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THE CONSUMERS' PRICE INDEX

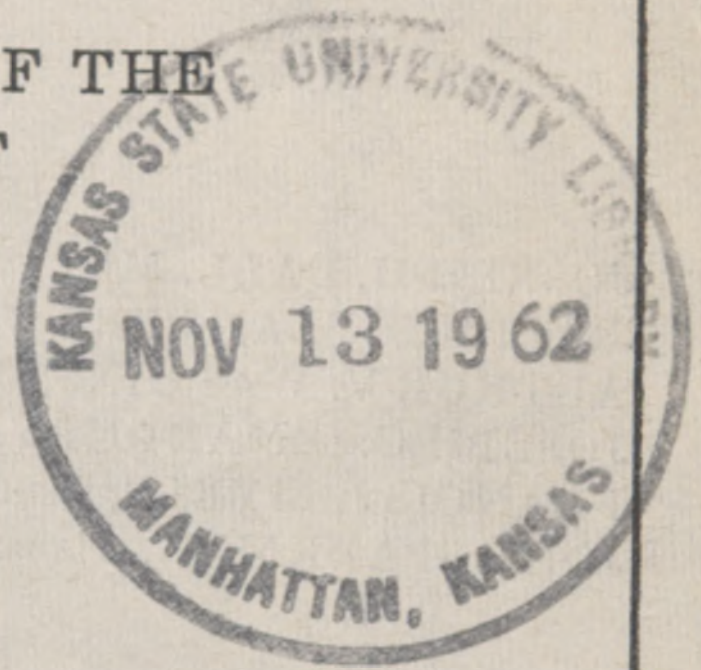
REPORT

OF THE

JOINT COMMITTEE ON THE ECONOMIC REPORT

ON

THE CONSUMERS' PRICE INDEX OF THE
UNITED STATES BUREAU OF
LABOR STATISTICS



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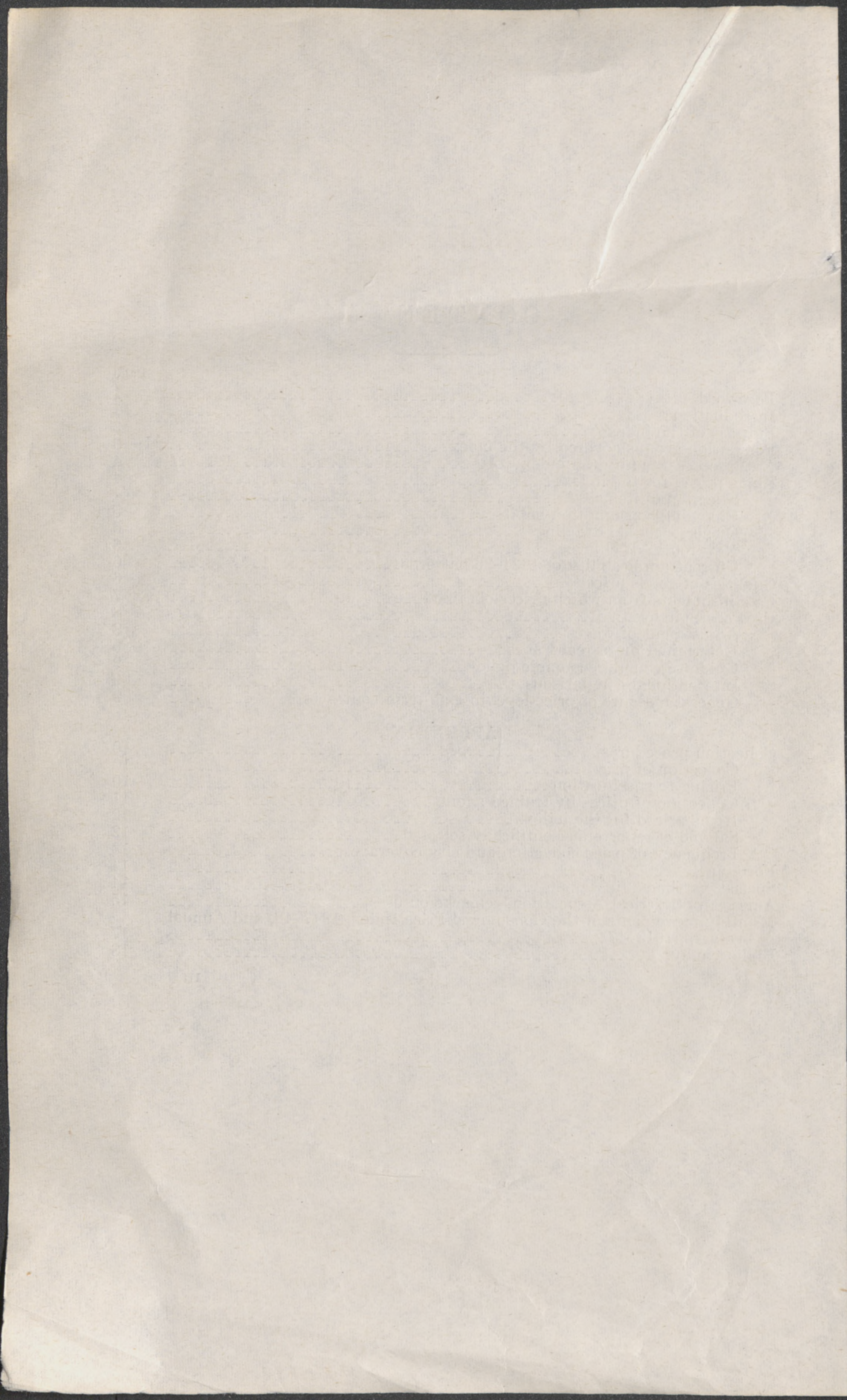
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CONTENTS

