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HOW THE TAXATION OF CAPITAL AFFECTS GROWTH AND EMPLOYMENT

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HOW THE TAXATION OF CAPITAL AFFECTS GROWTH AND EMPLOYMENT

TUESDAY, APRIL 17, 2012

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, DC.

The committee met, pursuant to call, at 10:00 a.m. in Room 216 of the Hart Senate Office Building, the Honorable Kevin Brady, Vice Chairman, presiding.

Senators present: Coats and Lee.

Representatives present: Brady (presiding), Burgess, and Mulvaney.

Staff present: Conor Carroll, Gail Cohen, Will Hansen, Colleen Healy, Patrick Miller, Robert O'Quinn, and Steve Robinson.

OPENING STATEMENT OF HON. KEVIN BRADY, VICE CHAIRMAN, A U.S. REPRESENTATIVE FROM TEXAS

Vice Chairman Brady. Good morning. Today is April 17th, unfortunately Tax Day, for Americans. In recognition of America's hardworking taxpayers, it is appropriate that the Joint Economic Committee hold its first of two hearings on how taxes affect America's economy. Today's hearing focuses on the taxation of capital, and on Wednesday, May 16th, the second hearing will focus on the taxation of labor.

My goal as Vice Chairman of this Committee is to ensure America has the strongest economy in the world throughout the 21st Century. To do that, we must get our monetary policy right and we have to get our fiscal policy right. A competitive tax code is more than just getting the rate right. It is about creating a pro-growth tax code that recognizes the importance of the cost of capital.

There are two schools of economic thought on how taxation of capital affects long-term economic growth and job creation. The purpose of this hearing is to examine the empirical evidence offered by both sides of the debate.

Some economists contend that taxes on capital have, at most, modest effects on the economy over time. These economists cite studies that show a large variation in both the size and direction of responses to tax changes. Therefore, these economists claim that the effects of tax changes on long-term growth and job creation are either insignificant or unpredictable.

The Joint Committee on Taxation uses these arguments to justify the static scoring of proposed tax changes. Static scoring may acknowledge some behavioral changes among taxpayers due to changes in tax policy such as realizing capital gains before an in-

crease in the tax rate on capital gains, but does not acknowledge any effect on the overall growth of gross national product over time. Under static scoring, tax policy is, by definition, impotent in stimulating or suppressing long-term growth and job creation.

Other economists contend that tax policy has significant and predictable effects on economic growth and job creation. In particular, these economists find that business investment in new buildings, equipment, and software is highly responsive to changes in the after-tax cost of capital.

From my Chamber of Commerce experience prior to serving in Congress, there's little doubt, in my view, that tax policy affects business decision-making on Main Streets across America. States and local governments have long used tax incentives to attract investment, especially since U.S. businesses face global competition. Tax policy affects where businesses choose to locate and where they expand their operations.

It is also common sense that the decisions of all businesses collectively of whether and how much to invest affects overall economic growth and job creation. In contrast, the assumption that changes in tax policy cannot affect long-term economic growth and job creation in predictable ways defies common sense.

However, we should not rely on common sense alone. We must also look at the empirical evidence. In his written testimony, Dr. Hassett reviews major studies conducted by prominent economists in recent years on various aspects of taxation of capital: the corporate income tax, tax depreciation and expensing of business investment, taxes on capital gains, and taxes on dividends. The conclusions of these studies are remarkably consistent: Taxes on capital have significant adverse effects on business investment, economic growth, job creation, and the real wages of workers.

Despite a growing body of empirical evidence on the adverse effects of taxing capital, President Obama and many Congressional Democratic colleagues are advocating a series of tax increases that will raise the cost of capital. These tax increases include:

Imposing higher income tax rates on sole proprietorships, partnerships, and subchapter S corporation;

Boosting the tax rate on dividends from 15 percent to 44.6 percent;

Raising the tax rate on capital gains from 15 to 20 percent;

Tripling the tax rate of traditional local real estate partnerships;

Eliminating long-standing business expensing for energy manufacturing; and

Lengthening tax depreciation schedules.

If the empirical studies are correct, these tax proposals will reduce business investment, slow economic growth, and deter job creation. Moreover, these tax increases will hurt hardworking taxpayers by reducing their real wages over time. These are the very men and women which the President and some in Congress claim they want to help.

The purpose of today's hearing is to determine whether the empirical evidence supports these adverse economic assumptions, or whether we should continue to accept the static scoring currently used by the Joint Committee on Taxation.

I look forward to the testimony of our distinguished witnesses. I would ask Congressman Burgess if he has a brief opening statement.

[The prepared statement of Representative Brady appears in the Submissions for the Record on page 26.]

Representative Burgess. Yes.

Vice Chairman Brady. I yield.

OPENING STATEMENT OF HON. MICHAEL C. BURGESS, M.D., A U.S. REPRESENTATIVE FROM TEXAS

Representative Burgess. I thank the Chairman for yielding. I thank our witnesses for being here. Obviously this is an important day in the lives of a lot of Americans. A little confession here: Because of the extra two days that we got this tax season, I actually got my taxes filed on time. I did not have to file an extension for the first time in probably two decades. After several terms in Congress, my income tax calculation is much less complex than it was when I ran a small business, a medical practice. But still, even with a relatively straightforward, straightline arrangement between wages and taxes, the tax forms that have to be completed are enormously complex. And, there is the hidden cost of the hours that are spent in preparation, plus the monies that I must pay to a tax preparer. Because even though my income situation is much more straightforward, I do not trust myself, nor do I trust anyone who wants to examine those returns, because we all know if you put 10 accountants in a room with tax data, they're going to come up with 10 different figures. And as a consequence, no one can sign their name at the bottom with a clear conscience that they've done everything right when no one knows what actually "right" is.

I am glad we are having the hearing today. Tax day is important to Americans. I think that there is a lot of the American electorate, a lot of the American people, feel that simplifying the tax system should be one of our highest priorities. The discussions that we are going to have today will cover what our tax system should look like, what form it should be, how much it should tax, what it should tax.

And there are so many opinions about this. Some feel that tax revenue should be about funding the government, while others want to use it for achieving social goals. And however laudable those agendas may be, my personal feeling is the Tax Code is not the proper means for achieving those.

My predecessor in Congress, Dick Armey, was the author of a book about a flat tax. I bought this book back in 1995 or 1996, and it seemed so straightforward I did not understand why it had not already been adopted and why we could not use it.

For that reason, every year that I have been in Congress I have introduced H.R. 1040, which is a derivative of the flax tax that Mr. Armey introduced, but this one would be optional. You have the right to opt into the flat tax. You have the right to continue your life under the complexity of the Code. If you have responded to the signals given by the Tax Code and arranged your finances in a way that the Tax Code is your friend, then so be it.

But if you want to simplify things, if you want to simplify your life, you can use a flat tax. And it is simple. You just put in some

personal information, your income, personal exemptions, a general personal exemption to put some progressivity into the system, you compute the tax and the amount already withheld and it's done. It's that simple.

And for those who are worried about fairness in the Tax Code, for a family of four there would be no tax on the first $43,000 of income. That's nearly double the federal poverty limit.

The Chairman mentioned that he wanted to get it right. The tax rate that I've proposed is 17 percent. Now, look, if you just look at the headlines today, Mitt Romney is paying 15 percent, Barack Obama is paying 20 percent; if you average those two percentages, it's 17 percent.

It seems like we could do this if we just had the political will to take it. So, Mr. Chairman, even if we don't implement a flat tax, we must have a simpler system that people can understand. For such a complicated subject as taxes, we don't need more rhetoric. We don't need more complexity. We need serious proposals and not election year theatrics.

And I certainly look forward to the testimony of our witnesses today. And thank you for yielding the time.

Vice Chairman Brady. Thank you, Dr. Burgess.

I would like now to introduce our panel of witnesses, starting with Dr. Kevin Hassett. Dr. Hassett is a Senior Fellow and Director of Economic Policy Studies at the American Enterprise Institute.

His area of research includes fiscal policy and the economy. Before joining AEI, Dr. Hassett was a senior economist at the Board of Governors of the Federal Reserve System; an Associate Professor of Economics and Finance at the Graduate School of Business of Columbia University.

He has been a consultant to the U.S. Treasury Department, and an economic advisor to the presidential campaigns of George W. Bush and John McCain.

Dr. Hassett received his doctorate in economics from the University of Pennsylvania.

Our other witness today is Dr. Jane Gravelle. Dr. Gravelle is a Senior Specialist in the Government and Finance Division of the Congressional Research Service, known as CRS.

Her area of research includes the economics of taxation. She has written extensively on the subject of tax policy and economic growth. In addition to her work at CRS, she is the author of numerous articles and books and professional journals, and she is the past president of the National Tax Association.

Dr. Gravelle received her Ph.D. in Economics from George Washington University.

I welcome you both today, and I would recognize Dr. Hassett for his testimony.

STATEMENT OF DR. KEVIN HASSETT, SENIOR FELLOW AND DIRECTOR OF ECONOMIC POLICY STUDIES, AMERICAN ENTERPRISE INSTITUTE, WASHINGTON, DC

Dr. Hassett. Thank you very much, Chairman Brady, Dr. Burgess, Mr. Coats.

The topic of this hearing is something that is near and dear to my heart. I have been working on these issues since graduate school. My dissertation was even one of the first papers that used cross-section analysis to estimate the impact of taxes on corporate investment.

And it is an honor and a pleasure to be testifying next to my friend, Jane Gravelle. I can remember just after I graduated with my Ph.D. and started being a professor at Columbia, I wrote a paper about the user cost elasticity, joint with Jason Cummins, who is now at Brevan Howard, and Jane was our discussant at one of the first professional presentations I ever made.

I can remember that at that presentation Jane criticized my work saying that the elasticities were too large. I would say that dispute between us has been going on ever since, and you will see some of it today.

I think, Mr. Chairman, and Members of the Committee, that the biggest problem we have in the U.S. right now is that our corporate tax is totally out of whack with the rest of the world.

If you go back into the 1980s, the OECD countries on average had corporate rates of about 48 percent, but they have been lowering them like mad and they are all the way down to an average that is about 25 percent today.

While the rest of the world has been changing their corporate rates, we have been more or less standing pat. In fact, we are one of the last countries on earth to increase its rates, although we did it just a smidge under the Clinton Administration.

In addition to having a high rate, there are several deviations from efficient design in our current system that are worth mentioning as we think about what a reform might look like.

First, the double taxation of corporate income discourages investment in equipment and structures. The dividend tax raises the cost of funds to firms, and increases the hurdle rate for new projects.

Second, the asymmetric treatment of debt and equity encourages heavy debt loads and increases the overall level of risk in the corporate sector. The tax system should not really encourage debt-finance over equity-finance. It increases the riskiness and increases the risks of bankruptcy.

Now the relatively unfavorable position of the U.S. relative to the rest of the world, combined with our worldwide tax system, gives firms a strong incentive to move their profits and activities overseas.

Now these data should provide food for thought for those who would contend that the reduction in double taxation or otherwise cutting the corporate rate disproportionately benefits the wealthy. The fact is that Scandinavian countries, France, much of the rest of the world where I think most political scientists would tell you the politics are significantly to the left of those here in the U.S., treat capital more favorably than we do.

I would argue that is because the rest of the world has been more responsive to the academic literature, the academic literature that is exhaustively reviewed in my testimony, which is up to 23 pages single-spaced by the end—I won't try to go through it all here, I think that if you wanted to look at one thing, a nice place to start would be an OECD study by Arnold in 2008 that provided

an empirical analysis of the effect of tax structure on long-run GDP.

The main findings include—and now I'm quoting them, and I will say when I stop quoting them: That property taxes, and particularly recurrent taxes, on immovable property seem to be the most growth-friendly taxes, followed by consumption taxes, and then by personal income taxes. Corporate income taxes appear to have the most negative effect on GDP per capita. This intuition is supported by the review of the literature that I conducted with University of Berkeley economist Alan Auerbach in 2005. And looking at a mountain of evidence, we concluded that if the U.S. were to switch to an ideal system, then we might expect medium-term output to increase between 5 and 10 percent.

So that goes to really up the stakes of fixing our tax system. And I think that it is really a big, squandered opportunity. If you were to give me two faltering economies, one that had a really stupid tax system like ours, and another that had a perfect tax system, I'd rather take a faltering economy with the crazy tax system because it's easier to fix. And yet, you know, through this mess we haven't done that. We have put off fixing our problems. And I think we are suffering for that today.

To think about what would happen if we were able to go after our big problems and fix it, or if we had done so in the past, in my testimony I do a simple calculation. I estimate what our fiscal situation might be today if the United States had implemented a fundamental tax reform 10 years ago. It was a counter-factual.

And, assuming that we hit the high-end growth estimate that Auerbach and I mentioned, if that had happened GDP would be $17.1 trillion in fiscal year 2012, rather than the expected $15.5 trillion under CBO projections.

Moreover, if we assume that revenue stayed fixed as a percent of GDP and outlays stayed fixed in dollar terms, then the 2012 deficit would be $830 billion rather than the expected $1.1 trillion under the CBO alternative fiscal scenario, and the long-run budget deficit would be about $7 trillion over the next 10 years instead of $11 trillion.

Those are big differences, and those are the differences that are attainable if we pursue a fundamental tax reform, and if 10 years from now people don't look back, thankfully, to this Congress and celebrate that extra trillions of dollars of GDP and all that extra revenue, then we should feel some fault for that.

Thank you very much, Mr. Chairman.

[The prepared statement of Dr. Kevin Hassett appears in the Submissions for the Record on page 27.]

Vice Chairman Brady. Thank you, Dr. Hassett. Dr. Gravelle.

STATEMENT OF DR. JANE GRAVELLE, SENIOR SPECIALIST, GOVERNMENT AND FINANCE DIVISION, CONGRESSIONAL RESEARCH SERVICE, WASHINGTON, DC

Dr. Gravelle. I would like to focus my attention on the corporate income tax where effects on international capital flows are more likely to have an output effect, given the evidence that savings is not very responsive to tax rates.

Much has been claimed for the economic benefits of lowering the corporate rate in a global economy by attracting capital from abroad. However, the consequences for economic growth in labor income are likely to be modest. My estimate suggests that a 10 percentage point reduction in the corporate rate from 35 percent to 25 percent would induce an increase in U.S. output of less than two-tenths of one percent. Even the most generous set of assumptions—and that is infinitely large elasticities—would lead to an increase of no more than one-half of one percent. However, labor income would expect—would be projected to rise by the same proportion.

This estimate may actually be too large, or perhaps in even the wrong direction, because lowering the corporate rate would discourage debt inflows which are subsidized and more mobile than equity. In addition, other countries might react by lowering their tax rates. Also, these estimates measure long-term effects that would not be achieved in the short run.

Now these small numbers should not be surprising, because the corporate tax is small as a percent of U.S. overall output. The revenue lost from this rate reduction is only six-tenths of one percent of output.

Now these are output effects, but the gain in income to U.S. citizens is even smaller. Part of the output gain appears as profits to foreign suppliers of capital, and part of it is already income to multi-nationals that have brought capital back from abroad. The net gain in income is expected to be only about ten percent of the output gain, or two-one hundredths of one percent of U.S. output.

No effect on employment would be expected. It is very important to understand that there is no need to undertake a permanent policy to create jobs. The economy will naturally create those. Job creation is a short-run demand side issue. Labor income, however, would rise by the same percentage change, less than two-tenths of one percent. Labor would receive a benefit equal to 20 percent of the revenue lost from the rate cut. And a reduction in the corporate tax rate of this magnitude would cost over $100 billion a year in investment and involves a significant revenue cost.

Based on the analysis of output increases, additional revenues on the induced output would offset only about 5 to 6 percent of this revenue loss, largely from increased taxes on wage income.

Claims for larger revenue feedback effects, or even revenue gains, are based on empirical studies that have methodological deficiencies. International profit shifting is sometimes cited but is not large enough. And, moreover, given that profits are shifted to jurisdictions with very low rates, they are unlikely to be affected by lowering the rate to 25 percent.

Domestic profit shifting might occur as high tax rate individuals move their income out of unincorporated businesses or wages into lower tax corporations, especially given the low tax rate on dividends. This protection of the individual income tax base is an important justification for having a corporate tax whose rate is not much below the top individual rate.

So this effect, while increasing corporate revenues, would reduce overall income tax revenues. One effect that would be more certain is that the revenue loss itself, if not offset elsewhere, would expand

the deficit and reduce the capital stock, as well as increasing costs for accumulated interest.

Within 10 years, output reductions would be twice the size of increases from the international capital flows and would increase the revenue lost by 15 percent to 23 percent, according to my estimates. Over a 10-year period, interest costs are also estimated to increase the effects on the deficit by 25 percent.

It is possible to envision some corporate base broadening that would offset the revenue loss from a small rate cut, but not one as much as 10 percentage points, unless we take some probably unpopular—very unpopular—base broadening. And in most cases these reforms would cause the marginal tax rates on capital income to rise.

You could have a revenue-neutral combination of increasing taxes on the income of foreign subsidiaries and rate reductions which would be most likely to increase capital flows into the United States, but these results would still be small.

Economists traditionally criticize the corporate income tax due to the distortions it produces, but these distortions have declined significantly with reductions in the corporate tax burden since the post-war period, which is about two-thirds, and are estimated at only one-quarter of one percent of output. These distortions, which mostly involve favoring debt in owner-occupied housing, could be largely eliminated with revenue neutral reforms. Thank you.

[The prepared statement of Dr. Jane Gravelle appears in the Submissions for the Record on page 50.]

Vice Chairman Brady. Thank you, Doctor, and I am pleased we are joined by Senators Coats and Lee today, as well as Congressman Mulvaney. Thank you.

Let me lead off with, not a housekeeping question but in reading the testimony last night, there are obviously divergent opinions on the impact of taxes on capital and the corporate tax rate. There seems to be a consensus in the economic literature that the Cobb-Douglas Production Function provides a rough proxy for the private business sector of the American economy.

The consensus is based on the empirical observation that the factor of income shares going to labor and capital tend to be relatively constant over time. Would you both agree that the Cobb-Douglas model is widely accepted within the economic literature? Doctor?

Dr. Hassett. Mr. Brady, my old friend and mentor, Albert Andau was one of the inventors of the Life Cycle Hypothesis and gave his first macro lecture at Penn on the Cobb-Douglas Production Function. And the first sentence of that lecture is that Cobb-Douglas is very dangerous.

And so I think that Cobb-Douglas is a very useful way to think about back-of-the-envelope big macro questions, but it also has some features that can lead you to conclude things that are unrealistic in some applications. And so I don't want to make a sweeping "yes" answer to that question.

Vice Chairman Brady. Thank you.

Dr. Gravelle.

Dr. Gravelle. Well I use Cobb-Douglas in my models, so I do what a lot of people do. I think there's some recent evidence that suggests that that substitution elasticity might be a little lower,

which would reduce the capital inflows, increase the share to labor, the relative share to labor. But I think it's a pretty reasonable estimate.

And it is backed up by a long period of Constant Factor shares, which is some important evidence, I think.

Vice Chairman Brady. Could I ask, Dr. Gravelle, in your testimony you suggest that the max—the revenue maximizing rate on corporate tax is closer to 80 percent than it is 30 percent——

Dr. Gravelle. Right. That's based——

Vice Chairman Brady. Yes, go ahead.

Dr. Gravelle. That's just from real capital flows. So it doesn't include any of these other profit-shifting possibilities. But that's just the constraints.

Vice Chairman Brady. But when you're looking at the revenue, just so I understand, are you only counting corporate tax revenue? Or are you——

Dr. Gravelle. That 85 percent number is only corporate tax. The numbers that I gave in my testimony count the effect on wages. But that's just from this constraint about how much capital can flow, both because of imperfect willingness to substitute, but also because of the natural limited ability of the economy to absorb a lot of capital because it has a fixed amount of labor. I mean, that's just economics.

Vice Chairman Brady. What happens—if you increase the corporate tax rate to 80 percent, what's the after-tax rate of return on corporate capital? Clearly you've dramatically driven up that cost.

