculiarities of the current recession. The real nonfarm private GNP, the measure of output, showed a large drop in the first quarter of 1974 because of the direct effects of the energy embargo. Electricity use was sharply reduced, gasoline consumption was down, and there was also a decline in the use of heating oil. These are all significant elements in the real GNP, and yet they represent little use of labor. Consequently, this component of output fell without a corresponding decline in the use of labor.

Besides the housing setback, the initial effect of the decline was mainly limited to automobile sales, airline travel, and other energy-related consumer categories. These are typically products and industries in which the number of hours per unit of output is relatively small, and so the decline in demand did not lead to the release of large amounts of labor.

As the recession moves into a more general phase, with declines in most demand sectors and employment reductions in most industries, productivity will improve relative to the historical norm. It may still be falling absolutely because output itself will be dropping substantially. But the major employment correction of the current recession is underway and gives every sign of eliminating any abnormal productivity retardation.

Once the economy has passed through its trough and recovery resumes, it will benefit from the usual sharp productivity upswing that is produced by the quick and usually strong production gains in the early stages of the cycle. In most postwar cycles, productivity has done very well at this stage, and, at least for a period, has stabilized unit labor costs and helped to stabilize prices in the face of improving markets (see Chart 1). This creates an opportunity for demand management, because it helps keep unit labor costs stable at a critical juncture. On the other hand, it can also blind policy to the real dangers of overstimulation.

In summary, the statistical analysis reported here concludes that the recent declines in productivity can be explained by the cyclical behavior of output per manhour and energy-induced declines. There is little evidence of a retardation in the fundamental productivity trend.

Productivity and real wages

Lately, real wages have deviated significantly from their usual progress. As Chart 2 shows, the rate of increase in real wages fell. The slower growth of real wages is the outgrowth of normal cyclical factors as well as particular circumstances of the current period.

In the mid-1960's, the economy grew rapidly, partially from the stimulus of large military expenditures for the Vietnam War. During this upswing from the second quarter of 1961 through the end of 1966, productivity grew by 3.5%. The short-run change in productivity of the last eight years is only at an annual rate of 2.3%, leaving less room for real wage gains.

Price and wage controls were also a major cause of the slower growth in real wages. The impact of controls was most uneven. However, they were generally more effective at curtailing wage increases by restraining large wage settlements in the major contract negotiations. Given the difficulty of monitoring myriad prices, profits in general fared better under controls. Profits increased as a share of national income while compensation of employees declined slightly. The performance of profits was in part due to cyclical factors which will reverse much of this gain as the full impact of the recession is felt in 1975.