	Page
Foreword.....	1
Introduction.....	1
Purpose of the index.....	3
Population groups covered by the index.....	3
Areas represented by the index.....	4
Items priced for the index.....	4
Selection of items.....	4
Changing consumption habits.....	5
Owner-occupied dwellings.....	6
New rental dwellings.....	6
Current applicability of 1934-36 patterns.....	6
Qualities of goods priced.....	6
Establishments from which prices obtained.....	7
Uses of the index.....	8
Adjustment of wages.....	8
Determination of real wages.....	9
Guide to general economic policy.....	9
International comparisons.....	9
General measure of price-level in long-term contracts.....	9
APPENDIX	
Collection procedures.....	10
Collection of prices.....	10
Pricing to specification.....	10
Collection of prices by trained agents.....	11
Items priced for the index.....	12
Sample of reporters scientifically selected.....	12
Frequency of price collection and city coverage.....	13
Formula.....	14
Special wartime adjustment.....	14
American Statistical Association, remarks on uses.....	15
Monthly movements of the Consumers' Price Index, 1947-48, and Annual Averages, 1913-47.....	17
Bibliography.....	18



THE CONSUMERS' PRICE INDEX OF THE UNITED STATES BUREAU OF LABOR STATISTICS

FOREWORD

The following working memorandum has been prepared in response to Senator Flanders' request to the chairman of the Joint Committee on the Economic Report for a brief statement on the current status of the Consumers' Price Index by the committee staff. At the suggestion of the chairman of the committee, the analysis has been confined to a review of the methods used in its present compilation, composition, and presentation.

The publication of these materials has been undertaken as a contribution to work in this particular subject field.

The report is primarily a digest and correlation of published materials from various sources and of discussions with members of the staff of the Bureau of Labor Statistics. It does not represent an evaluation of the index by the committee or any member of its staff.

INTRODUCTION

The Bureau of Labor Statistics Consumers' Price Index was developed during World War I when rapid changes in living costs particularly in shipbuilding centers, made such an index essential in wage negotiations.¹ Since that time it has undergone a number of changes and improvements and is today one of the most widely used statistical series published by the Federal Government. In its present form the Index applies to moderate-income families in large cities and is designed to measure average changes in retail prices of selected goods, rents, and services, weighted by quantities bought by families of wage earners and moderate-income city workers in 1934-36. It is a price barometer, not a measure of changes in the total amount families spend for living, which depend not only on price changes but also on changes in income and in the manner in which families live. As such a barometer the Index has been used by employers and labor groups in considering wage adjustments, by business and labor organizations and Government agencies in following the general economic situation, and in determining policies, and by business associations and civic groups in measuring price changes and sometimes in adjusting business contracts.

The widespread and increasing use of the Index in union-management contracts, the most recent being the General Motors-United Automobile Workers agreement, has made the Consumers' Price Index almost a household word. Formulation, adjustments, weighting, and other matters involved in its presentation have become of increasing public importance.

¹ Prior to 1918, indexes were available only for retail prices of food and fuels.