Dr. Gravelle. Well I presume if you drove the tax up to 80 percent, you would get some kind of world-wide equilibrium, but I would have to work on that to tell you how much that would be. But it would obviously be a lot smaller after-tax rate of return than we have now.

Vice Chairman Brady. Do you know what happens when you do that, what happens to output? What happens to wages and the capital stock, if you raise——

Dr. Gravelle. I would—yeah, I would think there would be—a 10 percentage point change is worth .2, so you can—I mean, you can probably roughly multiply that, you know, every 10 percentage points. So you would get up to 2, 3 percent, I guess.

Vice Chairman Brady. We will probably follow up with you on that.

Dr. Gravelle. Okay.

Vice Chairman Brady. With written questions.

Dr. Gravelle. I just can't quite do that in my head right now.

Vice Chairman Brady. Can I ask, Dr. Hassett, before we move on, on the tax burden. The empirical data which you cite repeatedly in your testimony suggests that additional investments typically result in high real wages. There's sort of, in Congress people forget about the impact on wages and workers.

If taxes on capital affect the level of investment, shouldn't they also affect the level of real wages?

Dr. Hassett. Yes, they absolutely should. And, you know, the effects—and this is discussed at length in both the recent CRS report and in my testimony—the effects you see in the data are very large.

You see capital flows in response to tax differentials, and then you see big increases in blue collar wages. There have been a number of papers that have confirmed this finding. The CRS itself has taken our data. You know, we've shared it with them and replicated the results when they use our specification. They have their own favorite specification at CRS where the effects are smaller, or insignificant even in one.

But I think that that balance of the evidence is that there pretty large wage effects. And I think that the wage effects that we see are a challenge to the traditional type of theories that Gravelle and her colleagues use.

I think that one of the reasons why we see these big effects is that multi-nationals have a lot of good will. They have patents. They have cool ideas that they can move around. They can locate the smartest people, and the most valuable intellectual property, and the most attractive tax haven, and then have every subsidiary around the world transfer price their profits to that tax haven.

When that kind of activity happens, it is really elastic and it is really good for that—for the market conditions in that tax haven. And so I think in the old kind of models that traditional tax people used, especially when I was in graduate school, which is a long time ago now, then pretty much the model you would have of the economy could be that there's this big iron machine making Chevettes. And that if output goes up, it's because we're making a whole lot more Chevettes this year.

But I think that in today's world, it's we have iPads. We didn't have iPads before. The guy who invented the iPad is making lots and lots of money, and the countries that are smart enough to align their taxes to take advantage of that cool idea reap some of the rents that the company has, too. I think that that's the kind of story that would be consistent with the size of the effects that we and other scholars, including people at Oxford, the University of Michigan, have been seeing in the data.

Vice Chairman Brady. All right. Thank you, Doctor.

Senator Coats.

Senator Coats. Thank you, Mr. Chairman. Thank you both for your testimony.

I am not an economist, so I am not going to delve into deep economic theory, but in listening, Dr. Gravelle, to you indicating in your statement that other countries might lower their corporate tax rates if we lowered ours, is that not a good thing?

Dr. Gravelle. Well, if we——

Senator Coats. I almost came to the conclusion that you thought it would be to their benefit to raise their tax rates, that it would have less of a negative effect by raising than lowering. I would be pleased to have you help me sort that thinking out.

Dr. Gravelle. Well first is the reason that we should be concerned about other countries lowering their tax rates, from our perspective is that if they do that any gains in capital flows that we're attracting from them are going to be lessened. So that is why it is important.

And also, I guess the world-wide lowering tax rates on corporate income first was caused by the United States, I think most people would say, I certainly would say, in our '86 tax rate cut.

Senator Coats. But 35 countries that we compete with around the world have lowered their rates from a previous average of 48 percent to now the current average of 25 percent.

Dr. Gravelle. Yes.

Senator Coats. Are all their analysts and economists and policymakers wrong?

Dr. Gravelle. Well I said to the people at the OECD, I said, why don't you put some numbers on this? I mean, they—they did a presentation. I said, corporate taxes need to be lowered. I said, well, where's the numbers? That's what I did.

I mean I tried to estimate, as best I could, what the effects would be and you're just not going to have dramatic effects from something that is so small relative to the economy. It's just not reasonable to think so.

Senator Coats. Well isn't there at least some effect, if it's not dramatic, isn't some effect positive?

Dr. Gravelle. Well the effect I found was positive. It was just very small.

Senator Coats. Well——

Dr. Gravelle. It was almost——

Senator Coats [continuing]. These days we're looking for small stuff.

Dr. Gravelle. Right.

Senator Coats. I mean, anything we can get is better than nothing.

Dr. Gravelle. I guess the other question you have to ask is, you know—I think that's fine. I mean, I'm not opposed or supportive of keeping the corporate tax where it is or lowering it, but I think that one has to be concerned about replacing revenues. So you have to decide how you're going to do that.

Senator Coats. But why do you think our 35 competitors globally all came to a different conclusion than you have?

Dr. Gravelle. I don't know. Because maybe they had multi-nationals lobbying them who succeeded? I don't know. But I do know that this kind of analysis that I have done has not happened when those countries were making their decisions. The other thing is——

Senator Coats. Well then why wouldn't they then raise the rates back up? If they've seen that it hasn't had a positive effect. I almost take from your testimony that you think raising our corporate tax rate would have less of a negative effect than lowering it?

Dr. Gravelle. Well probably if you raised our corporate tax rate and used the revenues to reduce the deficit, it would. I mean, what you do about the deficit is very important.

Senator Coats. But what about our competition worldwide with the 35 other countries?

Dr. Gravelle. What about it? I mean, what is the problem? If we——

Senator Coats. The problem is that our corporations, as Dr. Hassett said, are paying double taxes. They're paying taxes on earnings, and then the stockholders are paying taxes on dividends——

Dr. Gravelle. Well that happens——

Senator Coats [continuing]. And we're not competitive with the rest of the world, and our money is flowing out to these other——

Dr. Gravelle [continuing]. That happens—that happens in any country that has a classic corporate tax. But, you know, I don't know why other countries made their choices. The impression I have with European countries is that they are much—they have much more mobile capital. They're much more worried because they're like, you know, they're right next to each other and they felt also some concerns about plants moving to the new Eastern Bloc countries.

We are separated in lots of ways in ways that they aren't.

Senator Coats. Do you ever contemplate the fact that if 35 of our competitors are lowering or have lowered their rates—and I think a pretty solid majority of Americans feel that lower corporate tax rates are better—that you want to maybe reexamine your theories?

Dr. Gravelle. Senator, I put infinite elasticities in this model. They can't get any higher than infinity. And still, I got an effect but I didn't get a large effect. And I didn't get a large effect because real capital flows are constrained by the economic circumstances: by your preferences for products, by your labor supplies, by what you combine it with. That's what the model says, and it's a reasonable model.

Senator Coats. My time is running out. Let me ask Dr. Hassett to tell me where I'm off base here.

Dr. Hassett. I just would like to add that, you know, the way I think that an economist should go about addressing your question is, or as a scientist, any scientist, is that models are naturally very, very simple. They have to be, because that is why it is a model. You can't model the whole world. There are just too many variables.

And that when the model is inconsistent with observation, then you question both the observation and the model. And I think that it is appropriate to do both. And I think that the model might be wrong; the observation might be wrong; but sort of some humility about both possibilities is something that I think I don't see in the CRS report.

That's my one criticism of it; that I think that its prior way of looking at the world being the correct one doesn't adjust as new evidence comes in, at least as much as I would do if I were doing the exercise.

Senator Coats. Just a last question. My time is up. But you seem to think it tilts in a different direction?

Dr. Hassett. Yes. I'm must more of just an empirical economist, and I look at the data and use traditional econometric techniques to see what the data tell me. And then I talk to you about what I think I find, and sometimes you like it, and sometimes you don't. But I'm not a person who has spent as much time with the general equilibrium type models that Gravelle uses. Those models are often very useful for thinking about effects you wouldn't have thought of, and helping you think about what regressions to run.

And so it's not that those models have no use. But I think that in this particular application, there is just so much in the world—I talk about this a little in my testimony—that if you believe the

Laffer curve results that Brill and I have, and the wages results that Aparna and I have, then everything else that's going on in the world—and I list a bunch of things—kind of makes sense.

And if you don't believe it, and if the CRS is right and our reports are incorrect, then it creates a lot of puzzles like those that you were addressing.

Senator Coats. I just wonder why all the rest of the world is coming to a different conclusion than Dr. Gravelle, but in any event my time is up.

Vice Chairman Brady. Thank you, Senator. Representative Mulvaney.

Representative Mulvaney. Thank you, Mr. Chairman.

I'm going to try real hard to do something that politicians are not really good at, which is not asking a stupid question. It has been a lot longer than I studied economics than it has been for most of you, and my mind is clouded by law school and business school on top of that. So I am going to try and keep it real simple for my own purposes.

Let's talk about Dynamic Scoring for a second, because it strikes me that while you all seem to disagree on some of the outcomes, aren't we having a dynamic discussion in terms of using a dynamic model to discuss the impacts of tax changes?

And if that is the case, even though you seem to disagree on the outputs—Dr. Hassett would suggest the impact of a tax reduction would be significant; Dr. Gravelle you would say it is not—but those are both dynamic statements, aren't they? And shouldn't we be looking for some place that we can agree on, that we need to move away from this zero-impact model that the CRS currently has toward something that perhaps allows for a range of outcomes that reflects perhaps that a scope or a scale of possible outcomes reflected by you folks here today?

Why aren't we having that discussion? I'll start with you, Dr. Gravelle, since you're CRS. Why—Does CRS oppose dynamic scoring?

Dr. Gravelle. No, no. And my model has results. I mean, it has effects. It's just the effect are small, as is the provision you're changing. They're both small.

Representative Mulvaney. Sure.

Dr. Gravelle. So you wouldn't expect huge effects.

Representative Mulvaney. But that would be different than the static model we're required by law to use now?

Dr. Gravelle. But the Joint Tax Committee uses a model that has micro responses. They have, for example, very, very large capital gains realization response, which is probably why they haven't scored the Buffett Rule, you know the Buffett Tax, as being very high.

They have a rule that they keep output—labor and capital inputs, total GDP constant. But they have done studies in the past, and so has CBO, but the problem with those studies is they just depend on what you're doing about the deficit.

I mean, they have the same kinds of results that I do. You know, if you look at a tax cut in isolation like the corporate tax, you're likely to find an increase. You can argue about whether it should be five—you know, a half of a percent, or two-tenths of a percent,

or the size of the revenue, whatever, but they have those. But then if you don't pay for it, if you run the deficit, then you do a crowding out of capital which can end up worse.

So both CBO and JCT have done studies, and the problem is they aren't—you know, the assumptions are what matter as far as the magnitude. So I think they have probably decided it is safest just to keep that constant.

Representative Mulvaney. And I think I would probably tend to agree with that, that it's—you say it's safest. It sounds to me like you could spin it a different way and say it's just too hard to do it another way.

Dr. Gravelle. Maybe too hard. Maybe not-ready-for-prime-time. I mean, I don't know.

Representative Mulvaney. But I share the same frustration that Dr. Hassett has, which is that the net result is that we use a model that doesn't seem to tie to reality. You can go back and look at the tax reductions of the '80s and see that it clearly was not a zero impact. You can look at tax increases in the '90s and make the same determination.

So I guess, what is CRS's position on moving away from a static model into a dynamic?

Dr. Gravelle. Well I think my position would be I think I want to do whatever leads you to the truth the best. The problem is the "truth" is elusive and depends on what assumptions you are making.

Representative Mulvaney. Does the static model give us the truth?

Dr. Gravelle. I don't think so, no. How could it? It would be a point observation that you would never expect to find. But the question is: Is it better for policymaking when you have differences depending on the various assumptions you make, not only about deficit financing, but by short-run monetary policy, about the size of elasticity. There's no consensus about a lot of that.

Representative Mulvaney. Dr. Hassett, because I tend to agree with Dr. Gravelle in that sense that once you start moving to a static model—excuse me, away from a static model to dynamic, the debate will simply switch from whether or not we should have static versus dynamic to a discussion over what sorts of multipliers we're going to use. And we will have the same lack of consensus that we have now.

Is it possible, do you think, to develop a system that would allow us to use a dynamic system that would provide for say a possible range of outcomes that would at least give us a better look into the future as to what the impact of tax changes would be?

Dr. Hassett. Yeah, sure. And in fact Bill Thomas assembled a blue ribbon panel to discuss dynamic scoring, which I served on a long time ago.

Dr. Gravelle. So did I.

Dr. Hassett. Yes, that's right. And they introduced a couple—John Diamond, who is down at Rice, helped develop a model for the Joint Tax to do dynamic scoring. CBO has worked on it.

I think that the capability is now, you know, I like to say in Washington: All proof proceeds by induction. Something is true

today because it was true yesterday. And so actually these models have been around long enough that they are true by induction.

And so maybe that we could start to use them. Because right now focusing all of our budget rules and everything on the zero effect, which everyone knows is false, seems incorrect to me. And, you know, the argument in favor of it has always been, well, if we allow dynamic scoring then we will lose fiscal discipline, and the deficit will get too high.

Well the existing system has not really done a good job of enforcing fiscal discipline. And so I think that we should look for, you know, more reasonable ways to score.

Representative Mulvaney. Thank you. Thank you, Mr. Chairman.

Vice Chairman Brady. Thank you.

Senator Lee.

Senator Lee. Thank you, Mr. Chairman.

Dr. Hassett, some have suggested that the compliance costs associated with the corporate income tax in America tends to rival the actual yield, the revenue yield, to the government. Do you have any opinion on that matter?

Dr. Hassett. Yeah. There are estimates, and I think that the CRS has probably talked about these, too, but there are estimates, especially for the international tax code, that the compliance costs are enormous relative to the amount of revenue.

And it's, you know, relative to the kind of forces that are discussed in my testimony sort of make sense because, you know, the companies can spend a lot of money on smart people who then help them locate the intellectual property in just the right place, and then they arrange, you know, fully legal activity in a way that gets more money in the low tax place. And firms are really able to do that.

You know, there's a whisper number around town amongst tax planners that multi-national tax rates are about 17 percent on foreign income. And they're able to do that because they're moving all these parts around. But the movement of the parts—so in the end, you spend a lot of money moving the stuff, and then the end result for the U.S. is that there's not much money left here.

Senator Lee. It has also been suggested that corporations tend to pass along, pass downstream, so to speak, their costs, both their compliance costs and what they actually pay in corporate income taxes such that individuals end up paying for those, just in terms of higher prices for goods, or higher prices for services in some instances, or perhaps they pay for it through diminished wages or diminished job opportunities.

Do you share that view?

Dr. Hassett. Yeah. The passing-on-to-workers result is really powerful in the evidence that Aparna and I have looked at. In fact, we have looked at other tax rates, too. And, you know, when I say the result it almost feels like I am some radical left-winger because the data seem to say that no matter what you try to tax, in the end it is the little guy who pays for it.

Senator Lee. The 99 percent.

Dr. Hassett. Yes. In the sense that if you try to tax the capital, then they move it around, and then the wages go down and you are hurting the little guy.

So basically all the taxes—the capital is very elastic, very moveable, and the labor is not. And I think that, you know, sales tax, just about any kind of tax that you can think of is mostly being passed on to wages and the workers.

Senator Lee. But I guess the difference is that when it is passed on to the workers, or passed on to the consumer, or whatever the case may be, it is veiled.

Dr. Hassett. Correct.

Senator Lee. It is more opaque. You cannot really see what is happening.

Dr. Hassett. And indeed on that point, I had a piece in The Washington Post on tax day a couple of years ago, which we can send to your office, which I commend to you, that makes even the direct point in kind of a chilling way. Which is, that Congress is really virtuous about redistribution with the income tax, and so they're always arguing about the top 1 percent of this, and it's as if everyone in the Democratic Party on the Hill is the absolute defender of people who are in the bottom half of the income distribution, but that stops as soon as you stop talking about the income tax.

And if you look at total taxes paid by Americans, then, you know, there's a lot less redistribution than you might think. But we tend to tax the little guys with taxes that are hard to attribute. So sales taxes, property taxes, gasoline taxes, cigarette taxes, you can imagine with the incidence of those would look like.

I have a study where we sort of summed all those things up and found that pretty much everybody in the U.S. was paying about 30 percent of their income in taxes—even people relatively far down on the income distribution—and it was as you get down to the poorer people, they are paying these taxes which aren't labeled "rich" and "poor" because they're indirect and hard to attribute.

Senator Lee. Right. But when we're talking about income taxes—specifically, Federal Income Taxes—and most pointedly here Federal Corporate Income Taxes, those do get passed on to the consumer and to the worker.

Dr. Hassett. Sure.

Senator Lee. So in a sense, would it be fair to say that, you know, there are at least a couple of functions played by our tax system?

First, that it is there to collect revenue for the government. Obviously we need money to operate. But it should be there, I suppose, to communicate accurately to the public, to the Electorate, to the Voters, the cost of government so that people will understand that there is a relationship between how much government we have and the economic well being of an individual.

Would you agree with me if I were to say that our tax system performs that second function very poorly, and is perhaps even impeded in its ability to perform that second function by virtue of having a very significant corporate income tax?

Dr. Hassett. Yes. Absolutely.

Senator Lee. That would diminish rather than enhance the capacity of the tax system to perform that second function of communicating to the public what it costs?

Dr. Hassett. Right. We have all these hidden taxes, all this hidden revenue, incidents that are poorly understood, and a public debate about taxes that is really far from the truth in so many ways.

The tax system is so complex—I can finish with this—that, you know, I have a Ph.D. in Tax Economics. That is what I've been working on my whole life. I've got many papers in tax journals.

I will not do my own taxes. I will not do it. It is unthinkable for me to try to do it because they are just too complicated. And I know that if I mess it up, then they're going to come after me hard because I should have known better because I've got a Ph.D. in Taxes. So I am too fearful to do my own taxes, and I think it is just a shame that our system has reached that point.

Senator Lee. That is fascinating. Thank you very much. I see my time has expired.

Vice Chairman Brady. Thank you, Senator. That reminds me of the question you asked in this same room as we were talking about the complexity of the Tax Code.

Senator Lee asked one of the witnesses who was here with a BioTech company that helped break essentially the Human Genome, you know, a brilliant scientist. And Senator Lee asked him about making the Tax Code more simple.

And he said, Oh, no, that's too complicated for me. He didn't want to really address that. It really is complex in a major way.

I want to follow up Dr. Gravelle's line of questioning with Senator Coats. In your testimony, and in your conversation with Senator Coats, you suggest the tax on capital gains and dividends can be safely ignored because they are such a small share of output.

Are you referring "output" to the U.S. economy?

Dr. Gravelle. Well what I mean was that, given the evidence—those are savings sides. In other words, they're not at the level that can attract global capital flows. And because of the evidence that I've looked at, it indicates that savings is not very responsive to tax rates.

In fact, it can actually go either way because of income and substitution effects. But empirically, there's not much evidence. I didn't want to talk about those partly because I think the effects they have would be extremely small and uncertain. And also they're a lot smaller than the corporate tax.

The dividends—I think I have some numbers in my paper, but they're like a half a percent. Corporate tax is not large, but still is 2 percent. So that was the main reason, both because of the effect and the size.

Vice Chairman Brady. Well I want to make the point that if you're looking at the impact of a tax, you would look at not the broad GDP but on the tax base itself. In this case to make sure you're not looking at the wrong base, you would, if you were calculating the marginal after-tax return on corporate investments, you'd compare the tax on dividend and capital gains to the amount of the earnings subject to the tax, rather than the broad economy.

Dr. Hassett, I made the comment at the outset that there is a great deal of interest in Washington on fundamental tax reform.

My view is that, while a lot of discussion is about the rate, what that number should be, our goal should be to have the most pro-growth tax policy in our tax code possible, recognizing the importance of cost of capital.