CHART 1.—Prices, wages, and productivity

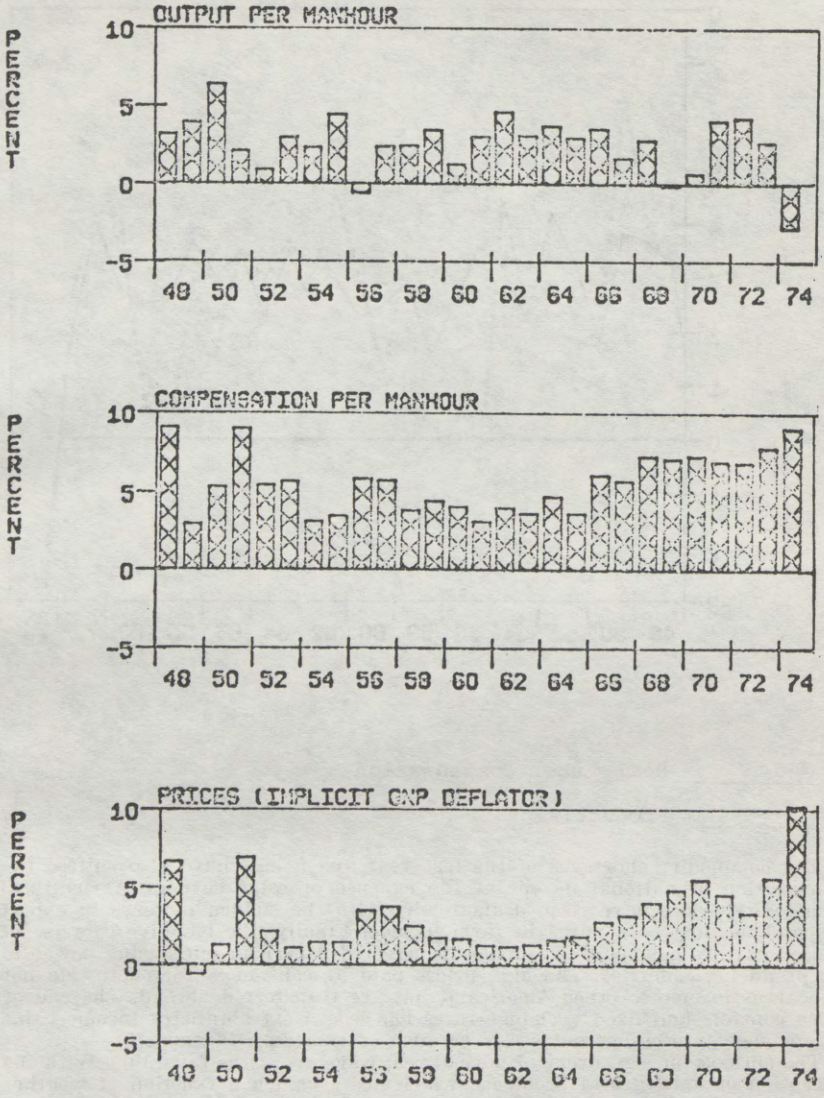
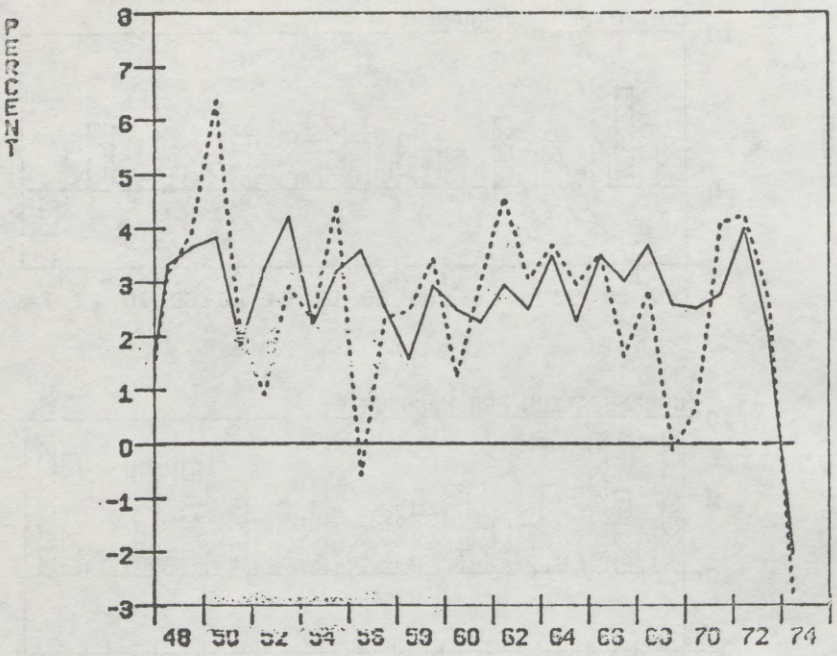


CHART 2.—Growth of real labor compensation and productivity



Real Labor Compensation

Productivity

The commodity shortages of the last year and a half have also shifted the composition of national income at the expense of wage earners. Agricultural commodity prices have risen dramatically with the sudden increase in export demand, leading to a surge in farm income. Finally, the effective exercise of the oil cartel's monopoly power has transferred American purchasing power to oil producing countries. The high prices paid by consumers for energy do not appear as income to other Americans, but are transferred abroad. The end of price controls and fixed exchange rates has led to extraordinary income gains for primary processing industries because of shortages in capacity.

The outlook for a recovery of normal real wage growth is favorable. With the exception of agricultural problems, which are as much a function of weather as economic factors, the other circumstances curtailing real wages should not continue into the recovery in 1976 and 1977. In the long term DRI forecast, real wages grow along their normal trend, 2.6% per year, after the current business cycle while productivity increases by approximately the same rate. The one-time loss of real wages is not projected to be recovered.

SECTORIAL PRODUCTIVITY

The analysis of inflation shows that peculiar historical circumstances combined with macro-economic conditions to produce the disaster. Since some of the inflation problems are focused in specific sectors, we review the productivity issues that may pertain.

Productivity in the primary processing industries

Production of most of the major primary processing industries has been curtailed by material and energy shortages and environmental controls. Labor has not been the problem. The changed relationship between the less developed, raw materials supplying countries and the more advanced countries is creating high prices and uncertain supplies. The inadequacy of physical capacity, which was long in developing, can only be remedied by increased investment in physical capital. Of course, productivity questions are always outstanding between labor and management in manufacturing industries. But on the whole, the attitude of the American labor movement toward productivity-improving changes in job conditions has been very progressive, far more so than in many other advanced countries.

The availability of sufficient primary processing capacity will help determine the strength of the next business cycle upswing and will be an important factor determining whether the inflation rate will improve once the near-term recession is over. The availability of sufficient primary processing capacity by 1976 will test whether the U.S. economy can achieve a good upswing without extreme inflation. The sheer size and time schedules of the projects will delay relief on capacity for several years. Any productivity changes that would increase the output of these shortage industries would have a very major benefit to the control of inflation.

Productivity in agriculture

The productivity of American agriculture, which has advanced at an extraordinarily high rate since the Depression, plays a pivotal role for the world food economy. In the last ten years, the U.S. share of world agriculture exports has risen sharply, to the point where we provide half of all internationally traded, basic foodstuffs. If some of the fears about deteriorating world weather prove to come true, the U.S. role as the world supplier of food would even be larger.