Not only is the Bureau of Labor Statistics Consumers' Price Index one of the most widely used of all series, it has perhaps been the subject of more analysis than any other statistical series. One of the first comprehensive reviews of the Index was made in April 1933, by a committee of the American Statistical Association, at the request of the then Secretary of Labor, Frances Perkins. The rising significance of the Index in wage and price stabilization during World War II increased the frequency of these studies and led to the following series of events:

1. *Spring of 1943.*—Appointment of special committee of the American Statistical Association, with Frederick C. Mills as chairman, at the request of the Secretary of Labor to "review and appraise" the Cost of Living Index.

2. *October 10, 1943.*—Mills committee report released. An Appraisal of the United States Bureau of Labor Statistics Cost of Living Index, published in *Journal of the American Statistical Association*, December 1943, volume 38, and appendix, March 1944, volume 39.

3. *October 1943.*—Appointment of President's Cost of Living Committee by the War Labor Board at the request of the President. Committee consisted of William H. Davis, chairman; Horace B. Horton and George Batt to represent industry, and George Meany and R. J. Thomas to represent labor.

4. *November 16, 1943.*—BLS released its description of the Cost of Living Index in response to request of the President's Committee.

5. *January 25, 1944.*—Cost of Living, a separate report of the labor members of the President's committee, Messrs. Meany and Thomas, was recommended by them for adoption by the committee.

6. *February 25, 1944.*—The Cost-of-Living Index of the Bureau of Labor Statistics, a review and appraisal of Cost of Living by George Meany and R. J. Thomas, labor members of the President's Committee on the Cost of Living, made by the Bureau of Labor Statistics at the request of the chairman of the committee, Mr. William H. Davis.

7. *March 1, 1944.*—Appointment of technical committee, by chairman of President's committee consisting of Dr. Wesley C. Mitchell as chairman, Dr. Simon N. Kuznets, and Dr. Margaret G. Reid to give independent expert opinion of all documents submitted.

8. *April 1944.*—A Critical Analysis of the Meany-Thomas Report on the Cost of Living, published by the National Industrial Conference Board, Inc.

9. *June 15, 1944.*—Report of the technical committee appointed by the chairman of the President's Committee on the Cost of Living.

10. *June 22, 1944.*—A Comparison of Changes in the Cost-of-Living Index of the BLS and the Index of Prices Paid by Farmers for Commodities Used for Family Living of the BAE, by D. S. Brady and R. F. Hale under the direction of A. J. Wickens and O. V. Wells.

11. *June 22, 1944.*—Living Costs in World War II, by Messrs. Murray and Thomas, published by CIO.

12. *October 7, 1944.*—The United Steelworkers of America—CIO Survey of Prices of Certain Foods: An Evaluation, by Everett E. Hagen.

13. *November 10, 1944.*—Report of William H. Davis, chairman, President's Committee on the Cost of Living.

14. *September 6, 1945.*—Statement of Lewis B. Schwollenbach, Secretary of Labor, regarding the Cost of Living Index, and changing the name thereof.

While many of the issues discussed in the reports listed above were peculiar to wartime conditions, there were analyses and recommendations made which had implications for the continuing usefulness of the Index. The following sections of this report relate the most important of these in the present setting.

PURPOSE OF THE INDEX

In general, the purpose of the present Consumers' Price Index is the same as it was in 1919 when the Bureau first published indexes for individual cities weighted according to the consumption of wage earners and clerical workers—to represent time to time changes in the prices of a specific fixed market basket or shopping list of goods and services bought by moderate-income urban (large city) consumers. The kinds and quantities of goods and services remain constant for a considerable period of time. Thus the Index reflects only changes in the prices of the articles included. The Index is not intended in any way to measure total family expenditures which depend chiefly on how the family income changes. This has been a major point of misunderstanding during and since the close of the war when many factors affected family expenditures and the pattern of family living, such as moving from one town to another, an increase in the total family income by the employment of other members of the family beside the chief earner, families separated geographically, and changes arising out of shortages in certain types of goods.

Nor is it the purpose of this Index to attempt to measure whether prices of commodities and services used in family living are higher in one city than in another. The Consumers' Price Index enables the user to make comparisons at different points of time within one city but does not tell him what would happen to a person who had moved from one city to another. Special indexes which do measure differences in price levels between cities have been computed and published at intervals by the Bureau.

Much of the public misunderstanding has been created by use of the term "cost of living" when referring to the Index. Among the factors which enter into cost of living, this Index measures only one—price. One of the most precise and accurate titles for the Index is that which was applied to it more than 10 years ago, "Changes in the Cost of Goods and Services Purchased by Wage Earners and Lower Salaried Clerical Workers in 1934-36." Unfortunately, this title was too cumbersome for every-day use and was shortened to the familiar "Cost of Living" Index. As a result of this continued confusion, several studies pointed to the necessity for finding a suitable short name for the Index. The current title, "Consumers' Price Index for Moderate Income Families in Large Cities," was adopted as the result.