That is generally defined "gross return on investment that is needed to cover replacement costs and taxes, while providing a positive rate of return." Do people make an investment if they don't expect to be able to cover all the expenses related to that investment?

I mean, just within the business community, within economics? Do they make the investment if the rate of return is——

Dr. Hassett. No, but they sometimes make mistakes and don't earn the investment that they expect to. But, yes, this is again the literature that I think has converged to a broad consensus.

Back in the day when we were first arguing about the user costs, there were a lot of people who found that these variables didn't have a big effect on investment. But now there have just been hundreds of studies that find that firms really do think that way, I think in part because business schools train folks to get their user cost formulas right to get the tax variables in the right place.

And so absolutely if you change the user costs, you see responsiveness that's, you know, pretty large but not enormous to changes in the user costs. It's clear that businesses are weighing the pluses and minuses with each machine purchase. If you make it easier to buy a machine by giving accelerated depreciation, it has an impact on purchases of that type of machine.

Vice Chairman Brady. Does the economic literature you're referencing, does it tend to be constant over time when referring to after-tax rate of return on capital?

Dr. Hassett. Is the after-tax rate of return on capital constant over time? I think that it's not clearly so. I'd have to get back to you on this one. I'd have to look at it. But, yeah, I think that around big tax changes then you can see it takes a while for the capital stock to adjust. So I would have to get back to you on that.

Vice Chairman Brady. Okay, great. Thank you.

[Letter, dated April 30, 2012, to Vice Chairman Brady from Kevin Hassett appears in the Submissions for the Record on page 60.]

Vice Chairman Brady. Representative Mulvaney.

Representative Mulvaney. Very briefly, just a couple of follow-ups on a different topic.

Dr. Hassett, you mentioned something that I have tried hard to explain to folks back home and I do a lousy job of it, so I am hoping you can help me. You mentioned something I believe to be correct, which is that our current relatively high level of corporate tax rates encourages debt, encourages debt financing.

Could you expound on that a little bit, please?

Dr. Hassett. Sure. And I think this is something we agree about, that because interest is a deductible expense for firms, and, you know, a dividend is not, then there's a tax advantage for firms to borrow to finance a new enterprise as opposed to, you know, have issue equity.

And this tax advantage for debt can actually, depending on where interest rates and inflation are, and so on, can get you a

negative user cost for 100-percent-debt financed investment. Which, you know, maybe at times we want it because we think that if investment is going to slow because people are too cautious, or something, but the fact is that a reduction of user cost is something that I almost always celebrate.

But when the Tax Code encourages firms to be heavily debt-laden, then if their plans fail a little bit, they have negative surprises on profits, well then all of a sudden the bondholders are lining up and throwing them into bankruptcy and trying to get their cash out. And so I think this is one of the bigger distortions in the corporate tax.

There are some arguments for it. Especially tax lawyers tend to favor it. But I think economists generally view that as one of the larger problems with the Corporate Tax Code.

Representative Mulvaney. Certainly, and I think everybody acknowledges the risks it exposes the businesses to in the business cycle.

Dr. Gravelle, you mentioned in discussing one of the possible impacts of lowering the Corporate Tax Rate of discouraging debt flows.

Dr. Gravelle. That just shows that there is never an easy answer to anything. Because it is true that our favoritism to debt causes all the things that Kevin mentioned, they can also have adverse effects for the flow of capital because debt is far more substitutable across countries than equity.

And there were a couple of Treasury researchers who looked at this effect of debt, and they concluded that if you lowered the Corporate Tax Rate you would actually reduce the flow of capital in the United States.

So it makes it difficult to decide what to do about debt. Because on the one hand it is causing this debt/equity distortion; on the other hand, it might be attracting capital from abroad.

Representative Mulvaney. And finally—and I know this is off the top, but Dr. Hassett said something in his testimony just a few minutes ago that's perhaps one of the most eye-opening things I have heard since I have been in Congress, and that is a tough list to make.

It is, that he did not prepare his own taxes, despite the fact that he has a Ph.D. in Tax Economics. So, Dr. Gravelle, I have to ask you the question:

Do you prepare your own taxes?

Dr. Gravelle. Yes, I do.

Representative Mulvaney. Good.

Dr. Gravelle. And without a big fear.

Dr. Hassett. I would let her do mine.

[Laughter.]

She's better organized.

Representative Mulvaney. Do you do Geithner's, as well?

[Laughter.]

Dr. Gravelle. No, no, no. But on the other hand, Kevin's might be a little more complicated than mine, because I am mostly a wage earner with some passive investments. So...

Representative Mulvaney. Thank you all both very much for coming today.

Vice Chairman Brady. Thank you. Senator Lee.

Senator Lee. Dr. Hassett, if you were king for a day and you could change our Tax Code, what would you put in its place?

Dr. Hassett. I mentioned this in my testimony, Senator, and after checking Ethics rules found that I was able to promise to send you all a book that is about to publish by our top tax economist, Alan Viard. He has written it with another tax economist, Bob Carroll. And it lays out a Progressive Consumption Tax called an "x-tax" in the kind of gory detail that people who are going to write tax law actually need to see.

Mr. Viard, many people know, writes a regular column in Tax Notes, and is very schooled in tax law and has sort of looked at where all the dead bodies are buried, if you're trying to make something like this law.

So I think that the most ready for prime time conservative tax reform out there is a Progressive Consumption Tax called the x-tax, and that our book is coming out in a few weeks and is going to show everybody exactly how they can make it happen.

Senator Lee. You referred to that in your written testimony, I believe, as part of the—kind of a variation of the VAT?

Dr. Hassett. It is—all consumption taxes you could sort of think of as a variation of the VAT. The Hall-Rabushka Flat Tax is, as well. In fact, if you've ever seen Bob Hall give a presentation about it, one reason—you know, one reason he calls it the "flat tax," they decided on that design, is they think that a Value Added Tax, as it's structured in Europe, would be very unpopular in the U.S. And so he kind of moves the places where collection happens around a little bit to make it conform more to the U.S. system. And so it looks a lot more like what we do, but the economic effect of it would be very similar to that if we had a sales tax, or VAT.

The Viard enterprise is exactly the same thing. So it looks a lot like what we do, but by moving things around and exempting capital from taxation and so on, you end up with something that looks very much like a Value Added Tax, which is a good thing when you're running tax reform models because the Value Added Tax is the type of tax that gives you the biggest economic growth effect and welfare effect in the long run.

Senator Lee. So this type of model would render obsolete this debate that we have had recently about what to do about capital gains, as far as at what rate you tax that because it would be focused on consumption rather than income——

Dr. Hassett. Right.

Senator Lee [continuing]. Or capital gains.

Dr. Hassett. That's correct. That's correct. And, you know, I think that there is so much to commend an approach like that, both distributionally since it is a progressive consumption tax; then the folks who have that as their number one issue, they can come to the table and help you set the rates.

There are also interesting transitional distributional effects. If Warren Buffett were to go out and buy an airplane today, he would not pay a consumption tax on it. But if all of a sudden you have a consumption tax, then he would. And so his old wealth is being taxed.

There are just many, many reasons why I think that in some Congress soon it is quite likely that there is going to be a big tax reform again. Because, again, I gave you the scale of the challenge, or the target of what we could get if we had done it 10 years ago, where we would be today, how much better it would be.

I think that if the economy continues to be weak, that something like that x-tax should get broad bipartisan support.

Senator Lee. Okay. And I assume you would say that, going back to my two-part analysis earlier of the purpose of the Tax Code having two purposes, to raise revenue and communicate adequately and accurately to the electorate the true cost of government, I assume your insistence would be that this would perform that second function much better?

Dr. Hassett. It would be, yeah, much more transparent what was happening, that's correct.

Senator Lee. Okay. Dr. Gravelle, what would you do if made king, queen, czarina for the day and you could do anything to our tax code?

Dr. Gravelle. I probably wouldn't do a lot different from what we have now. We just—CRS just released a report where we looked specifically at base broadening and individual income tax reform. And tax reform looks—and fundamental tax reform looks a lot easier when you talk about it in generalities than when you talk about specifics.

So, for example, ideas such as eliminating tax expenditures by taxing Medicare, which would be a disaster for low-income people, by taking capital gains at death, by taxing pensions. We have a list of the 20 top tax expenditures. You start looking at those, and you see that they are very hard.

Now Kevin, the thing Kevin talked about, the Progressive Consumption Tax, I mean that would be a very radical change and there would be some big windfall gains and losses—a very difficult transition to that tax.

And I think once you start looking at this, you might want to rethink whether that is a good way to go.

With respect to the Corporate Tax, I just think we need to be careful, because Corporate Tax doesn't have as many tax expenditures. And if you do something about depreciation or things like that, you are actually going to increase the cost of capital on a revenue neutral change.

So also I found that if you eliminated every tax expenditure, you could only reduce the Corporate Tax by about 5 percentage points.

So I think you have to look very realistically at exactly what you have to do with tax reform before you decide which way to go.

Senator Lee. So every loophole, every deduction, every credit, everything under the current system would allow you to reduce that only by 5 percent?

Dr. Gravelle. On the Corporate Tax, only about 5 percentage points, yeah, to maybe 30 percent. Maybe a little less. That's the long-run revenue neutral, not the short-run. The short-run has some budget scams in it.

Senator Lee. Okay. Thank you.

Vice Chairman Brady. Thank you.

Before we conclude, let me ask, because like other members of this Committee we do a lot of town halls. Dividend income is an important part of seniors' lives. The President in his budget has proposed tripling the tax on dividends.

My question is perhaps more direct.

Dr. Hassett, when taxes on dividends go up, do businesses give more dividends? Less? The same? Is there an impact?

Dr. Hassett. Yeah, that's the one area of the literature that I didn't go into in my testimony, but there's a big literature on this that I've also participated some in.

I think that when, back when we were discussing the dividend tax and thinking about whether it should be reduced, I can remember testifying before maybe Ways and Means and Senate Finance—I don't remember the exact committees—but there are a number of testimonies. And one of the key things that I thought motivated the dividend tax reduction back then was the problem that when you have a high dividend tax, then it gives companies an incentive to just hold the cash rather than pay a dividend.

And then every now and then, repurchase shares. But I—and I said this back then—I really don't trust managers. I would rather they give the cash to the investors, and that they didn't have an excuse not to, because I think that the bigger the pile of cash that's piling up in the firm, the more likely you are to have bad things happening with management.

And so I thought that the dividend tax reduction, one of the strongest arguments for it—there are user cost arguments, too—was that it would increase dividend payouts, and that that had good corporate governance implications. And I think that there is no dispute in the literature at all that that effect was seen, that dividends skyrocketed when the dividend tax cut went down. And I think that we could expect that that would reverse itself radically if the dividend tax were to go back up.

Especially if one considers that it seems like now that the dividend tax cut has occurred once, and has been proven quite effective in the literature, that if you were to repeal it, the dividend tax cut, then I think that the firms would logically expect that the dividend tax would go down again at some point in the future as soon as, say, Republicans had enough power to make it happen.

So if you think that the dividend tax is going to be lower, then you should set dividends today to zero, basically, waiting for that dividend tax reduction. That's what shareholders would want you to do, unless they weren't taxable.

And so I think that if something like the Buffett Rule, and the dividend tax, and the capital gains tax, and all those things are allowed to go back to old high rates, then we will see a really steep reduction in dividend payout, a big reduction in capital gains realization, and a lot of movement towards things like municipal bonds which still pay tax pre-interest.

Vice Chairman Brady. Sure.

Dr. Hassett. I think, you know, as a last point, that if you look at the Buffett Rule proposal, it sort of shows how crazy a policy can get if you don't think through these things.

But the Buffett Rule proposal that everyone is talking about this week exempts municipal bond interest from the calculation. No one

has ever explained to me why it is that if a millionaire pays a lower tax than a secretary because he gets muni bonds, that's fair. But if it's because he gets dividends, it's not.

And I would like to ask the drafters of the bill if they exempted muni bonds because Berkshire Hathaway owns so many municipal bonds. You know, I mean it's the Buffett Rule because it's so good for Buffett, but it doesn't make any economic sense at all.

Vice Chairman Brady. Thank you, Doctor.

I want, as a courtesy particularly to the Democrat members of the Committee who could not attend the hearing today, and to allow for a full discussion of the economic issues raised today, I am going to keep the record of this hearing open for written questions to the witnesses until Monday, April 23rd, of this year. And I am asking both witnesses to respond to those written questions by Monday, April 30th.

With that, thank you very much for your testimony today. The meeting is adjourned.

Dr. Hassett. Thank you, Mr. Chairman.

[Whereupon, at 11:03 p.m., Tuesday, April 17, 2012, the hearing was adjourned.]

SUBMISSIONS FOR THE RECORD

PREPARED STATEMENT OF REPRESENTATIVE KEVIN BRADY, VICE CHAIRMAN, JOINT ECONOMIC COMMITTEE

Today, April 17th, is Tax Day. In recognition of America's hardworking taxpayers, it is appropriate that the Joint Economic Committee holds the first of two hearings on how taxes affect America's economy. Today's hearing focuses on the taxation of capital and on Wednesday, May 16th; the second hearing will focus on the taxation of labor.

My goal, as Vice Chairman of the Committee, is to ensure America has the strongest economy in the world throughout the 21st Century. To do that, we must get our monetary policy right and our fiscal policy right. A competitive tax code is more than just getting the rate right. It's about creating a pro-growth tax code that recognizes the importance of the cost of capital.

There are two schools of economic thought on how taxation of capital affects long-term economic growth and job creation. The purpose of this hearing is to examine the empirical evidence offered by both sides of the debate.

Some economists contend that taxes on capital have, at most, modest effects on the economy over time. These economists cite studies that show a large variation in both the size and direction of responses to tax changes. Therefore, these economists claim that the effects of tax changes on long-term growth and job creation are either insignificant or unpredictable.

The Joint Committee on Taxation uses these arguments to justify the static scoring of proposed tax changes. Static scoring may acknowledge some behavioral changes among taxpayers due to changes in tax policy, such as realizing capital gains before an increase in the tax rate on capital gains, but does not acknowledge any effect on the overall growth of gross national product over time. Under static scoring, tax policy is, by definition, impotent in stimulating or suppressing long-term growth and job creation.

Other economists contend that tax policy has significant and predictable effects on economic growth and job creation. In particular, these economists find that business investment in new buildings, equipment and software is highly responsive to changes in the after-tax cost of capital.

From my chamber of commerce experience prior to serving in Congress, there's little doubt that tax policy affects business decision-making on Main Streets across America. States and local governments have long used tax incentives to attract investment, especially since U.S. businesses face global competition. Tax policy affects where businesses choose to locate and expand their operations.

It is also common sense that the decisions of all businesses collectively of whether and how much to invest affect overall economic growth and job creation. In contrast, the assumption that changes in tax policy cannot affect long-term economic growth and job creation in predictable ways defies common sense.

However, we should not rely on common sense alone. We must also look at the empirical evidence. In his written testimony, Dr. Hassett reviews major studies conducted by prominent economists in recent years on various aspects of the taxation of capital: the corporate income tax, tax depreciation and expensing of business investment, taxes on capital gains, and taxes on dividends. The conclusions of these studies are remarkably consistent—taxes on capital have significant, adverse effects on business investment, economic growth, job creation, and the real wages of workers.

Despite a growing body of empirical evidence on the adverse effects of taxing capital, President Obama and many Congressional Democrats are advocating a series of tax increases that will raise the cost of capital. These tax increases include:

- Imposing higher income tax rates on sole proprietorships, partnerships, and subchapter S corporations;
- Boosting the tax rate on dividends from 15 percent to 44.6 percent;
- Raising the tax rate on capital gains from 15 percent to 20 percent;
- Tripling the tax rate of traditional local real estate partnerships;
- Eliminating long standing business expensing for energy manufacturing; and
- Lengthening tax depreciation schedules.

If the empirical studies are correct, these tax proposals will reduce business investment, slow economic growth, and deter job creation. Moreover, these tax increases will hurt hardworking taxpayers by reducing their real wages over time. These are the very men and women which the President and Democrats in Congress claim that they want to help.

The purpose of today's hearing is to determine whether the empirical evidence supports these adverse economic assumptions, or whether we should continue to accept the static scoring currently used by the Joint Committee on Taxation.

I look forward to the testimony of our distinguished witnesses.

American Enterprise Institute for Public Policy Research

Testimony before the Joint Economic Committee

How the Taxation of Capital Affects Growth and Employment

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The views expressed in this testimony are those of the author alone and do not necessarily represent the views of the American Enterprise Institute.

Chairman Casey, Vice Chairman Brady, and Members of the Committee, thank you for inviting me to appear today to discuss how the taxation of capital affects the economy.

I. How do we tax capital?

This nation employs several methods for taxing capital income, both at the individual and the corporate level. There is a massive economic literature that documents strong theoretical and empirical support for the United States to reduce its capital taxes. The consensus amongst economists on these issues has had a hit-and- miss record driving political consensus. There has been a strong bipartisan consensus regarding capital gains taxes, which were cut dramatically by Jimmy Carter in 1978, and again by Bill Clinton in 1997. Dividend taxes are also currently low, having been extended on a bipartisan basis in 2010. There has been less of a political consensus regarding the corporate tax, and the U.S.'s currents status as the highest tax country in the developed world is likely the most pressing tax policy issue of the day.

The corporate income tax has been levied on a permanent basis in the United States since 1909, when it was introduced at the rate of 1 percent. About one hundred years later, the U.S. federal tax rate for most corporations is 35 percent, and state taxes on average add another 4.2 percent tax. With a 39.2 percent combined corporate tax rate, we earned the honor of highest tax rate in the developed world on April 1st when Japan lowered its rate from 39.5 to 38 percent. With its action, Japan has been following a wave of reforms that began in the mid to late 1980s but has continued in the 1990s and through the 2000s. In fact, the OECD average fell almost 9 percent in the first decade of the 21st century. Overall, top combined statutory rates amongst OECD countries have fallen from an average of about 48 percent in the early 1980s to a little over 25 percent in 2011.[1]

In addition to the corporate income tax, the United States also taxes dividends paid out to shareholders and capital gains at the individual level. This extra layer of capital taxation increases the overall effective tax rate that burdens new investment. On the other hand, depreciation and expensing provisions lower the effective tax rates on business income, and numerous loopholes and other tax expenditures lower the rate for industries that happen to be favored in Washington.

When economists seek to derive the net impact of all of these features, they often focus on effective tax rates. There are two commonly accepted measures of effective tax rates: the effective average tax rate (EATR) and the effective marginal tax rate (EMTR). The EATR

[1] "OECD Tax Database," http://www.oecd.org/ctp/taxdatabase.

summarizes the distribution of tax rates for an investment project over the range of possible profitability levels. The EATR computes, simply, a firm's tax liability as a fraction of pre-tax economic profits in a particular country. This rate differs from the statutory rate because it reflects the lower rate that the firm actually pays once the other features of the tax code such as depreciation allowances or interest rate deductions are accounted for. The other measure, the EMTR, applies to marginal investment projects where the last unit invested provides just enough pre-tax return to cause the project to break even after-taxes. In other words, the marginal investment equates the net present value of the income stream to the net present value of the investment costs.

Many have argued that even though the statutory corporate tax rate is extremely high, the significant number of loopholes in our tax code allows firms to escape much of the apparent burden. In truth, the U.S. does not rank much better, compared to other OECD countries, when looking at effective rates than when looking at statutory rates. In a 2011 study with my AEI colleague Aparna Mathur, I computed the EATR and EMTR for corporations in the OECD countries, and our results suggest that the effective rates have followed the same disappointing trend as the statutory rate.[2] While in 1996 the U.S. EATR was slightly below the OECD average, 29.2 versus 30.2, the OECD average excluding the United States has fallen to 20.5 percent in 2010 while the U.S. EATR remained largely constant – in 2010 it was 29 percent. The United States fares slightly better when looking at the EMTR, but remains above the average. In 2010, the U.S. EMTR was 23.6 percent, compared to the non-US OECD average of 17.3 percent.[3]

The high rates of taxation on capital income in the United States stand in marked contrast not only to the policies of our trade partners, but also to the implications of optimal tax theory in the economics literature. Over the past three decades, numerous studies — including Judd (1985, 1999)[4]; Chamley (1985, 1986)[5]; Lucas (1990)[6]; Bull (1993)[7]; Chari, Christiano, and Kehoe

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[2] Kevin A. Hassett and Aparna Mathur, *Report Card on Effective Corporate Tax Rates: United States Gets an F*, Tax Policy Outlook No. 1 (Washington, DC: American Enterprise Institute, February 2011), http://www.aei.org/docLib/TPO-2011-01-g.pdf.