Production of American agriculture has mainly been limited by restrictive government policies. At least for the time being, acreage restrictions have been removed. There still are marketing orders on some of the minor commodities, particularly fruits and vegetables, and their inflation impact remains serious. There are other government restrictions, such as the regulation of the transportation industry by the Interstate Commerce Commission, which raise food costs and have at least a minor impact on agricultural productivity.

At this time, the more fundamental problems of agricultural productivity relate to the supply of fertilizer and to environmental questions. Partly as a by-product of the higher oil prices and the natural gas shortage, fertilizer is in short supply. The President has announced, as part of his anti-inflation strategy, that the government will seek to promote an adequate supply of fertilizer. Limitations on the use of pesticides and drugs have also hurt output.

Productivity improvements are also desirable in the processing stage of the food industry. Unstable supplies and wildly fluctuating prices of inputs are obstacles to efficient production. Transportation costs are rising rapidly, and, to an extent, needlessly: obsolete trucking regulations and sporadic shortages of railroad box cars are among the productivity problems. The collective bargaining institutions in the food industry are also a source of instability.

The current inflation in agricultural prices is mainly due to short-run variations in production at a time of strong worldwide demand for food. But while productivity can do relatively little to augment short-run supplies, it is of decisive importance for the long-run outlook on food prices. Only if United States agriculture can resume its handsome productivity growth in the years ahead will we meet the worldwide consumer needs and restore private and public stocks to provide insurance against future supply variations.

Productivity in energy industries

Besides conservation, the principal need at this time is to augment the supply of fossil fuels. In the case of coal mining, the question of labor productivity is pertinent. More peaceful industrial relations will bring stability to the industry and greater productivity will help to satisfy the country's new urgent needs for this energy source.

In the case of petroleum and natural gas resources, the productivity question mainly pertains to the quality of the remaining reserves, and to our ability to

reverse the long declines in discoveries and production of recent years. Unfortunately, shortages interact with each other: the primary processing capacity shortages are also prohibiting the energy industries' ability to step up exploration and production. Labor productivity is high in these industries, and is not a principal issue.

Productivity in the service industries

The important study by Victor Fuchs has put the trends in service productivity into a more realistic context. Fuchs shows that there are considerable advances, although the average is not as high as in the economy as a whole. The measurement of productivity in services is also particularly difficult because the product is rarely defined very clearly. For example, the quality of medical services has changed so substantially that it is difficult to develop a statistical measure which unambiguously relates input to output over the decades.

It is evident, that, in certain elements of the service sector, productivity is advancing very rapidly. Data processing services, for example, are reaping the technological benefits of succeeding generations of computers, whose productivity in terms of specific arithmetical operations is advancing at a rate not far from 100% a year. The productivity of transportation services, particularly airlines, is advancing rapidly as succeeding generations of planes are able to handle larger volumes of passengers at higher speeds, with fewer employees and at lower total cost. On the other hand, in some labor-intensive service fields, such as personal care, it is difficult to improve productivity; with rising wages these services are gradually disappearing; they are replaced by do-it-yourself techniques, such as home laundry equipment, home permanents, drip-dry no press clothing, and cheap footware that need not be repaired. In the case of automobiles, recognition of the rising cost of repairs has prompted the manufacturers to redesign their product to require less frequent maintenance, and hopefully, fewer repairs.

Productivity in government is particularly important because of the continuing shift of workers to this sector. With an aging population, increasing urbanization and a growing role for public activities in such fields as transportation and health, this shift is likely to continue. Government does not have the cost cutting incentive of the profit-motive, just the political resistance of tax payers to rising burdens. The productivity improvement function in the public sector remains in an embryonic state.

One of the principal areas of immediate policy concern in service productivity is the field of medical care. Ever since the adoption of Medicare and Medicaid, the federal government has financed a large proportion of all medical care. Of the remainder, private employer-sponsored health insurance is paying another large fraction. The medical care industry does not operate by the usual price incentives of a market economy, since the use of many services is covered by insurance or government programs. It is one of the leading challenges to current economic research and public policy to achieve a better resource utilization in the medical care industry under non-price purchasing.

Medical prices continue to be one of the principal problem areas in consumer price inflation. A comprehensive system of national medical insurance is high on the agenda of both the Congress and the Administration, and it is a reasonable expectation that such a program will be adopted some time during the next few years. We already saw at the time of the adoption of Medicare and Medicaid that improved financing produces additional price inflation and rising incomes for scarce resources in the medical industry if there is no matching effort to augment the total supply of medical resources and improve productivity in their use. Changes in the structure of medical care delivery system, particularly the growth of prepaid group practices (health maintenance organizations) and the emergence of new manpower categories, e.g., pediatric nurse associates and other types of physician's assistants, are among promising opportunities for increased efficiency in the production of medical services.