[3] Ibid.

[4] Kenneth Judd, "Redistributive Taxation in a Simple Perfect Foresight Model." *Journal of Public Economics* 28, no. 1 (1985): 59-83; Kenneth L. Judd, "Optimal Taxation and Spending in General Competitive Growth Models," *Journal of Public Economics* 71 (1999): 1-26.

[5] Christophe Chamley, "Optimal Taxation of Capital Income in General Equilibrium with Infinite Lives," *Econometrica* 54, no. 3 (1986): 607-22. Christophe Chamley. "Efficient Taxation in a Stylized Model of Intertemporal General Equilibrium," *International Economic Review*, vol. 26(2) (1985): 451-68.

[6] R.E. Lucas, "Supply-Side Economics: An Analytical Review," *Oxford Economic Papers* 42 (1990). 293-316

[7] Nick Bull, "When All the Optimal Dynamic Taxes Are Zero," *Working paper, Federal Reserve Board of Governors* (1993)

(1994)[8]; and Jones, Manuelli, and Rossi (1993, 1997)[9] — have concluded that an optimal tax system in most cases will not include a tax on capital.

A chapter by Kenneth Judd in a volume edited by Glenn Hubbard and myself provides a useful explanation for these results.[10] A capital tax introduces a distortion into the return on saving and investment, a distortion that "explodes" over time. Even a small capital tax will not be optimal because the damage it causes will eventually grow without bound. The intuition of this result is quite straightforward. Recall that an efficient tax system will cause individuals to change their behavior as little as possible. A huge tax on apples and a small tax on oranges would cause an enormous shift away from apples and toward oranges. A small uniform tax on both would not. Think of consumption today as being represented by apples and consumption ten years from now as oranges. If you give up an apple today, you get a number of oranges ten years from now that depends on the interest you got on the money you saved after not eating the apple. At 10 percent interest, a dollar saved today becomes $2.60 ten years from now. If we tax that interest at 50 percent, a dollar saved today only yields $1.63 ten years from now. Clearly, a tax on interest can have a very large effect on how much money you have ten years from now, a very big effect on the rate at which you can trade apples today for oranges tomorrow. Indeed, this distortion grows bigger and bigger over time because of compounding. One dollar saved today produces $17.45 thirty years from now at 10 percent interest. If the interest is taxed at 50 percent, then a dollar saved yields only $4.32 over the same time period.

Since it is not efficient for the tax system to create dramatic changes in the relative prices, it cannot be efficient to rely on a device that produces a distortion that worsens steadily over time. This is why a consumption tax has been found to be optimal.

This optimality is society wide, and not just a result that focuses on the welfare of those fortunate to have capital. A 2001 study by Greg Mankiw of Harvard University also supports the argument that the wealthy are not the only ones who benefit from corporate tax reform.[11] He developed an interesting model that shows the surprising robustness of the theoretical result. In Mankiw's model there are two distinct types of agents: workers and capitalists. Capitalists chose the capital stock in order to maximize profits; workers supply labor and are

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[8] V.V. Chari, L.J. Christiano, and P.J. Kehoe, "Optimal Fiscal Policy in a Business Cycle Model," *Journal of Political Economy* 102 (1994): 617-52.

[9] Larry E. Jones, Rodolfo E. Manuelli and Peter E. Rossi, *Journal of Political Economy* , Vol. 101, No. 3 (Jun., 1993), pp. 485-517. Jones, L.E., R.E. Manuelli, and P.E. Rossi, "On the Optimal Taxation of Capital Income.," *Journal of Economic Theory* 73 (1997): 93-117.

[10] Judd, K.L. (2001), "The Impact of Tax Reform in Modern Dynamic Economics," in K.A. Hassett and R.G. Hubbard, eds., *Transition Costs of Fundamental Tax Reform*.

[11] Mankiw, N. Gregory (2001). "Commentary: Balanced-Budget Restraint in Taxing Income From Wealth in the Ramsey Model." In *Inequality and Tax Policy,* edited by K. A. Hassett and R. G Hubbard. Washington, DC: AEI.

paid according to their productivity, which depends in part on how much capital they have to work with. In Mankiw's model there can be a tax on capital and a tax on labor. Because workers outnumber capitalists, and the hypothesized economy is a democracy, workers effectively get to dictate the tax on capital and labor to maximize their own welfare. Mankiw shows that even in this context, workers would rationally choose to set the capital tax to zero. The intuition here is that workers are better off — their wages are higher — when the capital stock is higher, which makes workers more productive and flows through to wages.

There are several other deviations from efficient design in our current system that warrant mentioning.

First, the double taxation of corporate income discourages investment in equipment and structures. The dividend tax raises the cost of funds to firms, increasing the hurdle rate for new projects. The accompanying reduction in capital spending reduces economic growth and interferes with the creation of new jobs.

Second, the asymmetric treatment of debt and equity encourages heavy debt loads and increases the overall level of risk in the corporate sector. Firms that borrow to finance investments are allowed under current law to deduct interest payments associated with that debt. Dividend payments are not deductible. This encourages firms to use debt finance whenever possible. When firms have large debt loads, they are much more likely to enter bankruptcy during difficult times.

Finally, the relatively unfavorable position of the U.S. relative to the rest of the world is a significant competitive disadvantage. The harm caused from suboptimal taxation is magnified significantly when capital is mobile, and alternatives to location in the U.S. exist. The idea that high capital income taxes can be harmful to economies has received a fairly broad acceptance among our trading partners. As I discussed earlier, only the United States has lagged behind.

These data should provide food-for-thought for those who would contend that the reduction in double taxation disproportionately benefits the wealthy. If that were true, why do Scandinavian countries with historically strong social welfare objectives tax corporate capital at a lower rate than ours? The answer is simple. High tax rates encourage firms to locate elsewhere. When this occurs, shareholders may come out ahead, but workers will not. The best policy for a country is to make itself as attractive as possible to capital. If it does succeed in keeping its own capital at home and luring foreign capital in large quantities, everyone will benefit. Workers will have higher wages, government will receive higher tax revenues, and investors will reap higher returns. The U.S. is one the few countries in the world not to have recognized this.

In both practice and theory, the United States' tax code is not optimal. The real questions are what can be done about it, and how big would the benefits of reform be? In the next sections, I briefly discuss a number of options.

II. Comprehensive tax reform

There are two primary problems with our tax code. The first is the needless complexity, in the form of hundreds of credits and cutouts for different types of people or activities. The second is the bias against saving inherent in an income tax system that taxes capital incorrectly, as described above. Economists generally agree that each of these issues limit economic growth. To solve both requires fundamental tax reform.

The best solution is to move from our income tax system to a system that taxes consumption. Research concerning the economic effects of a tax reform that moves in the direction of a consumption tax exploded in the 1970s and 80s and has continued to this day. As I mentioned above, a key early and striking result of this literature is that, in the long run, an efficient tax system must not tax capital income.

Economic models of increasing sophistication have attempted to predict the impact on the American economy of a wholesale change to a consumption tax. Some of these models find the gain from a switch to a consumption tax to be enormous. For example, Larry Summers, President Obama's first director of the National Economic Council, wrote in 1981, "The results suggest that the elimination of capital income taxation would have very substantial economic effects. For example, a complete shift to consumption taxation might raise steady-state output by as much as 18 percent and consumption by 16 percent."[12] These large gains occur because an income tax discourages capital formation, and the increase in capital formation leads to a higher level of economic growth for some length of time.

Summers' paper was one of the first glimpses of this result, and it is an outlier in retrospect. Models of increasing complexity today generally find effects smaller than that. Nonetheless, economists have consistently found large positive output effects from fundamental tax reform. A survey of 69 public finance economists conducted by Victor Fuchs, Alan Krueger, and James Poterba (1998) found that, at the median, respondents believed that the 1986 tax reform

[12] Lawrence H. Summers, "Capital Taxation and Accumulation in a Life-Cycle Growth Model." *American Economic Review* 71 (September 1981): 533-44.

produced about one percentage point higher growth in the steady state.[13] Pecorino (1994)[14] estimated the hypothetical effect on the growth rate of replacing the 1985 US income tax structure with a consumption tax to be of the order of 1 percent per capita per year. Over the course of several years, this result would closely correspond with the estimates found in other studies which mostly focus on long-run increases in output. An OECD study by Arnold (2008) provides an empirical analysis of the effect of the tax structure on long-run GDP. The main findings include "Property taxes, and particularly recurrent taxes on immovable property, seem to be the most growth-friendly, followed by consumption taxes and then by personal income taxes. Corporate income taxes appear to have the most negative effect on GDP per capita."[15] This intuition is supported by the review of the literature that I conducted with University of Berkeley economist Alan Auerbach in 2005, which suggested that a transition to an ideal system might increase economic output between 5 and 10 percent.[16]

This allows us to estimate what our fiscal situation might be today if the United States had implemented a fundamental tax reform ten years ago, and we had achieved the high end growth estimate of a 10 percent long run improvement. GDP would be $17.1 trillion in fiscal year 2012 rather than the expected $15.5 trillion under CBO projections. Moreover, if we assume that revenues stay fixed as a percent of GDP and outlays stay fixed in dollar terms, then the 2012 deficit would be -$830.4 billion rather than the expected -$1.1 trillion under the CBO alternative fiscal scenario. The long run budget deficit would also be substantially improved, with accumulated deficits of $7 trillion from 2013 to 2022 rather than the expected $11 trillion. This illustration suggests that the stakes are very large indeed.

III. Distributional Issues

While the literature is unanimous in finding that a consumption tax would boost output, it is important to consider whether reform might affect distributional equity. Advocates of consumption taxation have made significant adjustments and improvements to consumption tax models in response to this concern. For example, under a value-added tax (VAT)—one pure form of a consumption tax—a firm pays tax on the difference between its total revenue and the

[13] Victor R. Fuchs, Alan B. Krueger and James M. Poterba, "Economists's Views about Parameters, Values and Policies: Survey Results in Labor an Public Economics." *Journal of Economic Literature* , Vol. 36, No. 3 (Sep., 1998), pp. 1387-1425

[14] Pecorino, Paul. "The Growth Rate Effects of Tax Reform." *Oxford Economic Papers* 46, no. 3 (1994): 492-501.

[15] Jens Arnold, "Do tax structures affect aggregate economic growth? Empirical evidence from a panel of OECD countries", *OECD Economics Department Working Paper* 643, 2008.

[16] Auerbach, Alan J. and Kevin A. Hassett, ed. *Toward Fundamental Tax Reform*. Washington DC: The AEI Press, 2005.

cash it has paid to other businesses. Firms are not allowed to deduct wages paid before calculating their tax. But under the VAT, everyone pays the same tax rate regardless of income.[17] Hall and Rabushka (1995) noted that one could modify the VAT to maintain the economic benefit while maintaining the tax code's current redistributive role. Their "flat tax" is a two-part VAT that allows firms to deduct wages before calculating their tax, but workers must pay tax on the wages that they receive at the same rate faced by the corporation. Under the flat tax model, income up to a set amount would be excluded from the wage tax--making the flat tax somewhat progressive.[18]

David Bradford took this logic one step further in the development of his X-tax. He, too, passed the responsibility for paying taxes on wages on to the workers, and then taxed their wages using a graduated rate system. In principle, such an approach could allow for any possible level of redistribution, substantially weakening the logical basis of opposition to a consumption tax on social-justice grounds.[19]

A 2001 paper by Altig, Auerbach, Kotlikoff, Smetters and Walliser explored the degree to which this redistributional twist compromised the economic effects of a consumption tax.[20] Their research expanded a model that has been often relied upon in the past to allow them to estimate the impact of tax reform on individuals in twelve different income classes. They simulated a variety of different approaches to tax reform, including a proportional income tax, a proportional consumption tax, a standard flat tax, a flat tax with transition relief and the X-tax. In line with critics' conclusions, some tax reforms, notably the flat tax, increased overall long-run welfare at the expense of the poor. However, their model found that the X-tax increased aggregate long-run consumption by 7.5 percent while also to increasing long-run welfare for individuals in every income class.[21]

Thus, the latest research suggests it is possible to reproduce the positive benefits of consumption tax reform in a manner that should be unobjectionable from the redistributive perspective. But the apparent long-run benefits of a carefully crafted system leave very complex transition issues still to be addressed.

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[17] It is possible to add progressivity to a VAT by narrowing the base; however, this creates inefficiency.
[18] Robert E. Hall and Alvin Rabushka, *The Flat Tax: Updated Revised Edition (HOOVER INST PRESS PUBLICATION)*, Second Edition, Revised ed. (Hoover Institution Press, 1995
[19] Bradford, David F, "The X Tax in the World Economy." *CEPS Working Paper No. 93* (August 2003). http://www.princeton.edu/~ceps/workingpapers/93bradford.pdf
[20] Altig, David, Alan J. Auerbach, Laurence J. Kotlikoff, Kent A. Smetters, and Jan Walliser. "Simulating Fundamental Tax Reform in the United States." *The American Economic Review* 91, no. 3 (2001): 574-595.
[21] Ibid.

Because the X-tax remains relatively unfamiliar, my AEI colleague Alan Viard and Robert Carroll of Ernst & Young have set out to introduce the Bradford X-tax to the broader public in their forthcoming book which we can arrange to send to each member of this committee upon publication.[22] Their book sets forth solutions to commonly perceived problems concerning the taxation of pensions and fringe benefits, business firms, financial intermediaries, international transactions, owner-occupied housing, state and local governments, and nonprofit institutions, and the transition. By adopting these proposed approaches, the United States can move to a progressive tax system that no longer penalizes saving and investment.

IV. Expensing

Much political courage is needed to propose and achieve fundamental tax reform, but there are other smaller compromise actions that can be taken to improve the current tax system. One of the main steps towards consumption taxation, without full-blown tax reform, is the implementation of permanent business expensing. In other words, allowing firms that purchase new machines and other capital goods to be able to write them off immediately, instead of over many years.

A well-developed body of research by economists confirms what businessmen will tell you if you ask: When the cost of capital is low, firms are much more likely to expand their capital stock. And full expensing can reduce the cost of capital significantly. Future deductions are not as valuable as current deductions because of the time value of money, and because these deductions are not indexed for inflation. Expensing gives firms the entire deduction up front, and with full expensing, the value of the deduction will exactly offset the present value return on the investment over its lifetime, so the effective marginal tax rate on investment will be zero.

Although much of the recent economic literature on expensing has focused on the merits of temporary provisions enacted as stimulus, there is wide agreement in the economics profession that permanent measures can have significant, long-run growth effects. In fact, many researchers agree that expensing provisions provide more growth per dollar of revenue foregone than reductions to other capital taxes because it offers tax benefits to new investment only, whereas corporate, dividends, or capital gains tax rate cuts benefit old capital as well. The Treasury Department, for example, estimates that cuts to the corporate, capital

[22] Robert Carroll and Alan D. Viard. *Progressive Consumption Taxation: The X-Tax Revisited.* AEI Press. Forthcoming June 2012.

gains, or dividends rates are only about 60% as effective in terms of "bang-for-the-buck" investment growth as expensing provisions.[23]

For a more thorough discussion of the benefits of expensing, I recommend a 2010 Center for American Progress/Brookings Institution paper by economist Alan Auerbach from UC Berkley;[24] a Treasury Department Background Paper on business taxation from 2007;[25] and the forthcoming book on the X-tax by Alan Viard and Robert Carroll, which I already mentioned. This reading list helps indicate the wide-spread support for permanent expensing provisions from several of the most respected tax economists in the country.

V. Dividend Taxes

Given that a sharp increase in the dividend tax may soon occur, I will focus this section on the literature describing what such an increase might do to the economy.

The literature on dividend tax policy and investment has had a rather contentious history. Theoretically speaking, it is possible to derive cases where dividend taxes have a large effect on investment, but other cases exist that are equally plausible that suggest that dividend taxes have a smaller effect. An early and path-breaking study by Poterba and Summers (1985) concluded, "our results suggest that dividend taxes reduce corporate investment and exacerbate distortions in the intersectoral and intertemporal allocation of capital".[26] A more recent study that I coauthored with Alan Auerbach of the University of California at Berkeley found evidence that supported somewhat smaller economic effects of dividend tax reductions (or increases).[27]

The dividend tax reduction passed by President Bush in 2003 spurred a significant amount of academic work. The analysis of these tax cuts hinges on a critical assumption regarding the source of marginal equity finance. Under the "traditional" view, a firm's marginal source of funds is new equity issues. Under this view, investment is responsive to dividend taxes. According to the "new" view, however, a firm's marginal source of funds is retained earnings.

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[23] U.S. Department of the Treasury, "Background Paper." Paper presented in the Treasury Conference on Business Taxation and Global Competitiveness, U.S. Department of the Treasury, July 23, 2007.
[24] Auerbach, Alan J. A Modern Corporate Tax. DC: Hamilton Project/CAP, December 2010.
[25] U.S. Department of the Treasury, *supra* note 3.
[26] Poterba, J.M., and L.H. Summers, "The Econonomic Effects of Dividend Taxation", (1985) in E. Altman and M. Subrahmanyam, eds., *Recent Advances in Corporate Finance*, pp. 227-284.
[27] Auerbach, A.J., and K.A. Hassett (2003), "On the Marginal Source of Investment Funds," *Journal of Public Economics*, 87, pp. 205-232.

Firms issue new equity only once retained earnings are exhausted and thus the investment levels of mature firms not dependent on the new equity market are unresponsive to changes in dividend taxes. Under the new view, time invariant dividend taxes are capitalized into the value of the firm but do not affect investment.

Prior to the dividend tax proposal, research on this topic provided mixed evidence on the relative importance of the two views. The latest evidence suggests that firm level heterogeneity is important, and that some firms should be thought of as "new view" firms while others are better described by the "old view". One paper (my 2003 study with Carroll and Mackie) at the time established the *ex ante* prediction of the user cost model.[28] We estimated that under the traditional view, the dividend tax changes reduced the marginal effective total tax rate by about 4 percentage points under their baseline assumptions, from 33.5 percent to 29.4 percent. Under the new view (and also accounting for the capital gains tax changes, which affect the user cost under both views), the reduction is the user cost was smaller, from 29.6 percent to 27.7 percent.[29]

My early work with Auerbach, which relied on a sample that predates the dividend change, examined investment financing directly to determine the relevance of the different views and found considerable heterogeneity in their sample of firms, with capital market access an important factor in determining a firm's likelihood of issuing new shares. Under the new view, the dividend is a residual and, they showed, should be negatively correlated with investment and positively correlated with cash flow once one controls for Tobin's *Q*. We utilized this observation to test the validity of the two views and showed that the responsiveness of dividends to cash flow and investment varies significantly across publicly traded U.S. firms. We concluded that about half of firms that had paid dividends, and hence for whom the new view could potentially apply, seem to have dividend payout behavior consistent with the new view, while half appear to behave more consistently with the traditional view. This suggested at the time that perhaps half of this subset of firms would have relatively large investment responses to the change because they were governed by the old view, whereas the other half would have a relatively small response.[30]

Desai and Goolsbee (2004) also found support for the new view, by looking at the effect of the dividend tax cuts on investment. In their analysis of the 2003 dividend tax cuts, Desai and Goolsbee take a novel approach by using firm-level investment data to distinguish between the

[28] Carroll, Robert, Kevin A. Hassett, and James B. Mackie III, "The Effect of Dividend Tax Relief on Investment Incentives." *National Tax Journal* 56(3):629-651. (2003)
[29] Ibid.
[30] Auerbach, A.J., and K.A. Hassett (2003), "On the Marginal Source of Investment Funds," *Journal of Public Economics*, 87, pp. 205-232.

traditional and new views of dividend taxation.[31] They reestimated a variation of the Poterba and Summers (1985) model,[32] and found strong confirmation that the new view best describes the data.[33] This user cost effect could have been expected, based on the investment literature, to have a modest positive effect on investment. In this case, however, the change also could be expected to influence the marginal incentive to pay a dividend, and, accordingly, a large literature has emerged to explore this implication.