Food distribution is another important service sector where lagging productivity contributes to inflation and is a matter of national concern. Costs of food distribution comprise an increasing percent of the value of consumer expenditures for food. The relatively poor performance in the distribution segment becomes even more critical, because it has been accompanied by a reversal of long-term trends in improvement in agriculture which previously dampened the impact of cost increases in the food distribution system. Opportunities for productivity improvement in distribution exist in applying available technology

in packaging, materials handling and retailing. The problem involves coordination of functions throughout the distribution system which are typically controlled by different business units with different interests and perspectives. Achieving gains require cooperation among manufacturers, transportation companies, and retailers and wholesalers, with the government playing a role as catalyst and advocate for constructive change.

Productivity in construction

No list of sectoral productivity questions would be complete without some consideration of the construction industry. The measurement of productivity is a complex problem because of poor data and non-standardized nature of the output. Further, the nature of the product has also changed. Buildings contain different construction characteristics and different features than they did years ago. The industry is also geographically dispersed and subject to the shifts of local economies. Nonbuilding construction, a significant portion of the industry, reflects the erection of ever more sophisticated, custom-tailored industrial productive units, whether they be steel mills, petroleum refineries, chemical plants, or military projects.

The productivity question has been important in construction for many years because of manning and other rules governing individual craft jobs, multiplicity and diversity of building codes, poor management practices, government regulations and environmental restrictions. The government's influence is pervasive, purchasing nearly 30 percent of new construction and influencing the financing of private construction. In terms of industrial relations the construction industry is localized and highly fragmented. As a result, the continued adaptation of work rules and other practices to changing technology to permit good productivity performance is a continuing challenge to institutions and to public policy.

CONCLUDING COMMENTS

This survey paper of productivity and inflation cannot be complete, nor would other scholars agree with every shading presented. But the basic conclusions are clear and would command wide professional support: first, once an inflation reaches the dimensions of the current episode, with its numerous domestic and international causes, improved productivity performance can do no more than to make a modest contribution to bringing the problem under control. Greater contributions must be made by solving our commodity supply problems including oil, by restoring equilibrium to industrial capacity, and by sound fiscal and monetary policies which will help reduce the sharp inflationary expectations in the minds of households and businesses.

Second, there is no evidence to suggest that the overall productivity performance of the American economy has deteriorated. Uncertainties for future performance must be recognized, of course, and policy has to work to protect this most fundamental force in the U.S. development process. The need to find new energy sources diverts capital from other uses. Inflation complicates the provision of financial capital as fund flows are distorted and the real values of depreciation allowances and retained profits shrink. The large postwar gains in agricultural productivity may also be slowing, but a 2.7% rate of increase in output per manhour in the non-farm private economy seems to be present.

Third, productivity improvements in such strategic sectors as construction, medical care, food distribution, transportation, primary processing, and government would contribute to a better performance of the economy as a whole. It would lessen inflationary pressures originating from these sectors though not significantly reducing the inflation stemming from the general sources cited earlier. While the process of productivity improvement is deeply imbedded in our private enterprise system, there is need for public agencies to work with private institutions to break bottlenecks, improve work rules, remove an overhang of obsolete regulatory policies, and encourage productivity by making industry structure more competitive.

Finally, labor and management can help by improving the structure of collective bargaining and dispute settlement activities. Labor-Management Committees can provide a mechanism in some industries to improve the climate for productivity growth and for orderly manpower adjustments.

These more specific productivity concerns can provide a large and continuing agenda for the National Commission on Productivity and Work Quality. American productivity performance has long been achieved with the help of sound public concern with these questions. Many problems remain unsolved and the current

inflation provides additional motivation and impetus to strengthen this particularly favorable characteristic of our economy.

APPENDIX

This appendix presents the technical details of the historical simulation with the Jorgenson-Hudson growth model, analyzing recent trends in productivity, and the simulation with the DRI macro model to determine the impact of higher productivity on the rate of inflation over the next ten years.

The Jorgenson-Hudson growth model contains four sectors, household, business, government and foreign. Production decisions for consumer goods and investments are based on a Cobb-Douglas production function and relative prices of the two goods. The basic determinants of long-term growth are the growth of population, labor force and the capital stock, and the overall level of input to output efficiency, an exogenous variable which captures technological change.

The model was simulated over the period 1947 to 1972. Actual labor productivity averaged 0.9% higher than the model predicted, and from 1953 to 1972, it averaged 1.71% higher than the model predicted.

The simulation with the DRI macro model required two major changes from the baseline simulation. Productivity was exogenized and increased so that it grew at an average rate of 3.3%, .5% higher than in the baseline forecast. Potential GNP was increased so that it grew at an average of 4.1%, compared to 3.7% in the baseline forecast. It was also necessary to increase real federal spending, and to make minor adjustments to several implicit price deflators. The results of the simulation are summarized in the text.