In a 2005 study, Alan Auerbach and I found indirect evidence concerning the likely impact of the dividend change on the user cost of capital.[34] We examined the dividend response debate directly with an event study of the stock price response to news about the probability of dividend tax changes. We found that firms with higher dividend yields benefit more than other dividend-paying firms, which could support either the new or the traditional view, depending on whether firms believed the tax cut was temporary.[35] Additional evidence contradicting the traditional view came from the fact that non-dividend-paying firms and firms likely to issue new shares received a larger boost than other firms. Under the traditional view, such firms should not have experienced a larger reduction in the cost of capital, which would be related to the firm's dividend payout rate, a variable already controlled for in the regressions.

This pattern emerges because the tax cut increases the future after-tax value of dividends, which increases the value of the firm today if it is expected that the firm will pay dividends in the future and that the tax cut will last into the future. In addition, the present value of any future dividends is greater, which will increase the value of a firm that is expected to issue new shares in the future.

Auerbach and I also observed similar effects using research on the 2004 presidential race. In 2004, Senator Kerry vowed that he would let the dividend tax cut expire, whereas President Bush was committed to its extension. Accordingly, one might expect that the market would correlate the probability of a Kerry victory with the probability of a more temporary dividend tax reduction. We explored whether results consistent with the event study were also

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[31] Mihir A. Desai and Austan D. Goolsbee, "Investment, Overhang, and Tax Policy," *Brookings Papers on Economic Activity* 35, no. 2 (2004): 285-355.

[32] Poterba, J.M., and L.H. Summers, "The Econonomic Effects of Dividend Taxation", (1985) in E. Altman and M. Subrahmanyam, eds., *Recent Advances in Corporate Finance*, pp. 227-284.

[33] Other studies have also implied that there are significantly more new view firms than might have been suggested by Poterba and Summers. Gentry, Kemsley, and Meyer (2003) exploit the unique tax characteristics of Real Estate Investment Trusts and find that dividend taxes are capitalized into share prices, lending support to the new view. Sialm (2005) uses time-series data from 1917 to 2004 and also finds evidence of tax capitalization.

[34] Auerbach, Alan J., and Kevin A. Hassett. 2005. "The 2003 Dividend Tax Cuts and the Value of the Firm: An Event Study." NBER Working Paper No. 11449. (July 2005).

[35] Ibid.

observable during the election by relating stock market performance to presidential futures. Our results confirmed the earlier event-study results, while shedding additional light on the dividend tax mechanism. In particular, under the new view, firms with high dividend yields should have outperformed other firms when the probability of repeal increased, because they will disgorge a higher percentage of their dividends in the low tax years. Under the traditional view, the lower dividend tax should reduce the cost of capital disproportionately for high dividend firms, giving them a value bonus that should increase with the permanence of the dividend tax cuts. The presidential futures results suggest that the bonus to paying high dividends *declined* when the dividend taxes were more likely to be permanently low (that is, when the probability of Kerry being elected declined), consistent with the new view.

A study by Amromin, Harrison, and Sharpe (2005) interpreted these results differently, arguing that the evidence supports the view that dividend taxes are irrelevant. In particular, they argued that share prices for non-dividend-paying firms and for those likely to issue new shares outperformed over the entire period, not just during the event days analyzed by Auerbach and me. In addition, Amromin and coauthors argued that the U.S. stock market did not outperform foreign markets during that period.[36]

Auerbach and I extended our earlier work in 2006, which allowed us to respond to the comments of the Amromin study.[37] Our extension involved an analysis of options data around the 2004 election. When President Bush was elected, it likely conveyed a significant amount of information about the probability that dividend taxes would remain low in the future. Uncertainty about the outcome should have led to a high level of volatility prior to the election, especially for the firms that should have been most influenced by dividend taxes. If this intuition is correct, it would be visible in options prices, which are especially sensitive to volatility. Our results confirmed this theory, finding that President Bush's reelection, which resolved some of the uncertainty surrounding whether the tax cuts would be extended, caused a greater decline in volatility for the firms most affected by dividend taxes in their earlier study. We also noted that the standard errors for the aggregate runs reported in the Amromin et al. study were so large that they would be unable to detect the full theoretical effect of the dividend tax reductions even under the most optimistic assumptions of the tax cut's impact, and even assuming that the entire effect occurred in one day.[38]

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[36] G. Amromin, P. Harrison, and S. Sharp, "How Did the 2003 Dividend Tax Cut Affect Stock Prices?" *Federal Reserve Discussion Paper* 61 (2005)

[37] Alan J. Auerbach & Kevin A Hassett, 2006. "Dividend Taxes and Firm Valuation: New Evidence," Berkeley Olin Program in Law & Economics, Working Paper Series 272642, Berkeley Olin Program in Law & Economics.

[38] Ibid.

A more recent study by Auerbach, Chaney, and me (2008) directly estimated the impact of dividend tax changes on investment. In this study, we divided user cost regressions according to sample splits that were based on the classification of firms from my 2005 study with Auerbach. We found that the user cost effect was biggest for immature firms that had never paid a dividend, where dividend tax changes caused a large market capitalization response.[39] This suggests that the dividend tax cut may have stimulated investment significantly. However, the authors also found that firms that were not taxable in this period had little response to the user cost. As there were many such firms, this suggests that the aggregate effect of the dividend tax cut on investment was smaller than one would have predicted if one ignored the fact that many firms left the recession with a healthy tax loss carry-forward position. This observation is magnified by Altshuler, Auerbach, Cooper and Knittel's (2008) result documenting a dramatic increase in the proportion of firms that had tax losses during this time period.[40]

Thus, the literature is somewhat mixed on this issue. The data seem to favor the new view of the user cost effect, which suggests that the impact of the dividend tax change would be small for most mature firms. However, there is evidence that immature firms responded quite a bit. On balance, then, one should conclude that as was the case with earlier studies of the new and old views, firm heterogeneity seems to be quite important in evaluating the investment response to the dividend tax reduction. Consistent with the view that there may have been a significant if not enormous effect of the dividend tax cut is a recent paper by Gilchrist and Zakrajsek (2007).[41] They use bond price data to calculate firm-specific interest rates and user costs assuming the marginal source of finance is debt. They find that a 1 percentage point increase in the user cost of capital implies a reduction in the investment rate of 50 to 75 basis points, a number which rises to a 1 percent reduction in the long run.

Overall, it is safe to conclude that a near tripling of the dividend tax rate proposed by President Obama's latest budget would have negative consequences on investment and growth.

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[39] Auerbach, Alan J., Eric Chaney and Kevin A. Hassett. 2008. "Dividend Taxes, Partial Expensing and Business Fixed Investment: The Case of the Bush Tax Cuts." Prepared for Forum for Analysis of Corporate Taxation Conference on Assessing the Effects of Corporate Taxation, American Enterprise Institute, Washington.

[40] Altshuler, R., A. J. Auerbach, M. Cooper, and M. Knittel (2008): "Understanding U.S. Corporate Tax Losses," Discussion paper, National Bureau of Economic Research No. 14405.

[41] Simon Gilchrist and Egon Zakrajsek, "Investment and the Cost of Capital: New Evidence from the Corporate Bond Market." NBER Working Paper No. 13174. (2007)

VI. The Corporate Income Tax

In addition to the detrimental effect of capital taxation on saving, which I demonstrated above with my example of the tradeoff between consuming apples now or oranges in ten years, taxation at the corporate level has the undesirable tendency to drive capital overseas. Much of the early research on the corporate income tax examined its effect in a closed economy, in other words an economy where capital is contained. In this situation the corporate income tax can be viewed as, essentially, a direct tax on the owners of capital. More recent research, however, has begun to reflect the fact that the US economy is certainly best characterized as an open one.

In an open economy, if corporate tax rates are high, then investors and firms are free to move capital to other countries with more favorable tax treatments. If an American firm locates a plant in the U.S., for example, it will after state and local taxes keep only 61 cents of every dollar the facility earns. If it locates the new plant in Ireland, it keeps 87 cents of unrepatriated earnings. There is a large literature that finds that firms are incredibly skilled at moving money around to minimize their taxes. A classic paper by Roseanne Altshuler, Harry Grubert and T. Scott Newlon finds investment location is highly responsive to tax rate differentials (with elasticities ranging from 1.5 to 2.8).[42] In addition, Harry Grubert has written a large number of papers with various coauthors documenting massive income shifting behavior of U.S. multinationals.[43]

Economists will tell you that Laffer curve phenomena, that is, situations when tax rates go down and revenue goes up, are unlikely and rare, and require high elasticities. It is true that they are rare, but it is not surprising given the elasticities described above that a number of authors have found that the U.S. is on the wrong side of the Laffer curve.

A 2007 paper by Kimberly Clausing examines OECD countries over the period 1979-2002.[44] Analyzing the variation in the countries tax rates and their tax revenues, she concludes that the revenue-maximizing corporate tax rate is 33 percent for the sample. Michael Deveraux examines the same relationship and finds evidence, although weak, that the revenue-

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[42] Rosanne Altshuler, Harry Grubert, and T. Scott Newlon. "Has U.S. Investment Abroad Become More Sensitive to Tax Rates?" *International Taxation and Multinational Activity* edited by James R. Hines. Pg. 9-38 (January 2000)

[43] Examples include Harry Grubert, "Intangible Income, Intercompany Transactions, Income Shifting, and the Choice of Location." *National Tax Journal*, 56.1 (March 2003); Harry Grubert and John Mutti, "Do Taxes Influence Where U.S. Corporations Invest?" *National Tax Journal*, 53.3 (December 2000); Harry Grubert and Joel Slemrod, "The Effect of Taxes on Investment and Income Shifting to Puerto Rico." NBER Working Paper No. 4869 (September 1994) http://www.nber.org/papers/w4869.pdf.

[44] Clausing, Kimberly A. "Corporate Tax Revenues in OECD Countries," *International Tax and Public Finance* 14:115-133 (2007).

maximizing rate might be rather low. [45] Focusing on Canada, a study by Jack Mintz estimated that a corporate rate at 28 percent would bring in the most revenue. Lastly, my work with AEI colleague Alex Brill also finds strong evidence that a Laffer curve exists in the corporate sphere and that the revenue maximizing rate has fallen from about 34 percent in the 1980s to 26 percent in the early 2000s. [46] If you take the Brill Hassett estimates seriously, then the U.S. could increase tax revenue by 767 billion dollars over the next ten years if it reduces its rate to 26.4 percent, and it would have to cut the rate all the way to 17.8 percent if it wanted to enact a revenue neutral reform.

A final argument in favor of cutting the corporate tax rate is that it would benefit workers. This channel was recently discussed in a Senate Budget Committee testimony by the former director of the Brookings-Urban Tax Policy Center Roseanne Altshuler, who wrote, "Moreover, any increase in the corporate income tax rate will reduce domestic income and lower wages (through an outflow of capital) and adversely affect economic efficiency."[47]

The benefits to American workers have been documented in a number of recent studies such as a 2007 paper by Alison Felix,[48] work done by Mihir A. Desai, C. Fritz Foley, and James R. Hines,[49] and my own research with my colleague Aparna Mathur.[50] They all conclude that labor bears much, if not all, of the burden of the corporate tax. The idea that workers may bear a portion of the corporate income tax is neither surprising nor new. Basic incidence analysis suggests that the burden of the tax will always be larger on the side of the market that is more inelastic. In the short run, the incidence will necessarily be borne out of the earnings of fixed capital since the supply of capital is fixed. However, it is the long run effects which are of greatest theoretical and practical interest. Since capital is relatively more mobile in the long-run than labor (which is relatively inelastically supplied), labor could bear a larger portion of the tax burden.

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[45] Michael P. Devereux, *Developments in the Taxation of Corporate Profit in the OECD Since 1965: Rates, Bases and Revenues*. Oxford University Working Paper. (May 2006)

[46] Alex Brill and Kevin Hassett, *Revenue Maximizing Corporate Income Taxes: The Laffer Curve in OECD Countries."* AEI working paper # 137, American Enterprise Institute, July 31, 2007.

[47] Rosanne Altshuler, "Testimony of Dr. Rosanne Altshuler Before the Senate Committee on the Budget." Hearing on Tax Reform: A Necessary Component for Restoring Fiscal Responsibility. February 2, 2011. Pg. 3. http://www.budget.senate.gov/democratic/index.cfm/files/serve?File_id=d86dd771-f895-48f4-abf7-1e1f79dc319b

[48] Rachael Alison Felix, "Passing the Burden: Corporate Tax Incidence in Open Economies." (October 2007) http://www.kc.frb.org/Publicat/RegionalRWP/RRWP07-01.pdf

[49] Mehir A. Desai, C. Fritz Foley, and James R. Hines, Jr., "Labor and Capital Shares of the Corporate Tax Burden: International Evidence," Prepared for the International Tax Policy Forum and Urban-Brookings Tax Policy Center conference on Who Pays the Corporate Tax in an Open Economy?, December 18, 2007.

[50] Kevin A. Hassett and Aparna Mathur, "Spatial Tax Competition and Domestic Wages" *AEI Working Paper* (December 2010).

There are two important implications of this capital mobility. The first is that the United States would likely draw more capital by lowering its corporate tax rates. It may also be on the wrong side of the "Laffer curve" and be able to raise more revenue from a lower rate. The second implication is that the gains from a corporate tax cut would likely flow through to labor. As capital returns to the American economy, each worker will have a relatively larger stock of capital to work with, and the marginal product of labor will rise.

Research that I have conducted on both of these topics with AEI colleagues Alex Brill and Aparna Mathur has come under criticism by researchers at CRS, and the next section will respond to that criticism.

VII. Response to criticism

In a recent research report prepared by Gravelle and Hungerford (2011) for the Congressional Research Service,[51] the authors take issue with a couple of my studies on corporate taxation, along with almost every other paper in the literature. They argue that the Laffer curve results from the Brill paper are the result of an "econometric error." The authors also go to great lengths to criticize my work with Mathur.

The "error" they accuse Brill and I of making is that we do not use fixed effects in our panel regressions. While this is a technical issue that is far beyond the scope of this hearing, it is important to note that this choice (which has been made by other authors in the literature for the same reason we make it) is a specification choice, not an "error." As I taught my students when I taught graduate level econometrics at Columbia, if one is running a cross section regression, one cannot control for fixed effects. If one has a large panel data set with many countries and years, and ample variation for the relevant variables, one can. The sample we use has ample cross section variation, but not an enormous amount of time series variation for each country, as corporate tax changes are infrequent. The specification preferred by the CRS throws out the variation across countries, and focuses only on those countries that change their rates. In their specification, it is irrelevant that the U.S. is now the high tax country, since differences across countries are thrown out. It should be no surprise that, since changes are relatively infrequent, throwing out all other variation makes it difficult to find statistically significant results.

[51] Jane G. Gravelle and Thomas L. Hungerford, "Corporate Tax Reform: Issues for Congress." Congressional Research Service (December 2011)

The logically correct statement one might make given their results is that if one controls for fixed effects, the Laffer curve is not statistically significant, and if one does not then it is. It might be that this is because the CRS estimator eliminates much of the variation, or it might be for the reasons highlighted in the CRS report. The fact that the report immediately jumps to the conclusion it does reveals a tendency in the report that is repeated often as it turns to other papers. When the authors finally find some specification that agrees with their biases, then they conclude that only that specification is correct.

The problem with such an explicit data mining approach is that it has very little potential to reveal the truth. The first sign that they have not done so is that there are a number of other papers (cited above) with similar findings. A second sign that the authors have not shed light on the truth on this issue is the logical problem presented by their results. If there is no Laffer curve in the data in the range of current tax rates, then they would also have to reject the large literature mentioned above that finds that corporate income is highly mobile, seeking out the lowest tax countries. The authors also would be unable to explain why countries around the world have been cutting their corporate tax rates. If Brill and I (and the other authors mentioned) are right, then all the pieces tie together sensibly. Countries reduce their rates because they see the harm that is done when their own rate disadvantages them as a location.

The same approach is taken later in the study when the authors turn to my paper with Aparna Mathur on the effect of corporate taxes on worker wages, where the authors again discard much of the variation for poorly motivated reasons, making statistical inference more difficult, and then declare victory when statistical significance diminishes.

In one of the first empirical studies on the topic, (Hassett and Mathur, 2006, revised 2010) we use a unique, self-compiled dataset on international tax rates and explore the link between taxes and manufacturing wages for a panel of 65 countries over 25 years.[52] We find, controlling for other macroeconomic variables, that wages are significantly responsive to corporate taxation, in that higher corporate tax rates depress wages. We also find that tax characteristics of neighboring countries, whether geographic or economic, have a significant effect on domestic wages. These results are consistent with the frequently employed assumptions in the public finance literature that capital is highly mobile, but labor is not. Under these conditions labor will bear the burden of capital taxes, after some lag while firms observe productivity gains and workers renegotiate fixed wage contracts. The study uses a standard specification drawn from the existing literature on wage variation across countries.

[52] The original paper was updated in 2010. The 2010 version is described here. Kevin A. Hassett and Aparna Mathur, "Taxes and Wages," *AEI Working Paper 128* (June 2006); Kevin A. Hassett and Aparna Mathur, "Spatial Tax Competition and Domestic Wages" *AEI Working Paper* (December 2010).

My colleagues Aparna Mathur and Matt Jensen summarize these results concisely,[53] "the results suggest that a 1 percent increase in the corporate tax rates leads to a 0.5 percent decrease in wage rates. For example, if the corporate tax rate increases from 35 percent to 35.35 percent, a 1 percent increase, a 10 dollar per hour wage rate will decrease 0.5 percent to $9.95. Using information from the United States wage bill and tax revenues, this implies that every additional dollar of tax revenue leads to a $4 decrease in aggregate real wages. Examining the effects of tax rate changes one year later, rather than five, we find that a $1 increase in tax revenues leads to $2 decrease in wages.[54]"

The CRS first tested our data and results to see if the results were in fact replicable. They reported that the results in fact did match the results presented in our paper, and the variable of interest, the corporate tax rate was indeed statistically significant. They then tested to see if alternative specifications of the regression equation would still produce significant results. For example, they suggested that using annual exchange rates to convert the national wage data may be inappropriate and that purchasing power parity conversions were needed. When they did the conversions using PPP, the results were very similar to those with the exchange rate data and were still statistically significant. They then went on to suggest that inflation-adjusted PPPs were an even better method for obtaining comparable real wages across countries. Using this measure as the dependent variable did produce a change in the magnitude of the coefficient—it decreased marginally. However, the coefficient was still statistically significant at conventional significance levels. The authors then concluded that their methodology had yielded less robust estimates of the effect of corporate taxes on workers, even though the negative and statistically significant effect on wages was robust.

As a final check, they attempted to replicate the results using only a balanced panel (i.e. using only those countries which had the full five years of wage data). In this case, the results were insignificant. However, this is not surprising since imposing the condition of full availability of data implied that the sample size dropped significantly (by 30 percent) and most importantly, would have eliminated a lot of small, developing countries whose wage response to corporate tax changes would likely be more pronounced. In fact, in results not reported in the paper, we show that small, open economies have a higher elasticity of wages to corporate taxes than larger economies. In addition, econometric analysis can be conducted using unbalanced panels, particularly when the nature of the data is such that it is difficult to obtain consistent, good data for all countries.

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[53] Matthew H. Jensen and Aparna Mathur, "Corporate Tax Burden on Labor: Theory and Empirical Evidence," *Tax Notes*, June 6, 2011, p. 1083, *Doc 2011-10018*

[54] For this result, we use annual income regressions and a GMM specification, instead of the five-year averages.