TABLE 1.—REAL GNP

[Percentage change]

	1954	1955	1956	1957	1958	1969	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Belgium	3.8	4.9	2.9	2.5	−0.6	2.5	5.5	5.0	5.6	4.4	6.8	3.8	2.9	3.8	3.6	6.5	6.4	4.4	5.4	5.7
Denmark	3.2	.1	2.2	5.0	2.7	6.9	6.2	6.0	5.6	.8	9.0	4.8	2.5	4.1	4.3	8.2	2.8	4.6	4.7	3.9
France	4.8	5.8	5.0	6.0	2.6	5.8	7.1	5.4	6.8	5.8	6.6	4.7	5.5	4.8	4.2	8.6	6.1	5.0	6.0	6.4
Germany	7.3	12.0	6.7	5.4	3.6	7.3	10.0	5.4	4.2	3.4	6.6	5.7	2.3	.2	6.3	9.9	6.9	2.6	3.1	5.5
Ireland	1.0	2.0	−1.3	.6	−2.0	4.1	5.3	5.0	3.3	4.5	3.9	2.7	1.4	5.0	6.8	4.3	5.1	3.1	2.9	6.5
Italy	3.6	6.7	4.7	5.4	4.9	6.6	6.3	8.3	6.3	5.4	2.9	3.6	5.9	6.4	5.7	5.6	6.0	1.6	3.1	5.5
Netherlands	6.8	7.4	3.7	2.8	−.3	4.9	8.4	3.4	3.8	3.7	8.9	5.4	2.6	6.1	6.2	5.3	6.1	7.2	5.4	3.8
United Kingdom	3.9	3.1	2.0	2.1	.9	3.8	4.8	3.5	1.3	4.0	5.4	2.5	2.1	2.1	2.9	1.3	2.3	1.6	2.8	7.5
Total EEC	4.9	6.4	4.3	4.3	2.4	5.6	7.1	5.2	4.4	4.4	5.9	4.3	3.6	3.2	4.8	6.6	5.4	3.1	4.0	6.0
United States	−1.4	7.5	1.9	1.4	−1.1	6.4	2.4	2.0	6.5	4.0	5.5	6.2	6.6	2.6	4.7	2.7	−.4	3.3	6.2	5.9
Canada	−1.2	9.4	8.5	2.3	2.3	3.8	2.9	2.8	6.8	5.2	6.7	6.7	7.0	3.3	5.8	5.3	2.5	5.9	5.8	7.1
Japan	5.5	9.2	8.1	7.7	5.5	9.3	14.0	15.7	6.2	10.7	13.7	4.6	10.3	13.5	14.2	12.2	10.2	6.8	8.9	10.7
Composite	.8	7.3	3.1	2.7	.4	6.2	4.5	3.8	5.8	4.6	6.2	5.5	5.9	3.6	5.5	4.8	2.5	3.7	5.7	6.5

TABLE 2.—INDEX OF REAL MONEY

[Percentage change]

	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Belgium	0.3	0.1	7.5	6.0	6.1	3.0	2.7	2.3	0.5	5.3	0.4	4.3	4.5	8.6	1.4
Denmark	8.0	−.6	7.5	3.1	7.2	5.7	5.8	7.4	3.2	9.4	8.0	−4.6	1.2	16.6	5.0
France	5.6	10.2	12.0	13.2	9.1	4.7	6.7	4.6	1.9	3.1	−7.2	4.9	6.1	9.3	1.4
Germany	10.8	5.4	11.6	3.3	4.3	6.3	3.7	−1.5	8.1	6.2	4.1	5.7	7.1	7.9	−6.0
Ireland	3.2	18.0	5.6	5.8	12.4	−2.9	−.6	2.1	5.2	2.3	−1.0	2.4	−6.0	7.4	−.6
Italy	15.1	12.1	13.6	11.3	5.9	2.2	11.9	10.1	12.5	10.6	11.9	20.8	13.0	17.2	5.4
Netherlands	3.1	4.2	5.4	4.7	5.2	1.2	5.7	1.3	3.1	8.6	1.1	5.9	10.2	8.4	−8.2
United Kingdom	7.2	.2	−1.8	−8.9	12.3	−.1	−.8	−3.6	5.0	−.5	−4.8	3.1	6.6	8.0	−2.4
United States	−.4	−.9	2.3	1.5	2.1	3.6	3.5	−.3	4.8	4.3	−.7	.6	2.1	4.7	1.5
Canada	−4.4	3.0	12.0	2.9	5.7	8.1	12.0	4.1	11.6	9.3	−9.5	9.9	24.8	11.0	7.3
Japan	14.9	7.7	12.4	9.8	26.1	8.4	10.5	8.4	9.9	7.6	15.0	8.5	22.2	18.9	4.5
Composite	2.3	1.4	4.7	2.5	5.2	4.0	4.7	1.2	5.9	5.0	.4	4.1	7.1	8.6	1.6

Note: Nominal money supply changes corrected for consumer price deflator.