A final specification that the authors ran was to use annual wage data and then use several lags of the corporate tax variable to see if the coefficients were significant. They report that the coefficients are insignificant. However, this is clearly incorrect since our paper does present one specification using annual wages as the dependent variable and we find statistically significant coefficients on the corporate tax variable. One reason the authors may be obtaining their results is due to an incorrect specification of the regression equation. In a typical annual wage regression, one would have to include lagged wages as an additional regressor on the right hand side to account for persistence in the wage data. Current wages are likely to be highly dependent on lagged wages, at least for one period before. Further, the lagged dependent variable and the error term are likely to be correlated due to serial correlation in the error term. We attempt to control for all these misspecification problems in the regression reported in our paper, and use GMM to instrument for the lagged dependent variable. As mentioned earlier, our results suggest that the elasticity of wages to corporate taxes is lower in the annual data, but still statistically significant.

Since our first work, it is worth adding, there has been an explosion of literature documenting similar effects. The authors in their summary repeatedly just reject the work of these many distinguished scholars, often for the most trivial of reasons.

The first literature entry mentioned by the CRS is a study by R. Alison Felix,[55] who uses cross-country data over the period 1979-2002 to estimate the effect corporate tax rate changes on annual gross wages. She finds that a 1 percentage point increase in the corporate tax rate decreases annual wages by 0.7 percent, which is a larger effect than the one documented in my study with Mathur. Felix also has another study using cross-state data, whose results are smaller, but they are still criticized by the CRS as being implausible.[56]

Another example is a study by Mihir A. Desai, C. Fritz Foley, and James R. Hines, who use data on foreign activities of U.S. multinationals to create a panel of more than 50 countries between 1989 and 2004.[57] They investigate the effect of corporate taxes on labor and capital. Their estimates show that 45 and 75 percent of the burden of corporate taxes is borne by labor with the remainder (out of a 100 percent) borne by capital. Once again, this result is not

[55] Rachael Alison Felix, "Passing the Burden: Corporate Tax Incidence in Open Economies." (October 2007) http://www.kc.frb.org/Publicat/RegionalRWP/RRWP07-01.pdf

[56] R. Alison Felix, "Do State Corporate Income Taxes Reduce Wages?" *Economic Review*, Federal Reserve Bank of Kansas City, Vol. 94, No. 9 (2009).

[57] Mehir A. Desai, C. Fritz Foley, and James R. Hines, Jr., "Labor and Capital Shares of the Corporate Tax Burden: International Evidence," Prepared for the International Tax Policy Forum and Urban-Brookings Tax Policy Center conference on Who Pays the Corporate Tax in an Open Economy?, December 18, 2007.

inconsistent with other results and even theoretical expectations, which Gravelle and Hungerford admit.

A different study focusing on the incidence across states is Tax Foundation Working Paper by Robert Carroll, who also finds that corporate taxes negatively affected wages during the 1970 and 2007 period.[58] The paper estimates that a 1 percent increase in the average state and local corporate tax rate can be expected to lower real wages by 0.014 percent.

Lastly, a European study by Wiji Arulampalam, Michael Devereux and Giorgia Maffini on corporate taxes, which uses firm level data in 9 countries over the period 1996-2003.[59] They conclude that an exogenous rise of $1 would reduce the wage bill by 49 cents. These results offer evidence of comparable effect though using a different methodology, but it is similarly rejected by the CRS study, which concludes that "it is not clear what the study is measuring."

The last point I would like to make is that the authors of these studies, which the CRS report dismisses so lightly, represent many highly respectable institutions, such as, to name a few, Harvard Business School, Oxford University, University of Warwick, the Federal Reserve Bank of Kansas City, the University of Michigan, and Ernst & Young. It is possible that the CRS view is correct and this large literature will ultimately be proven wrong, but it is far more likely that the CRS view will, because of the overwhelming evidence, be rejected. The latter possibility seems unthinkable to the authors of the CRS report.

I add this digression to my testimony because the CRS report is radically at odds with the literature. I relish academic debate, and think that authors serve a valuable service when they challenge research. But a CRS report that is supposed to inform about the consensus of the literature that veers so far from that activity, is a disservice to Congress, and the taxpayers.

VIII. Conclusion

My testimony covers a wide range of literature relating to various forms of capital taxation. As I conclude, allow me to put this all in the context of the current debate, by addressing each tax in turn.

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[58] Carroll, Robert. "The Corporate Income Tax and Workers' Wages: New Evidence From the 50 States," Tax Foundation Special Report No. 169 (Aug. 2009).

[59] Wiji Aralampalam, Michael P. Devereux, and Giorgia Maffini, *The Direct Incidence of Corporate Income Tax on Wages*, Oxford University Center for Business Taxation, (March, 2011)

Corporate tax. As noted above, the United States now has the highest corporate tax rate in the developed world. This distinction puts our firms at a significant disadvantage, and discourages both foreign and domestic investment. The corporate tax rate is widely regarded as the most economically harmful tax (as discussed earlier),[60] for many of the reasons I have discussed. The good news is that there is a broad consensus in favor of lowering the corporate tax rate. President Obama has proposed lowering it to 28 percent, Republican presidential candidate Mitt Romney has proposed a 25 percent rate, Ways and Means Committee chairman Dave Camp has also proposed a 25 percent rate, the president's fiscal commission (Simpson-Bowles) proposed lowering the corporate tax rate to between 23 and 29 percent, and the Rivlin-Domenici Commission proposed a 27 percent rate. This bipartisan interest offers an opportunity. I consider the corporate rate to be the low-hanging fruit of tax reform. It would offer huge economic benefit to lower the rate, and it is a reform almost everyone can agree on.

Expensing. The President's proposals call for the elimination of several depreciation provisions which moves away from full expensing. Again, there is no support in the literature for such a move. If anything, I hope that some of the zeal to lower corporate rates translates into expanded expensing provisions.

Capital Gains and Dividends. As noted above, economic efficiency and pro-growth policy requires low capital taxes. Capital gains and dividends are already taxed through the corporate income tax, and should not be taxed again. We should push to reduce these rates.

The President's current budget proposes raising the capital gains rate from 15 percent to 20 percent and the dividends rate from 15 percent to 39.6 percent. These rates will go even higher for high income individual because the President's health care bill includes a 3.8 percent surcharge, dubbed the Unearned Income Medicare Contribution, on investment income of high income individuals. Additionally, the President's budget brings back a provision that phases out deductions for high-income taxpayers, which will increase the dividend rate another 1.2 percent. All totaled, the president wants to raise the top dividend tax rate from its current 15 percent to a whopping 44.6 percent. The economic literature provides no support for such a move.

Buffett Rule. I would be remiss if I did not offer a few words on the so-called Buffett Rule, which appears to be the focal point of President Obama's decidedly domestic policy agenda. The Buffet rule proposes to apply a minimum tax to ensure that all taxpayers with income exceeding $1 million pay at least 30 percent of their income in taxes. It raises relatively little

[60] See Jens Arnold, "Do tax structures affect aggregate economic growth? Empirical evidence from a panel of OECD countries", *OECD Economics Department Working Paper* 643, 2008.

revenue ($160 billion over 10 years compared to a current policy baseline, $47 billion compared to a current law baseline, and even less than that if all of President Obama's other proposals were to become a reality). Additionally, the Buffett rule does not apply equally to all income classes. It focuses on capital gains and oddly omits interest income from municipal bonds. From an economic standpoint, the Buffett Rule is merely a stealth tax on capital gains and other forms of capital income. Once again, there is no support in the literature for such a tax.

Statement of Jane G. Gravelle
Senior Specialist in Economic Policy
Congressional Research Service
Before
The Joint Economic Committee
United States Senate
April 17, 2012
on
How Does the Taxation of Capital Affect Growth and Employment

Mr. Chairman and Members of the Committee, I am Jane Gravelle, a Senior Specialist in Economic Policy in the Congressional Research Service of the Library of Congress. I would like to thank you for the invitation to appear before you today to discuss the effect of taxation of capital income on growth and investment.

I would like to focus my attention largely on the corporate income tax. Other taxes such as those on capital gains and dividends are much smaller as a percent of output.[1] Moreover, most evidence suggests that the response of savings to changes in tax

[1] Revenues from capital gains are about 0.5% of output, and revenues from dividends about 0.1%, while corporate tax revenues are 2%. See data on capital gains from the Congressional Budget Office at http://www.cbo.gov/publication/42913, data on the corporate tax from *The Budget and Economic Outlook: Fiscal Years 2012 to 2022* http://www.cbo.gov/sites/default/files/cbofiles/attachments/01-31-2012_Outlook.pdf, and data on the size of dividends (using 2006, a more typical year) at Internal Revenue Service Statistics of Income, Individual Income Tax Returns http://www.irs.gov/taxstats/indtaxstats/article/0,,id=96981,00.html. A considerable amount of dividend and capital gain income is not taxed because it is not realized or is in tax-exempt form. Interest income was probably negatively taxed, or at least negligibly taxed, in the economy as a whole, since only 25% of personal interest income in the National Income Accounts (Table 7.11 http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=288&Freq=Year&FirstYear=2009&LastYear=2010) appears on tax returns (IRS data referenced above), while most interest is deducted by businesses or mortgage holders.

rates is small and even uncertain in direction.[2] Thus, altering these taxes is unlikely to alter the stock of capital and, through this effect, economic growth. Changes in the corporate tax, even though they may not affect domestic saving, could affect investment and the capital stock due to the effect of taxes on international capital flows, an effect that does not apply to individual income taxes on dividends, capital gains, and interest.

The first section of this testimony discusses the effect of cutting corporate tax rates on output, national income, and wages. The second section discusses the potential effects on revenues, including feedback effects and the feasibility of offsetting rate reductions with base broadening provisions. This discussion also addresses real economic effects of crowding out for a corporate rate cut whose revenue cost is not offset. The final section discusses the costs of economic distortions, the principal reason for economists' criticism of the corporate tax.

Effects on Output, Income and Wages

Much has been claimed for the economic benefits of lowering the corporate rate in a global economy. Lowering the rate would attract capital from abroad and discourage U.S. capital from flowing out of the country, increasing the capital stock and output in the United States. However, the consequences for economic growth and labor income are likely to be modest. My estimates suggest that that a ten percentage point reduction in the corporate tax rate (from 35% to 25%) would induce an increase in U.S. output of less than 2/10 of 1%.[3] Even the most generous set of assumptions would lead to an increase

[2] See CRS Report R42111, *Tax Rates and Economic Growth*, by Jane G. Gravelle and Donald J. Marples, for a review of these savings effects.
[3] Unless otherwise noted, the estimates in this testimony are from CRS Report R41753, *International Corporate Tax Rate Comparisons and Policy Implications*, by Jane G. Gravelle.

of no more than ½ of 1%. Labor income would be projected to rise by the same proportion.

It is possible that the estimate is too large because it does not take into account debt finance, which could easily turn a small output increase into a reduction. Because debt finance is subsidized at the firm level, lowering the corporate income tax would reduce the subsidy. Assuming that debt is more mobile across countries than equity, the lower rate could reduce capital inflows into the United States.[4] A second reason the output effect may be overstated is that other countries might react by lowering their own tax rates, offsetting the initial effects. Finally, these estimates measure effects after the capital stock has adjusted (the long run) and would not be achieved in the short run.

These numbers are small, but they should be no surprise, because the corporate tax is small as a percent of U.S. overall output. This revenue loss from this rate reduction is only 6/10 of 1% of output. Why would we expect such a small change to have broad implications for production?

The gain in output is small, but the gain in income to U.S. citizens is even smaller. This result follows because part of the gain is income to the foreign suppliers of capital, and part of it is already income to multinationals who might bring some of their foreign capital back to the United States. The basic net gain for the United States is the taxes collected on the induced capital flows that would otherwise not be collected, but that amount is offset by the loss on the existing stock. Overall, this net gain is estimated to be less than 10% of the output gain, or 2/100 of 1% of total U.S. output.

[4] This effect was found in a model simulation Harry Grubert and John Mutti. (1994).''International Aspects of Corporate Tax Integration: The Role of Debt and Equity Flows.'' *National Tax Journal*, vol. 47, 1994, pp. 111–133.

Concerning the effects of corporate income tax rate reductions on workers, the results focus on the effects on labor income rather than on jobs. In the long run, there is no need to undertake policies to produce jobs, as the economy will create jobs naturally. Increased capital accumulation would, however, increase labor income.

Labor income would be projected to rise by a similar proportion as output, less than 2/10 of 1%. This calculation indicates that labor receives about 20% of the revenue loss from the rate reduction.[5] Labor income, however, will be responsible for most of the feedback effect on revenues discussed in the next section so labor will receive a smaller share of the net revenue loss. Moreover if consideration of debt or of other countries' cutting their own rates are taken into account, the labor benefit would be smaller, or the rate cut could cause labor income to fall.

Revenue Effects, Revenue Feedback Effects, and Use Of Corporate Form as a Tax Shelter

A reduction in the corporate tax rate would cost over $100 billion a year and thus involves a significant revenue cost.[6] Based on the analysis of output increases, additional

[5] The actual percentage increase is 0.15 %, which if multiplied by the labor share of income (76%) and divided by the tax cut as a percent of output (0.6%), results in 20%. The same result is estimated directly in the model simulations for eliminating corporate taxes. There have been a number of studies that have claimed a larger share of the burden falls on labor. The maximum share given the size of the United States economy under assumptions of infinite substitutability of products and portfolios would be about 70%, but evidence suggests that these assumptions are unrealistic. The empirical studies, some of which found implausible shares, in some cases have had serious flaws, in some cases don't find a statistically significant negative effect on labor, and in some cases are measuring rent sharing which is largely unimportant in the United States. These studies are discussed in CRS Report RL34229, *Corporate Tax Reform Issue for Congress*, by Jane G. Gravelle and Thomas L. Hungerford.

[6] The CRS report estimated a loss of $116 billion per year over a ten year period, based on multiplying 10/35 by projected revenues, with increases to account for the fact that the tax is after credits, to at least $120 billion. The CBO budget options study reports Joint Committee on Taxation estimates that suggest smaller effect based a one percentage point increase, which would be, adjusting for one partial year and multiplying by 10 of $104 billion. See Congressional Budget Office *Reducing the Deficit: Spending and*

revenues on the induced output would offset about 5% to 6% of the revenue loss. Most of these taxes are not increased corporate taxes, but increased individual taxes (income and payroll) on wage income, which would increase by the same percentage as output. These effects would also be expected to be overstated based on the same factors that may overstate the output effects (debt, other countries' reactions, and adjustment periods). In addition, most of the feedback comes from labor income and may be overstated to the extent that increased labor income could include non-taxable sources, such as fringe benefits or deductions.

There are empirical studies that have claimed to find much larger feedback effects on revenue, although the results are fragile on several grounds. These studies suggest a revenue maximizing tax rate of around 30% which would imply that cutting corporate tax rates would have little effect on revenues or slightly raise them. These relationships are sometimes referred to as Laffer curves. One study found this effect only for small countries with large trading sectors and suggested that the rate for the United States would be more like 60%. A CRS report that reviewed this research found that results of these studies were no longer statistically significant when certain methodological problems were addressed.[7]

That CRS report also demonstrates that it is not feasible to have a revenue maximizing corporate tax rate below about 80%, based on real capital flows. If there are significantly larger revenue feedbacks, they would arise not from capital flows but from profit shifting. However, international profit shifting does not seem large enough to offset

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Revenue Options http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/120xx/doc12085/03-10-reducingthedeficit.pdfp. 173. It is possible that increases and decreases are not symmetric due to the interaction with credits.

[7] CRS Report RL34229, *Corporate Tax Reform Issues for Congress*, by Jane G. Gravelle and Thomas L. Hungerford.

more than about 15% to 20% of the revenue loss even under the optimistic assumption that profit shifting declines proportionally with the tax rate. Companies, however, tend to shift profits to very low tax jurisdictions, as the cost of profit shifting does not depend on the rate differential. As an illustration, the "double-Irish, Dutch sandwich" arrangement that Google set up for its European operations not only moved the operation from the United States to Ireland, with a 12.5% tax rate, but also took advantage of a provision in Irish law to move the profits to Bermuda, with a 0% tax rate.[8] Thus, lowering the U.S. rate from 35% to 25% may not have much effect.

Another source of artificial profit shifting might occur within the United States, as the lower corporate rates cause higher income individuals to reorganize their businesses in the corporate form. If the individual top tax rate is 35% or 39.6% and the corporate rate is 25%, then unincorporated businesses may shift into the corporate form.[9] This sheltering already exists to some extent for small firms due to the graduated rates of the corporate tax, but a lower rate would make this form attractive for large partnerships and Subchapter S firms. Individuals with a large income who can retain profits in a corporation could see their taxes lowered by 10 to 15 percentage points.

The protection of the individual tax base from this type of manipulation has, historically, been a major justification for a corporate tax. There are rules for preventing

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[8] This arrangement involves the U.S. parent setting up two Irish subsidiaries, a holding company and a sales subsidiary, with a Dutch subsidiary sandwiched in between the holding and sales companies to avoid Irish withholding taxes on royalties. This arrangement also largely avoids Irish corporate income taxes by eventually passing most of the profits (as royalties) to the Irish holding company which has a Bermuda domicile based on management and control of the holding company in Bermuda as permitted under Irish law. See Jesse Drucker, "Google 2.4% Rate Shows How $60 Billion Lost to Tax Loopholes," *Bloomberg*, Oct. 21, 2010, posted at http://www.bloomberg.com/news/2010-10-21/google-2-4-rate-shows-how-60-billion-u-s-revenue-lost-to-tax-loopholes.html.

[9] CRS Report R40748 *Business Organizational Choices: Taxation and Responses to Legislative Changes*, by Mark P. Keightley, discusses the evidence that organizational form is sensitive to relative tax levels, noting the shift towards corporate form in the 1980s when individual taxes were lowered relatively more than corporate rates.

excessive accumulation of income in corporations dating from the period when corporate tax rates were significantly lower than individual rates, but these rules have not been very effective. Moreover, if dividends continue to be taxed at 15%, significant distributions could occur while still conferring a tax advantage to the corporate form.[10]

To the extent that this domestic profit shifting occurs, corporate revenues may be offset, but overall revenues losses would be even larger because this profit originally taxed under the individual income tax would now be taxed at a lower rate.

Some revenue feedback could also occur through shifting out of debt and into equity finance. The evidence suggests relatively low substitutability between debt and equity.[11] Moreover, as noted earlier, a rate cut and the reduced corporate demand for debt may reduce inflows of foreign debt capital which appears relatively mobile, with the desired change in ratio from the corporation's viewpoint occurring without actually increasing existing equity capital.

This analysis suggests that revenue feedback effects would be quite small and could even magnify the revenue loss rather than offsetting it. Effects arising from real capital flows are likely to be small and of uncertain direction. Little reduction in international profit shifting would be expected and domestic profit shifting could increase the cost. The effect of debt-equity shifts is likely to be small.

One effect that would be more certain is that the revenue loss itself, if not offset elsewhere, would expand the deficit and reduce the capital stock (as well as increasing costs through accumulated interest.) Over a ten year period, interest costs are estimated to increase effects on the deficit by 25% and after ten years, the crowding out effect is

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[10] See CRS Report RL34229, *Corporate Tax Reform Issue for Congress*, by Jane G. Gravelle and Thomas L. Hungerford for further discussion.
[11] *Ibid.*

estimated to reduce output by more than twice as much as the output increase due to international capital flows. This crowding out effect would increase the revenue loss by 15% to 23%.[12]

It is possible to envision some corporate base broadening that would offset the revenue loss from a rate cut. However, even if every corporate tax expenditure were eliminated, this base broadening would probably only finance a rate reduction to between 29% and 30%. In addition, these changes are likely to increase the tax burden on marginal investment, which could reverse the effects of international capital flows. It would, however, be possible to reduce tax rates and induce some capital inflow in a revenue neutral revision by increasing the tax burden on foreign source income. For example, ending deferral of tax on foreign source income and imposing a per country limit on the foreign tax credit would allow a four percentage point reduction and should induce capital flows into the United States both because of the rate reduction and because foreign investment would be less attractive.[13]

Economic Distortions

Economists traditionally criticize the corporate income tax due to the distortions it produces through the misallocation of capital and output, and distortions of financial

[12] CRS Report R41753, *International Corporate Tax Rate Comparisons and Policy Implications*, by Jane G. Gravelle.

[13] See CRS Report R41753, *International Corporate Tax Rate Comparisons and Policy Implications*, by Jane G. Gravelle for a discussion of base broadening options. Also see Statement of Jane G. Gravelle Before the Committee on Finance, United States Senate, March 6, 2012, on Tax Reform Options: Incentives for Capital Investment and Manufacturing for estimates of the effects on tax burdens of offsetting a rate reduction with depreciation http://finance.senate.gov/imo/media/doc/Testimony%20of%20Jane%20Gravelle.pdf. Some types of changes, such as substituting slower depreciation for a rate reduction based on static revenue neutral estimates would likely reduce economic output and perhaps result in a small revenue loss. The revenue neutral substitution of increased taxation of foreign source income for a rate cut would be more likely to induce inflows and a small revenue gain. Neither would likely be large relative to the economy.

deductions (which, in the past, were projected to be a significant share of the revenue collected). The corporate tax causes too much capital to be allocated to incorporated business and housing, affecting productive efficiency and the mix of output. It also favors debt over equity finance, thus affecting the risk-bearing choices in the economy.

The size of these distortions, however, has declined significantly over time, because the corporate tax rate is low by historical standards. In 1953 the corporate tax was 5.6% of output and 30% of revenues; currently, the tax is about 2% of output and 9% of revenues, a decline of about two thirds. Currently, the distortions are estimated to be about ¼ of 1% of output and 10% to 15% of revenues. A reduction in the rate by ten percentage points would be projected to reduce this distortion by about one half.[14]

Most of these tax induced distortions are not related to inefficient production of goods which would arise from distorting capital-labor ratios (lowering them in the corporate sector and raising them in other sectors). Rather most of the cost of distortions arises from distorting risk-taking by investors by encouraging too much debt and substituting non-corporate goods, particularly owner-occupied housing, for corporate goods. About half of the distortion is due to favoring debt over equity finance. It would be possible to reduce or even eliminate this distortion with revenue neutral changes such as reducing the tax rate and disallowing a portion of interest deductions. Reducing deductions for interest has been proposed in the Bipartisan Tax Fairness and Simplification Act of 2011 , S. 727, sponsored by Senators Wyden, Begich, and Coats. Similarly, most of the remaining distortion arises from the essentially zero rate of tax on

[14] The distortion, or deadweight loss, rises by the square of the tax rate, so that while reducing the rate from 35% to 25% would lose about 30% of total revenue, it would reduce the distortion by almost a half. This same relationship is the reason for the significant reduction in the cost of distortions with reductions in the corporate tax rate over time, which is larger proportionally than the decline in average tax revenues.

owner occupied housing. Restrictions of benefits for owner-occupied housing, such a cutting back on mortgage interest and property tax deductions, could be used to offset corporate rate reductions if this distortion is the major concern.

American Enterprise Institute for Public Policy Research

April 30, 2012

Vice Chairman Kevin Brady
Joint Economic Committee
Congress of the United States
Washington, DC 20510

Dear Mr. Brady,

During the hearing on April 17, you asked me a question about the after-tax rate of return on capital that I was not able to answer with complete confidence. I promised that following the hearing I would evaluate the academic literature and provide you with an answer for the hearing's record. As promised, my response to your question on the subject follows.

My analysis of the literature reveals that the after-tax rate of return on capital tends to be stable over time, which suggests that capital investments are very responsive to tax changes. This finding is consistent with the conclusion that I reached in my review paper with Glenn Hubbard.[1] A number of recent studies confirm this intuition, for example two studies – one by Nadja Dwenger[2] and one by Jonathan Miller and Brahmina Coulibaly of the Federal Reserve[3] – show a fairly rapid response based on the user cost of capital which implicitly includes taxes.

Kind regards,

Kevin A. Hassett
Director of Economic Policy Studies
American Enterprise Institute
202-862-7157
khassett@aei.org

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[1] Kevin A. Hassett and R. Glenn Hubbard, "Tax Policy and Business Investment." *Handbook of Public Economics*, edited by A. J. Auerbach and M. Feldstein, edition 1, volume 3, chapter 20, pages 1293-1343 (2002).
[2] Nadja Dwenger, "User cost elasticity of capital revisited." Max Planck Institute for Tax Law and Public Finance Working Paper. January 4, 2012. http://www.tax.mpg.de/files/pdf2/Dwenger_UCE-revisited_Jan2012.pdf
[3] Jonathan M. Millar and Brahima Coulibaly, "The Elusive Capital-User Cost Elasticity Revisited." Board of Directors of the Federal Reserve. May 15, 2009.
http://www.federalreserve.gov/pubs/feds/2007/200725/revision/200725pap.pdf

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April 23, 2012

Ms. Jane G. Gravelle
Senior Specialist in Economic Policy
Congressional Research Service
The Library of Congress
Washington, DC 20540

Dear Ms. Gravelle,

Thank you for appearing as a witness before the Joint Economic Committee on April 17, 2012 to discuss "How Does the Taxation of Capital Affect Growth and Employment." Your testimony raised additional questions, which I am herein submitting and would respectfully request responses from you for inclusion in the official record of the hearing. You will remember that as chairman of the hearing, I left the record open until April 23, 2012 for committee members to submit additional questions, and we would request to receive your responses to these questions by Monday April 30, 2012.

It has been brought to my attention that you may be required to perform the honorable service of sitting as a juror this week, and if you are asked to serve, I would be pleased to extend the deadline for receipt of your responses by one business day for each day that you serve. My questions follow:

(1) In your May 12, 2011 testimony before the Committee on Ways and Means, you stated, without citation, "Although the U.S. statutory tax rate is higher [than in the rest of the world], the average effective rate is about the same, and the marginal rate on new investment is only slightly higher than corresponding rates in other countries."[1] However, the World Bank has estimated that the effective average tax rate (EATR) in the United States in 2009 was 27.6% and the EATR among high income countries in the Organization for Economic Cooperation and Development (OECD) was 15.4%.[2] Other authors have found similar results under a variety of methodologies.[3] These papers were published before your testimony was delivered.

(a) Why didn't you report these findings to the Committee? What criteria do you use when deciding which studies to present to Congress? Do you have a responsibility to present all significant and relevant studies, including those with which you disagree?

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[1] *Available at*: http://waysandmeans.house.gov/UploadedFiles/Gravelle.pdf.
[2] World Bank, Doing Business 2011: Making a Difference for Entrepreneurs (Washington, D.C., November 4, 2010). *Available at*: *www.doingbusiness.org/reports/doing-business/doing-business-2011*.
[3] Kevin Hassett and Aparma Mathur, "Report Card on Effective Corporate Tax Rates: United States Gets an F" (Washington, D.C.: American Institute for Public Policy Research, February 2011). *Available at: http://www.aei.org/files/2011/02/09/TPO-2011-01-g.pdf*.

(2) In their 2008 study *Tax and Economic Growth*, economists at the OECD determined that, "Corporate taxes are the most harmful for growth, followed by personal income taxes, and then consumption taxes."[4] "Evidence in the [OECD] study suggests that lowering statutory corporate tax rates can lead to particularly large productivity gains in the firms that are dynamic and profitable, i.e. those that can make the largest contribution to GDP growth."[5]

(a) In your April 17, 2012 testimony before the Joint Economic Committee, you claim that the economic benefits of cutting the U.S. corporate tax rate "are likely to be modest." Your conclusion is based on the results of your own theoretical model, rather than a review of the empirical literature. Please explain why your model should be given greater weight than the OECD or similar studies.

(3) In your April 17, 2012 testimony before the Joint Economic Committee, you suggest that there are likely to be few feedback effects from cutting the corporate tax rate and that the evidence supporting the Laffer curve is suspect. Yet, in its study *Fundamental Reform of Corporate Income Tax*, the OECD reports that "Despite the strong reduction in statutory corporate tax rates, corporate tax revenues have kept pace with—or even exceeded—the growth in GDP, and the growth in revenues from other taxes in many OECD countries."[6]

(a) What factors cause your theoretical model to generate results that conflict with the real-world experiences of other countries?

(b) Do you think Congress should disregard the experience of other countries as not relevant to the United States?

(4) The theory that the burden of the corporate tax falls on labor is straightforward since labor bears most of the burden because it is the least mobile factor of production. This theoretical conclusion has been supported by a growing body of evidence, including a 1998 survey of public finance economists that found most economists estimate that at least 60% of the burden falls on labor.[7] A CBO study by William Randolph, found that more than 70% of the burden falls on labor;[8] and a recent study by Li Liu and Rosanne Altshuler, who looked at variation across industry and found that labor's share increases with industry concentration, ranging from 60% to 80%.[9] However, you maintain that cutting the corporate tax rate will deliver little benefit to labor.

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[4] Organization for Economic Cooperation and Development, "Tax and Economic Growth," OECD Economics Department Working Paper No.620 (Paris, July 2008), pg.2. *Available at: http://www.oecd.org/dataoecd/58/3/41000592.pdf*.

[5] *Ibid.*, pg.9.

[6] Organization for Economic Cooperation and Development, "Fundamental Reform of Corporate Income Tax," OECD Tax Policy Studies, No. 16 (Paris, Nov. 16, 2007), pg.33. *Available at: http://www.oecd-ilibrary.org/docserver/download/fulltext/2307061e.pdf?expires=1335210124&id=id&accname=ocid49019280&checksum=01CC6CC664910BDED45769C036C5E4B5*

[7] Victor R. Fuchs, Alan B. Krueger and James M. Poterba, "Economists' Views about Parameters, Values, and Policies: Survey Results in Labor and Public Economics," *Journal of Economic Literature*, Vol. 36. (September 1998). *Available at: http://www.jstor.org/stable/10.2307/2564804*

[8] William C. Randolph, "International Burdens of the Corporate Income Tax." CBO Working Paper. (Washington, D.C., August 2006). *Available at:* http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/75xx/doc7503/2006-09.pdf

[9] Li Liu and Rosanne Altshuler, "Measuring the Burden of the Corporate Income Tax under Imperfect Competition." Oxford University Centre for Business Taxation Working Paper (Oxford, U.K.: April 2011). *Available at: http://www.sbs.ox.ac.uk/centres/tax/papers/Documents/WP1105.pdf*

(a) What scientific or quantitative evidence can you provide to support the position that your take outweighs the research I have referenced?

(b) And is that evidence sufficient for the Congress to completely disregard those studies?

(5) The OECD reports that "there has been a gradual movement of countries moving from a credit to an exemption system, at least in part because of the competitive edge that this can give to their resident multinational firms."[10] Many U.S. lawmakers object to moving to a territorial tax system out of fears that it will lead to an outflow of capital or jobs.

(a) From what you know, have these countries experienced capital flight as a result of moving to territorial systems?

(b) And if yes, do you expect that we will see a wave of countries shifting back to a worldwide system?

(c) Similarly, since corporate tax revenue comes, in your view, at such a low efficiency cost, shouldn't we expect to see a wave of countries increasing their corporate rates in the future?

(6) Small business investments are also an important topic that is relevant for this hearing. In your January 6, 2011 CRS Report R41392, *Small Business and the Expiration of the 2001 Tax Rate Reductions: Economic Issues*, you do not discuss the effects of tax rate increases on the user cost of capital affecting pass-through businesses (sole proprietors, partnerships, S Corps).

(a) How would the tax rate increases resulting from the expiration of the 2001 rate reductions affect the user cost of capital for these businesses?

(b) Would not the impact on aggregate investment depend more on the amount of income affected by the tax rate increases, rather than the of business owners subject to the tax rate increases (the measure you emphasize)?

(7) Data-mining is defined as a search for different ways to process or package data econometrically with the purpose of making the final presentation meet certain desired criteria. Many economists view this practice as inappropriate. You seem to view it as a useful tool since, in your reports, you perform some aggressive specification searches. But you seem to limit your data search to papers whose results you dispute.

(a) If you believe that your practice is valid and important, why don't you apply the same level of scrutiny to papers with which you agree?

(8) In your April 17, 2012 testimony before the Joint Economic Committee, you stated "that it is not feasible to have a revenue-maximizing corporate tax rate below about 80%." This statement is based on your analysis in CRS Report RL43229, *Corporate Tax Reform Issues for Congress*.

(a) Does your analysis include both a corporate and non-corporate sector? If not, why not?

[10] "Tax and Economic Growth,"p.39-40.

(b) What percent of total U.S. business output and employment is currently attributable to non-C Corp businesses?

(c) If your analysis does include a non-corporate sector, what assumption did you make about the ability of C Corps to change their legal status to avoid higher corporate tax rates? Please provide empirical evidence that supports such an assumption.

(d) Does the revenue-maximizing rate include all federal taxes (payroll, excise, etc.), or just corporate taxes?

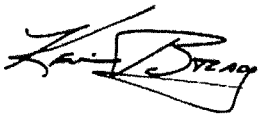
(e) Please provide a summary of all major sources of federal revenue in constant dollars and as a share of GDP, under your baseline specifications and under your revenue-maximizing corporate rate.

(f) In addition, please provide the following data for your baseline and under your revenue-maximizing corporate rate:
- Pre-tax return to capital
- After-tax return to capital
- Factor income shares of labor and capital
- Capital / Output ratio

(9) In your December 2011 CRS Report R42111, *Tax Rates and Economic Growth*, you state "Some multinational research provides evidence suggesting that the decrease in marginal tax rates is correlated with decreases in average hours worked." However, the study you cited in your footnote concludes an increase in taxes on labor results in a decrease in average hours worked.[11]

(a) Can you explain what led you to conclude that this study provides evidence to the contrary? Please provide relevant quotes that support your conclusion.

Sincerely,



Kevin Brady
Vice Chairman

[11] Lee Ohanian, Andrea Raffo, and Richard Rogerson, "Long-Term Changes in Labor Supply and Taxes: Evidence from OECD Countries, 1956-2004", (Kansas City: Federal Reserve Bank of Kansas City Economic Research Department, December 2006), RWP 06-16. *Available at: http://www.kc.frb.org/publicat/reswkpap/pdf/rwp06-16.pdf*

MEMORANDUM April 30, 2012

To: Joint Economic Committee
Attention: Gail Cohen

From: Jane G. Gravelle, Senior Specialist in Economic Policy

Subject: **Follow-up Questions From Hearing of April 17**

This memorandum responds to the questions forwarded by you from Vice Chairman Brady of the Joint Economic Committee, dated April 23, 2012. Your questions were received after my testimony on April 17, 2012 at the hearing titled, "How Does the Taxation of Capital Affect Growth and Employment."

(1) This question inquires about tax rates discussed in my testimony before the Ways and Means Committee on May 12, 2011. The question also inquires about studies by the World Bank and by Kevin Hassett and Aparna Mathur.

In response to the concern about citation for the remark about U.S. statutory tax rates, the statements made in the Ways and Means testimony derive from material in the research and analysis produced in CRS Report R41743, *International Corporate Tax Rate Comparisons and Policy Implications*, by Jane G. Gravelle. The notation of that is made on page 8, footnote 2 of the testimony.[1] The CRS report cited is the source of the effective tax rate data and presents estimates of a variety of types of tax rates, including three measures of effective tax rates (one by PricewaterhouseCoopers (PwC) and two by individual researchers). One of the points made in this CRS report is that in comparing tax rates, tax rates that are weighted by size of the country are better at examining the issues of how capital is deployed around the world. Many researchers report unweighted results (where, for example, a small country like Iceland would have the same weight as a large country like Germany). While both types of measures are reported, the weighted tax rate comparisons are more appropriate. In all three effective tax rate measures the rates of the United States and the weighted average of the rest of the world are about the same.

CRS provides research and analyses that is authoritative and objective and as such, choices are made about the kinds of research we cite. A question was raised about citing the World Bank study. In our judgment it did not rise to the level of authoritativeness to make it relevant for inclusion in the CRS report. Also, I was unable to find the tax rate data from the World Bank in the document cited in your questions of me dated April 23 (*World Bank, Doing Business 2011* footnote 2), I was able to find the U.S. tax rate in another World Bank document.[2] I could not find the average tax rate in any document, although I did find an average of the World Bank data in the Hassett-Mathur document. All of the averages in that document are simple rather than weighted averages. The World Bank tax rate measure, however, is a

[1] Available at http //waysandmeans.house.gov/UploadedFiles/Gravelle.pdf

[2] See the country profile. http.//www.doingbusiness.org/~/media/fpdkm/doing%20business/documents/profiles/country/USA.pdf.

hypothetical measure of taxes for a small manufacturing firm, not a true tax rate. It is quite different from the other effective tax rate estimates even when simple averages are included. The PwC data, for example, show a 27.2% tax rate for the United States, a 27.7% weighted tax rate for other OECD countries and a 23.3% simple average for other OECD countries. While the World Bank's U.S. rate is close to the PwC rate, the simple average, 15.4%, is very different from the PwC rate.

Hassett and Mathur also report another measure, which is called the effective average tax rate (EATR), but it is not an average tax rate measure in a traditional sense. Rather it is a blend of the marginal effective tax rate on new investment and the statutory rate. Specifically, the EATR is not an average rate because it is not a measure of taxes divided by profit, which is the traditional definition of an average tax rate. That rate is also discussed in the CRS report, although it is not clear what meaning to draw from this rate.

(2) This question inquires about why CRS results for the economic effects of cutting the corporate tax rate differ from those of an OECD study and why CRS model results should be given greater weight. The question characterizes the model as theoretical.

The general equilibrium model is not a theoretical model, any more than U.S. forecasting models are theoretical. Rather, the general equilibrium model used in my reporting is calibrated to the United States and world economies, and contains behavioral responses that can be set in light of empirical evidence. To show the importance of behavioral responses, the model's results were presented with a range of behavioral responses or substitution elasticities. These elasticities include product substitution, both within the country and between domestic and imported goods, factor substitution, and portfolio substitution elasticities, The advantage of incorporating them into a formal model is that they allow feedback effects, and, also that the model is calibrated particularly to the United States. The results reported in the CRS study include those based on central tendency empirical estimates of these elasticities and also results reported at infinite substitution elasticities for portfolios and foreign versus domestic products. These infinite elasticities lead to the maximum effects. The factor substitution elasticity is unitary in both cases, consistent with a Cobb-Douglas production function. Some empirical evidence suggests that the latter elasticity should be lowered, which would reduce the output effects.[3]

In any case the results are essentially the same as those indicated by the OECD study. The central tendencies result reported by CRS was an increase of 2/10 of 1% with the maximum effect ½ of 1%. Translating the OECD investment demand responses into output effects leads to an effect of essentially the same range.[4]

[3] A CBO working paper contains a summary of the empirical evidence on the important elasticities driving these models in its review of the general equilibrium models. See Jennifer Gravelle, Corporate Tax Incidence: Review of General Equilibrium Estimates and Analysis, May, 2010, Working Paper 2010-03, http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/115xx/doc11519/05-2010-working_paper-corp_tax_incidence-review_of_gen_eq_estimates.pdf.

[4] In 2006, before the recession (and thus a more normal year) gross investment plus inventories was $2.387 trillion and GDP was $13.377 trillion. The ratio of investment to value added (output minus investment) is 21.7%. This amount would increase to 21.9% at the lower bound and 22.2% at the upper bound Since investment appears in both the numerator and denominator, the ratio of investment to GDP is 0.217/1.217. Holding output constant, investment and ultimately the capital stock would increase from between 0.76% and 1.88%. Since the corporate rate reduction in the estimates in the testimony would be twice as large as the reduction in the OECD study, but corporate capital is about half of capital, these estimates would only need to be multiplied by factor shares of approximately a third to produce output effects between 0.25% and 0.6% of GDP. The increase in output net of depreciation, more comparable to the results in the testimony, would be about the same. 2/10 of 1% to ½ of 1%. Data on investment and GDP are at http://www.gpo.gov/fdsys/pkg/ERP-2012/pdf/ERP-2012-table1 pdf.