TABLE 3.—INDEX OF REAL GOVERNMENT EXPENDITURES

[Percentage change]

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Belgium	1.0	−2.2	1.7	0.9	7.6	5.3	5.3	1.7	9.0	11.6	4.0	5.6	4.1	6.0	4.0	7.5	3.9	3.0	7.2	4.7
Denmark	4.7	1.1	.2	3.1	.6	6.6	3.9	5.3	10.1	2.8	7.8	3.5	6.0	7.7	5.5	6.9	5.2	17.2	6.8	3.5
France	−8.9	−.5	13.8	5.0	−3.0	−1.4	2.9	4.0	4.1	1.8	3.6	2.7	2.7	3.6	5.2	3.9	3.9	3.6	4.1	3.5
Germany	2.7	4.1	−0	3.7	7.0	8.7	7.7	7.8	11.5	7.5	−.5	6.9	1.2	3.6	−.5	3.2	6.5	7.5	4.2	4.4
Ireland	2.2	−1.1	.8	−3.2	−1.3	1.7	2.3	2.4	3.3	4.1	2.7	4.0	1.5	4.9	9.8	4.0	5.0	3.3	8.6	7.0
Italy	4.3	1.7	3.4	1.7	5.5	4.4	4.0	4.8	5.4	4.6	3.6	4.0	3.2	2.8	4.1	4.7	2.0	5.2	4.2	4.0
Netherlands	7.1	4.5	4.1	−.6	−4.7	−1.3	5.4	3.4	4.4	6.8	1.7	1.6	1.6	4.1	1.8	−.2	7.3	6.7	1.6	2.0
United Kingdom	−.4	−3.0	−.8	−1.5	−2.2	2.1	2.2	3.8	3.2	1.7	1.7	2.4	2.5	5.3	.3	−.9	.6	3.4	3.8	4.4
United States	−8.7	.1	3.5	6.2	6.4	1.8	1.3	6.9	8.1	3.7	4.0	5.3	12.1	12.6	7.3	1.0	−.1	2.4	6.1	2.4
Canada	1.4	6.3	9.8	2.4	4.2	3.1	2.7	15.4	6.4	3.7	5.4	10.6	13.1	8.5	6.6	6.1	10.3	9.7	6.0	5.4
Japan	4.3	4.6	3.9	4.4	9.8	7.9	10.1	10.4	9.3	10.6	11.4	8.0	7.4	8.0	8.7	9.8	9.8	11.0	14.3	8.2
Composite	−5.2	.5	3.9	4.4	4.5	2.5	2.7	6.8	7.4	4.2	3.9	5.3	8.8	9.6	5.9	2.3	2.1	4.2	6.2	3.5

Note: Central Government spending for public consumption, OECD data. United States: Federal spending NIA basis minus Federal construction.

TABLE 4.—CONSUMER PRICE DEFLATOR

[Percentage change]

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Belgium	1.2	−1.0	2.1	3.7	0.1	3.0	1.8	0.2	1.1	3.3	3.5	4.3	4.2	2.6	2.1	2.1	3.9	6.3	5.0	6.7
Denmark	.8	4.4	3.6	2.0	.5	2.4	2.8	3.5	6.1	5.9	3.9	5.8	6.3	5.7	6.6	3.8	3.7	6.0	6.6	8.4
France	1.3	1.3	4.6	5.2	12.3	5.5	3.6	3.1	4.3	5.0	3.4	2.5	3.0	2.9	4.7	6.6	5.9	5.4	5.1	8.3
Germany	.5	1.7	2.3	2.6	2.8	1.0	1.3	2.8	3.2	2.8	2.4	3.3	3.9	1.7	2.0	1.8	3.7	5.3	5.5	7.2
Ireland	.6	2.5	2.9	4.2	4.0	.4	.8	2.3	4.0	2.5	6.6	4.4	3.4	3.0	4.4	8.0	9.2	7.5	9.6	11.2
Italy	2.4	2.9	4.7	1.6	2.2	−.7	1.4	2.2	5.7	7.3	5.2	4.1	2.9	2.9	1.1	3.5	5.5	5.3	5.8	11.5
Netherlands	4.2	1.6	2.6	5.4	1.4	1.3	2.4	2.2	2.7	3.8	6.8	4.2	5.4	3.1	2.5	6.9	5.6	4.4	8.5	8.8
United Kingdom	2.0	3.4	4.6	3.3	2.7	1.0	.2	3.8	3.8	1.9	3.3	4.6	3.7	2.5	4.5	5.3	6.0	8.1	5.5	7.7
United States	.9	.3	2.2	3.1	2.4	1.3	1.6	1.0	1.0	1.1	1.2	1.3	2.5	2.6	3.5	4.3	4.7	3.9	2.8	5.6
Canada	1.0	0	1.7	3.2	2.5	1.1	1.0	.6	1.4	1.5	1.3	2.0	3.2	3.5	4.1	3.9	3.6	2.4	4.1	6.1
Japan	5.7	−.7	.8	3.2	−.2	1.4	3.8	5.3	6.2	6.7	4.2	6.9	5.1	3.8	5.4	4.9	7.7	6.1	4.8	11.7
Composite	1.3	.8	2.6	3.2	2.9	1.5	1.7	1.8	2.2	2.3	2.2	2.5	3.0	2.7	3.6	4.4	5.0	4.7	4.0	7.0

Employment Security and Plant Productivity Committee—Ten Coordinating Steel Companies

1. WHY AN EMPLOYMENT SECURITY AND PLANT PRODUCTIVITY COMMITTEE?

In 1971, the once mighty steel industry which supplied much of the base for America's climb to a one-trillion-dollar economy had all the earmarks of a sick industry: sluggish growth, stagnating profits, chronic overcapacity and labor costs that the industry insisted were at least twice as high as its chief foreign competition.

Thus steel's waning vitality led some economists to ask in 1971 whether the United States, with its high cost structure, could afford to have a domestic steel industry at all—and steel men themselves were frankly saying they were unable to compete under the present system at that time.

In the 1971 basic steel negotiations, the steel industry brought to the attention of the United Steelworkers of America their concern with the problem of improving productivity. Because of the joint obvious conviction that productivity must be improved, the Union joined with the Industry and negotiated a new contract provision which established joint advisory committees on productivity at each plant of the Industry.

2. THE PURPOSE OF THE EMPLOYMENT SECURITY AND PLANT PRODUCTIVITY COMMITTEE

The purpose of such committees is to advise with plant management concerning ways and means of:

Improving productivity.

Promoting orderly and peaceful relations with employees and achieving uninterrupted operations in the plants.

Promoting the use of domestic steel. This reflects the Union's concern regarding imported steel.

Achieving the desired prosperity and progress of the company and its employees.

Reviewing matters of special concern consistent with the purposes of the committee and provisions of the collective bargaining agreement.

The Industry and the Union agreed that the functioning of this Committee shall not affect the existing rights of either party under any other provisions of the Agreement.

3. STRUCTURE OF THE EMPLOYMENT SECURITY AND PLANT PRODUCTIVITY COMMITTEE

The Union representation on the plant committee on productivity is the local union president, chairman of the grievance committee, secretary of the grievance committee and a rotating grievance committeeman. The need for a rotating grievance committeeman is based on the fact that plant committee discussion will be confined to special areas and/or departments. For this reason it is important that the grievance committeeman from that area and/or department be in attendance at the monthly meeting when matters are discussed that might possibly affect their area of representation.

Company representaton on the plant committee on productivity is the plant superintendent or manager or their designated representative, plant manager of labor relations, involved department superintendent, and the plant industrial engineer.

The designated Union staff representative shall advise and consult with the local union committee on productivity. Upon request of the local union committee on productivity, such staff representative shall be permitted to attend the monthly meeting of the joint employment security and plant productivity committee as an observer for the purpose of being informed as to particular matters discussed at such meetings.

In the implementation of the provision on improving productivity, it is recognized that the joint plant committees on productivity shall meet at mutually agreeable tmes, but no less than once each month. It is recommended that prior to any such meetings the parties submit in advance an agenda of the matters to be discussed at such meeting.

Following the discussion provided for in the foregoing paragraph, should either party believe that any proposed action would constitute a violation of these recommended guidelnies, it shall first be communicated to the top Joint Employment Security and Plant Productivity Committee for its evaluation before the plant committees proceed to implement.

As reflected in the parties' Settlement Agreement, the functioning of the plant committees on productivity shall not affect the existing rights of either party under any other provision of the Basic Labor Agreement. Thus, it should be clearly understood that these committees cannot be used by either party separately, or by the parties jointly, to circumvent or abrogate rights established under the Basic Labor Agreement. Rather, the committees are to function in concert and consistent with the established terms of the Basic Labor Agreement.

4. OBJECTIVES OF THE EMPLOYMENT SECURITY AND PLANT PRODUCTIVITY COMMITTEE

Specifically, the committees on productivity are free to discuss and consider any matters reasonably related to the common objectives of improving productivity. Such matters may include, among others, more efficient use of production time and facilities; reducing equipment breakdowns and delays; improving quality and reducing the need for reprocessing products; eliminating waste and negligent use of materials, supplies and equipment; reducing excessive overtime; boosting employee morale; improving safety experience; and generally focusing employee awareness on the productivity problems and the real threat of foreign competition. These and other matters bearing on productivity should be pursued in a logical and practical manner, always with the objective of seeking tangible and significant improvement, while not infringing on the contractual rights, benefits and protections of the employees and the Company.