It seems the difference between the studies is the words used to describe these results, not the results themselves. The testimony provided by CRS on Aril 17th characterized them as modest, although I would not disagree that corporate tax rates, per dollar of revenue, probably reduce growth and efficiency more than personal income taxes.

(3) This question asks what factors could account for the growth of corporate revenues given rate cuts in other countries, and how to explain this effect given analysis of the limited revenue feedback effects of cutting the corporate tax rate.

The feedback effects captured from the model presented in CRS research are due to real capital flows. The OECD study does not apparently entertain large effects from the real capital flows either. Presumably some of the reasons that corporate revenues have not decreased are the reasons they cite in their study: offsetting base broadening provisions, better enforcement, shifting into corporate form by individual entrepreneurs, and international profit shifting. Some of the OECD countries are tax havens and may have had increases in profits for that reason. And, of course, profits may have increased for other reasons. For example, corporate profits as a percent of output rose in the United States in the 1990s even though there were no tax changes, reflecting the strong growth in the economy.

Certainly evidence from other countries is useful, but only if cause and effect can be estimated and adjustments made for factors that would cause differences between the United States and other countries. The United States is larger and also a less open economy than European countries which would reduce the ability to apply lessons from European experiences to the United States.

(4) This question indicates that as a theoretical matter the corporate tax falls on labor, and this result has been supported by evidence. The evidence cited is a 1998 survey of economists that indicated 60% of the burden falls on labor, a study by William Randolph showing that 70% of the burden falls on labor, and a study by Liu and Altshuler who found labor's share of the burden to be 60% to 80%. The question then is what evidence can be presented that CRS estimates outweigh this research, and is that evidence sufficient to suggest that Congress disregard this research.

The burden of the tax falls 100% on labor only for a single-good, small, open competitive economy that is a price taker (i.e. the portfolio substitution elasticity is infinite, which means investments in different countries are perfect substitutes and the international product substitution elasticity is infinite, which means imported and domestic goods are perfect substitutes), and there are no excess profits or rents.[5] Once these assumptions are relaxed the burden can shift to fall more, or almost completely on capital.

While surveys of professional opinion may add insight about the determinants of corporate tax incidence, they cannot be relied on as evidence. This may be true also of the opinions of public finance professors who do not conduct research in corporate tax incidence. Moreover, the survey was done at a time when economists only began to understand the open economy effects in a simple model but probably had not yet begun to understand how these effects were reduced by imperfect substitution and size. Even today, as outlined in the CRS corporate tax reform study,[6] some very prominent researchers have prepared studies that seem to indicate a fundamental misunderstanding of the nature of corporate tax incidence.[7]

[5] This result can be derived easily and is well known. Since output prices are the weighted averages of input prices in a competitive market, if the output price cannot change and the price of capital cannot change because the after tax return is fixed and the tax rate is exogenous, the only variable that can change is wages.

[6] CRS Report RL34229, *Corporate Tax Reform: Issues for Congress*, by Jane G. Gravelle and Thomas L. Hungerford.

[7] For example, two U.S. studies used firm-level observations or examined only a limited share of firms

The Randolph study is not a Congressional Budget Office (CBO) study but a working paper, which explicitly says it is a paper prepared for discussion and does not represent CBO views. Historically CBO has assigned the burden of the corporate income tax to capital in their distributional studies. There is no flaw that appears in this study to my knowledge, although its findings have been misrepresented and misused. The Randolph study is virtually identical in the basic sectors and calibration to the Gravelle-Smetters model that was used in the testimony. (For that matter, the Gravelle-Smetters paper was initially a CBO technical paper prior to its publication in a journal.[8]) The basic difference between the two models is that the Randolph model is not a full scale general equilibrium model that permits portfolio substitution and international product substitution elasticities to be other than infinity. The Gravelle-Smetters model permits different elasticities and has about 70 non-linear equations that must be solved simultaneously using a computer to reach equilibrium whereas the Randolph model is simplified enough to be solved on paper. When the elasticities are set at infinity in the Gravelle-Smetters model, that model indicates that labor bears 73% of the corporate tax burden. When the elasticities are set at 3 each, which appears to be a central tendency in the econometric estimates, labor bears 21% of the corporate tax burden. Randolph acknowledges that lowering these elasticities could reduce the burden. Some of his analysis, for which his model is more suited, explores the consequences of different capital intensities of the corporate traded sector. But this exercise is illustrative; both models are calibrated in a similar manner with respect to capital intensity.

A more recent CBO working paper reviews these general equilibrium studies and estimates.[9] This study identifies the five major drivers of incidence: size of the economy, capital intensity of the corporate tradable sector relative to the economy, the factor substitution elasticity, the portfolio substitution elasticity, and the international product substitution elasticity. This working paper suggests that about 40% of the burden should probably be assigned to labor in these models, with the higher amount due to a lower factor substitution elasticity of around 0.5. A Cobb-Douglas unitary elasticity produces the 21%. This lower substitution elasticity increases the share of the burden on labor but also reduces the sensitivity of capital flows decreasing the output effects. As indicated in my testimony, econometric evidence generally suggests elasticities lower than unity, although the constancy of factor income shares supports the Cobb-Douglas model. The working paper also notes, however, factors not captured in the models that would reduce the share of the burden falling on labor.

These general equilibrium models with embedded substitution elasticities differ from another type of empirical study which is referred to as a reduced-form study. In a reduced-form study, the effect of taxes on wages is directly estimated using statistical data. To my knowledge, eleven studies, all working papers, and all reviewed in the CRS corporate tax reform report,[10] have been released. Five of these papers cannot estimate the general equilibrium effects of corporate taxes that are the subject of these models, because they do not use economy wide observations (i.e. they do not use either country data or state data). The Liu-Altshuler study falls into this category. In some of these five papers the authors acknowledge that they are not looking for general equilibrium effects, but are estimating the share of the tax on rent (or excess profit) that labor receives. Most of these studies that explicitly are examining rents are European studies where labor unions are more prevalent. There are some issues that could be raised with these wage studies, but the most important point about the Liu-Altshuler study of the United States is that if it is attempting to capture rents, then it cannot be relevant to the United States since less than 7% of private

[8] See http://www.cbo gov/publication/13350.

[9] See Jennifer Gravelle, Corporate Tax Incidence: Review of General Equilibrium Estimates and Analysis, May, 2010, CBO Working Paper 2010-03, http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/115xx/doc11519/05-2010-working_paper-corp_tax_incidence-review_of_gen_eq_estimates pdf.

[10] CRS Report RL34229, *Corporate Tax Reform: Issues for Congress*, by Jane G. Gravelle and Thomas L. Hungerford.

sector workers are unionized and the union wage premium is 15%. Thus, only about 1% of wage income could be affected. The consideration of possible rents, rather, would reduce the share of the burden falling on labor because labor is unlikely to share in rents. It is not clear what is driving the finding in their study, probably a general decline in the importance of unions in some industries, but the effects cannot be due to the corporate tax.

As also discussed in the CRS corporate tax reform report, the reduced form studies are problematic in so many ways that they are unlikely to be a reliable source of determining labor incidence, a view that is shared by some other reviewers.[11] They have a variety of problems. Some of the cross-country and cross-state regressions as presented report implausible results (assigning significantly more than 100% of the burden to labor), and many have specification errors or other issues. Some don't consistently find an effect. Since a complete review is presented there, I would refer to that report for specifics. Ultimately, the best way to study incidence is via general equilibrium models, because there are too many effects in reduced form models that cannot be adequately controlled for.

(5) This question asks whether the movement of countries to a territorial tax has caused capital flight, and if so would we see countries shifting back to a world wide system. It also asks whether we might expect, given the relatively small efficiency costs, a wave of countries increasing corporate rates in the future.

Given the research and analysis conducted to date, I am not aware of any observable capital flight, and would not expect large behavioral responses from these types of corporate tax changes. Moreover, most countries have had territorial taxes for a long time. Thus there is no reason to expect other countries to increase their corporate rates; they have access to larger revenue sources, including not only personal income taxes but also value added taxes. In any case, we could only speculate about what other countries, or the United States, might do in the future.

(6) This question asks about the effects on the user cost of capital for small businesses from individual rate increases (expiration of the Bush tax cuts).

The effects on the user cost of capital for small businesses (defined as pass through entities) will vary depending on the tax rate. This overall calculation is based on the distribution of business income. In addition, some equipment investment is eligible for expensing which produces a zero effective tax rate. Not taking into consideration this latter effect, it is estimated that the increase in tax rates will increase the cost of capital by 0.19 percentage points for equipment and 0.28 percentage points for structures.[12] The

[11] See Kimberly Clausing, "In Search of Corporate Tax Incidence," November 2011 http://www americantaxpolicyinstitute.org/pdf/Clausing%20CTI%20paper.pdf, This study is one of the eleven, and in addition to reviewing other papers tried many approaches to estimating incidence with country data, with little success. See also another CBO working paper by Jennifer Gravelle that reviews these reduced form empirical studies, Corporate Tax Incidence: A Review of Empirical Estimates and Analysis, June 2011, Working Paper 2011-01http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/122xx/doc12239/06-14-2011-corporatetaxincidence.pdf.

[12] These CRS estimates are based on an effective tax rate of 74% of the statutory rate for equipment and 91% of the statutory rate for buildings. The difference is R/(1-t*) – R/(1-t), where R is a fixed after tax real return of 4%, t* is the rate if the tax cuts expire and t is the current rate. These were calculated for the four top tax rates. According to data presented in CRS Report R41392, *Small Business and the Expiration of the 2001 Tax Rate Reductions Economic Issues*, by Jane G. Gravelle the top rate accounts for 40.7% of passthrough income and the two top rates for 44.8%. the remainder was allocated evenly between the next two rates and none to the lower rates. Evidence suggests that most business income is in the higher rates. See CRS Report R42359, *Who Earns Pass-Through Business Income? An Analysis of Individual Tax Return Data*, by Mark P. Keightley. Confining the distribution to the top rates may overstate the effects, but that bias is offset by the expectation that the share of income that is capital income is greater in the higher income brackets. In calculating the user cost, depreciation is set at 15% for equipment and 3% for buildings.

user cost of capital is the sum of the pre-tax return and the economic depreciation rate. The estimates indicate that the user cost of capital would increase by about 1% for equipment and about 3.2% for buildings. Weighting the two (buildings are about 81% of this capital stock) the total for equipment and structures is a 0.24 percentage point increase in the cost of capital and a 2.8% increase in the user cost of capital.

(7) This question asserts the use of data mining in CRS reports and asks about our analytic treatment of reports we agree with.

Data mining technically refers to the perfectly legitimate practice of searching large data bases for patterns that are unknown a priori. An example might be searching credit card data bases for patterns of abuse or to determine which items tend to be purchased on different days. The term might also refer to certain types of specification searches (using techniques such as stepwise regression) to search for variables that will explain the most variance in the dependent variable. The use of these techniques is controversial, although there are methods to avoid some of the more serious drawbacks.

The definition you provide, however, seems to refer to a more informal use of the term, which basically refers to running many regressions and reporting only the results that one would like to find for a specific relationship.

The research and analysis underlying the CRS corporate tax reform report cannot accurately be described as data mining. Using the Hassett-Mathur incidence study as one example, we first observed that the results were implausible, as they implied, using the statutory rate measure, that about 2500% of the incidence of the tax fell on labor (i.e. every dollar of corporate tax reduced labor income by about $25), whereas theory found in both the Randolph and Gravelle-Smetters studies indicates it should be no more than 70%, or about 70 cents on the dollar. The Hassett-Mathur study found statistically significant results for three different measures of tax rate: statutory, average, and marginal, although the last two were only marginally significant (at the 10% level),

In trying to identify the cause of these disparate results, three problems with the analysis were identified. Taken individually, correcting each problem reduced the magnitude and statistical significance of the Hassett-Mathur results, while correcting all three problems simultaneously caused the H-M results to be indistinguishable from zero. The first problem was that the authors had used exchange rates to translate foreign wage income into U.S. dollars. The exchange rate is a volatile measure that can be affected by extraneous factors (such as capital flows) and can be manipulated by countries. A more appropriate measure, we believed, was a purchasing power parity (PPP) measure that, as its name suggests, translates wages in to equivalent purchasing power equivalents. Using this measure lowered the coefficients on all three tax rates somewhat and caused the average and marginal rates to no longer be statistically significant. Second, the dependent variable was not adjusted for inflation over time, a problem that we considered not a specification choice but an error. When we also adjusted for this measure, the coefficients fell more sharply and the statutory tax rate, which had been statistically significant at the 5% level, was now only significant at the 10% level. The third problem was that the data were averaged over five years but in some cases there were not five years of data. We estimated each version of the regression (exchange rate, nominal PPP, real PPP) by including only those observations where there were five years of data (almost all of the observations eliminated had only two years of data). These changes significantly reduced the coefficients in most cases and none were statistically significant. We found similar effects when we used lagged variables.

We also re-estimated the effects for three other studies, two of them the Laffer curve studies (a study by Hassett and Brill, and a study by Clausing). These studies estimated revenue maximizing tax rates which

we showed were theoretically impossible using a standard model. In both cases we made only one change, using fixed effects. (The Hassett-Mathur incidence study, discussed above, used fixed effects but the Hassett-Brill estimate of the revenue maximizing tax rate did not.) Fixed effects allows for a different intercept term for each country controlling for unobserved differences across countries and using changes over time for identification. We believed that fixed effects were appropriate given the diversity in the size, importance of the corporate sector, and other characteristics of countries. Including fixed effects caused none of the estimates to be statistically significant. We also re-estimated the Djankov, et al. study of the effects of taxes on investment which produced very large domestic investment effects. Large outliers (Bolivia and Mongolia) in that study which appeared to drive the results. The Bolivian rate had an error. Since this report was a single cross section, we could not use fixed effects to control for country differences; instead we used a geographical dummy variable. The effects of taxes on foreign direct investment were robust to these changes but the effects on overall investment were no longer statistically significant. We also questioned this study due to the use of hypothetical tax rate measures.

It is relatively unusual for CRS to re-estimate econometric studies, which requires considerable resources. In these limited cases, the studies that were re-estimated had high visibility, were important to legislative interests, and were flawed in obvious and significant ways. There were other studies that appeared over time that were gradually included in updates of this report, but were evaluated in other ways. For example, as noted earlier, five of the eleven incidence studies did not use economy wide observations and thus could not be estimating corporate tax incidence.

(8) This question addresses that statement that a revenue maximizing tax rate for the United States would not be less than 80%, based on the discussion in the CRS corporate tax reform study, discussed previously.

Before answering this question, please note that this is not a revenue estimating exercise, but rather an exploration into the nature of revenue maximizing tax rates for corporate taxes. This discussion began with the observation that in a closed economy with Cobb Douglas production and utility functions (unitary product and factor substitution elasticities), the income shares relative to GDP are constant. Thus there is no revenue maximizing tax rate that is driven by capital flows. As capital flows out of the corporate sector, the pre-tax return rises and exactly offsets it, leaving the taxable income fixed. Moreover, even in an open economy while corporate profits could fall, those profits relative to output would still remain constant. These observations made the econometric studies that reported revenue maximizing tax rates of around 30% suspect.

This section also explored the possible revenue maximizing tax rates just looking at corporate revenue or at total revenue (rather than the ratio to output). The model used is a simple single good model. Experience with the incidence model made it clear that multiple sectors would not make a difference as long as the capital intensity of the corporate tradable sector is similar to that of the economy as a whole. Because there is no full scale model, this analysis simply differentiated the revenue equation. Three measures are reported: the corporate revenue maximizing rate for a small country, which was 75%, the corporate revenue maximizing rate for a country the size of the United States, which was 81%, and the total revenue maximizing rate taking into account taxes on wages for a country the size of the United States, which was 70%. All of the equations estimated the minimum revenue maximizing tax rate; it would likely be higher because of imperfect portfolio and international product substitution elasticities. In the simplest case the maximum rate was the labor share of income divided by the substitution elasticity. Thus with a 75% labor income share and a unitary substitution elasticity, the rate would be 75%. Notice that a lower substitution elasticity would increase it, while a smaller labor income share would reduce it.

This analysis does not capture artificial profit shifting, either internationally or between the corporate and non-corporate sectors within the U.S. economy. The former effect would lower a revenue maximizing tax rate while the latter would increase it.

Note that this was not a revenue estimating exercise with a baseline, so that some of the questions will not be useful or meaningful.

For sub-question (a) of your April 23 correspondence, as noted above, this was a simplified model that used a single sector, so a non-corporate sector was not included.

For sub-question (b), although this question does not relate to the stimulation, gross value added in nonfinancial corporations was 66% of total value added in business in 2006, a more normal year. It was slightly smaller in the most recent year of 2010 (63%).[13] For 2009, the share of employees in corporations out of all business in the private, for-profit sectors was 55%.[14]

Sub-question (c) is not relevant as the analysis does not include a non-corporate sector. For sub-question (d), as noted above, all taxes on wages are included in one simulation. None of the simulations included excise taxes which are very small. Sub question (e) is not relevant as there was no baseline. Data on revenue sources can be found in numerous places, including the Economic Report of the President cited above, budget documents, and the CBO.[15] For sub-question (f) the only parameter needed was the labor income share, which was set at 75%.

(9) This question asks why the statement regarding the relationship of taxes and hours in CRS Report R42111, Tax Rates and Economic Growth was inconsistent with the findings of the study referenced.[16]

I too was puzzled at this. I believe that this statement got muddled somewhere along the way and we probably meant to say that increases in wages was correlated with a decrease in hours around the world. This statement was in the portion of the report that was reporting data trends and not analysis. So, we were referencing this study that provided data documenting the fall in hours worked over time around the world, over a long period when real standards of living were rising. Moreover we would have been skeptical of the analytical conclusions from this study, which is largely theoretical and from a modeling approach that my co-author and I, and many other economists, find questionable.

To explain this point, note that the authors are looking at a real business cycle model, which tries to explain business cycles and unemployment based on intertemporal substitution of labor. That is, when the economy has a negative shock and wages fall, this model theorizes that workers reduce their labor and increase it in the future when wages are expected to be higher. In this model there is no involuntary unemployment associated with a recession, or as critics of the approach sometimes say, this model says the Great Depression was really the Great Vacation.[17] This type of modeling of business cycles, which

[13] Economic Report of the President, tables B10 and B14 at http://www.gpo.gov/fdsys/browse/collection action?collectionCode=ERP&browsePath=2012&isCollapsed=false&leafLevelBrowse=false&isDocumentResults=true&ycord=0.

[14] Data from the Census, by form of legal organization at http://www.census.gov/econ/susb/.

[15] See historical tables at http://www.cbo gov/publication/42905.

[16] CRS Report R42111, *Tax Rates and Economic Growth*, by Jane G Gravelle and Donald J. Marples.

[17] This divide among economists is summarized by Paul Krugman in a *New York Times* op ed, http://www.nytimes com/2009/09/06/magazine/06Economic-t html?_r=1&pagewanted=4&em.

many economists find implausible, is not generally used by private economic and government forecasters who all use some version of a macro model with involuntary unemployment and sticky prices.

How does this relate to taxes? A real business cycle requires a positive labor response to expected increases in wages to explain cyclical fluctuations. However, if labor responds positively to higher wages and wages rise continually through time, then labor supply must rise continually through time, which it does not. Indeed, since these models have infinite horizons, it cannot. The modelers generally fix this by putting in a taste parameter that increases the taste for leisure over time, so as to keep labor constant. In the multi-country study a common taste shifter for all countries left discrepancies in the predicted versus actual paths of labor, but including tax changes reduced and largely eliminated these discrepancies. The only empirical finding in this study is that observed labor supply responses are more consistent across countries when taxes are incorporated in measuring net wages.

We plan to revise the reference in the CRS report to indicate that this source is cited for data on falling hours across countries.

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