5. CURRENT PROGRAM OF THE EMPLOYMENT SECURITY AND PLANT PRODUCTIVITY COMMITTEE

At the present time, there are about 250 individual joint plant productivity committees in operation. Most of these committees meet monthly although in some locations the formal meetings are quarterly, with informal discussion occurring more frequently. As might be expected, the progress of these joint plant committees range from good to bad, with some showing excellent progress and results stemming from full cooperation with little or no progress at other locations due to indifference, lack of cooperation and even outright refusal to meet. Perhaps the outstanding example of excellent progress in a plant results from the plant joint productivity committee acting as a steering committee and organizing sub-committees in all plant departments where problems are identified, discussed and constructive solutions reached by those most familiar with such problems. The largest single problem in motivation and various devices such as plant open houses, movies, slide presentations, posters, letters to employees, production huddles, trips to customers' plants, and local media publicity have been used to demonstrate the import problem, the cost of poor workmanship, absenteeism, poor housekeeping, poor material or tool usage and excessive delays. These devices also show how employees can improve their earnings by eliminating delays, increasing production, eliminating waste and maintaining quality. As a result, absenteeism has been reduced, delays have been decreased, quality has improved, production has benefited, waste has decreased and housekeeping has been improved at some locations in response to these efforts.

At one location, emphasis was placed on the suggestion plan as a means of rewarding employee efforts to improve productivity with significant improvement in number and quality of suggestions resulting in awards to the individuals concerned.

Material identification procedures were jointly reviewed and revised to improve product identification with resulting increased quality and yield at another location.

6. LONG RANGE GOALS OF THE EMPLOYMENT SECURITY AND PLANT PRODUCTIVITY COMMITTEES

In the 1974 basic steel negotiations the plant-wide committee on productivity was redesignated the Committee on Employment Security and Plant Productivity with the parties agreeing to a new policy statement concerning the functioning of this committee. While the committee remains advisory, it is to concern itself in a positive and cooperative manner with improving the productivity of domestic steel making so as to provide employment security and assure continued company growth.

The parties also agreed to institute a new Industry-Union Employment Security and Plant Productivity Committee which will review and coordinate the efforts of the plant committees.

Under the contractual mandate, the Industry-Union Employment Security and Plant Productivity Committee will extend its activities in the future in several

directions. First, the committee plans an expanded program of coordination with the plant committees.

Special attention will be given to obstacles in improving productivity in plants where productivity continues to lag. In this effort the committee will be responsive to the needs of the plants involved in productivity improvement problems.

The committee will continue with the task of bringing attention to the productivity improvement program throughout the steel companies.

7. A MAJOR BENEFIT DERIVED FROM THE EMPLOYMENT SECURITY AND PLANT PRODUCTIVITY COMMITTEES

One of the outstanding benefits gained from the work of the Employment Security and Plant Productivity Committees was the establishment of a foundation that enabled the parties to enter into the historical Experimental Negotiating Agreement.

For a number of years, the parties were not completely satisfied with all aspects of their collective bargaining relationship. We were striving for perfection. In the steel industry we had been consistently searching for a more stable system of collective bargaining. With the groundwork being laid by the Employment Security and Plant Productivity Committee, the parties were able to work out the unprecedented Experimental Negotiating Agreement on March 29, 1973, which is designed to bring industrial peace to this vital section of our economy.

The parties tested the usefulness of this approach in their bargaining talks in 1974 when their three-year agreement expired. Both sides were committed to the procedure only for the 1974 negotiations. Since the Experimental Negotiating Agreement proved successful to the satisfaction of both sides in the 1974 negotiations they have agreed to utilize this procedure with respect to collective bargaining until 1980.

With fifteen years of uninterrupted industrial peace in the steel industry, and with the work of the Employment Security and Plant Productivity Committees, the parties have gradually established the maturity and respect for each other that justified this sort of advanced step in our collective bargaining relationship. I assure you that both parties are determined to make this a successful endeavor so that the people we represent can continue to enjoy substantial economic progress and the Nation can be assured of continued stability in this most essential industry.

8. THE FUTURE OF THE BASIC STEEL INDUSTRY

Three years have passed since the establishment of the Employment Security and Plant Productivity Committee. Present economic reports indicate that the basic steel industry is more stable, more secure and its future economic outlook is healthy and is likely to remain so for an indefinite period of time.

Some of the 1973 highlights in the economic progress of the steel industry were:

A record level of raw steel production—nearly 151 million tons.

A record level of steel shipments—111.4 million tons.

A continuation of the rising trend in steel productivity.

The 1973 rise in productivity was an extraordinary 10.8%.

A sharp reversal of import-export trends of recent years. Foreign imports of steel mill products dropped 14.3% to 15.2 million tons in 1973, while exports rose 41% to 4.1 million tons in 1973.

While this 1973 economic progress report is encouraging, if the American steel industry is to continue as the No. 1 steel industry in the world, the Union and the Industry must continue to seek to strengthen and improve its competitive position in the world market.

Who will benefit in this continuing effort to improve productivity in the steel industry? We will, the Union and its members, because increased productivity is the basis for future wage increases and continued job security.

The steel industry benefits. An increase in productivity will help offset the gains in cost increases. This will enable the steel industry to keep the prices of its products competitive. The result is a stronger steel industry that is able to provide steady employment and greater job security for our members.

Last, but not least, our country benefits. Rising productivity is essential if American products are to remain competitive with those produced by foreign countries. Without it, we face increasing difficulty in maintaining our envied position in the world—a standard of living which is the highest ever achieved in world history.

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