POPULATION GROUPS COVERED BY THE INDEX

Commodities and services included in the Index, their weights and specifications, the cities covered, and the sample of stores within cities

have all been selected to measure the changes in the prices of goods and services bought by families of "wage earners and lower-salaried clerical workers in large cities." The Index does not represent other groups in the population such as single individuals, however employed, rural families, families of higher income business and professional men, or families living on pensions or relief allowances. Nor does it take into account changes in the cost of living of families migrating to large cities from rural communities or from other cities.

AREAS REPRESENTED BY THE INDEX

The Mills committee, which reported on the Index in 1943, recommended that the Bureau of Labor Statistics provide separate regional indexes of changes in city living costs in order to account for economic differences among large geographic areas of the United States. It was also recommended that the Bureau expand its indexes to include a more adequate representation of small cities and that it cooperate with other interested governmental agencies to collect the information necessary to prepare an index of the cost of living of nonfarm communities in the United States. It further suggested the preparation of indexes for certain specialized industrial areas, such as those in which coal mining, textiles, and other industries are concentrated.

At the time of the Mills committee report the Bureau of Labor Statistics published consumers' price indexes for 34 cities quarterly of which 21 were issued monthly, and food price indexes monthly for these 34 cities and for 22 cities in addition. In adjusting to a reduced budget in 1947 the national index was continued on a monthly basis but the national estimate is now based on price collections of textiles, house furnishings and miscellaneous goods and services in 10 cities monthly and 24 cities which are priced on a quarterly cycle. Collection of food prices in 56 cities and fuel prices in 34 cities has been continued monthly. The 34 large cities and 22 additional cities priced for food only, account for approximately 60 percent of the total population of the large cities of the United States. Hence, a large fraction of the urban population is covered by the Index, but this still does not provide information on the special groups indicated above.

ITEMS PRICED FOR THE INDEX

The Index represents the movement in the prices of the living essentials in the family budget—food, apparel, housefurnishings, rent, utilities, fuels, and miscellaneous goods and services such as medical care, personal care, transportation, laundry services, and recreation. Approximately 190 individual items are priced for the Index; 49 foods, 58 articles of apparel, 10 kinds of fuel, 23 housefurnishings, 49 miscellaneous goods and services, and rent. Since 2 or more qualities are priced for many articles, prices for about 270 different articles and qualities are used in the computation of the Index.

Selection of items

The goods and services currently priced for the Index were selected on the basis of an extensive study of actual annual expenditures of about 14,500 urban families of wage earners and lower-salaried clerical workers whose incomes averaged \$1,524 in 1934-36. American families buy more than 1,400 different articles and services and each of

the 1,400 may appear in the market in several different qualities. It has been found, however, that it is not necessary for the Bureau to face the stupendous task of pricing all of them each month. It is possible, on the basis of the approximately 300 items indicated above, to represent the price movements of nearly all the 1,400 items and qualities. For example, the price movements of fresh milk are used to typify those of buttermilk and various other milk products; prices of round steak, chuck and rib roast, and hamburger can be used to represent all beef products; doctors' fees for appendix and tonsil operations represent changes in the fees of all surgical operations. During the war when it was impossible to obtain many of the items normally priced for the Index, every effort was made to reflect the wartime conditions. For example, by December 1942 the following goods were dropped from the Index for all cities: Automobiles, refrigerators, washing machines, metal bedsprings, studio couches, and innerspring mattresses; sewing machines, vacuum cleaners, gas cook stoves; and silk stockings, slippers, and yard goods. Rayon stockings and cotton anklets for women and girls, were substituted for silk hose in all city indexes and cotton felt mattresses for innerspring in the 22 cities where they were available. The weights for automobile repairs, streetcar and bus fares, and for rayon yard goods and slippers were increased while the weights for gasoline and oil and for fuel oil were decreased.

In March 1943 the Bureau of Labor Statistics revised the food component of the Index to take account of prevailing food shortages and food rationing. The weights used in combining changes in food prices were revised in February 1943 to correspond as closely as possible to the quantities of foods which moderate-income families were buying in 1943. The March Index for each city was linked to the Index previously published for February to form a continuous series. These weights have since been restored to their original values.

Changing consumption habits

The inability to account for all of the changes in consumption habits during the war led to criticism that prices of the items not included in the Index advanced much faster than those in the Index. In particular, the Bureau was criticized for omission of restaurant meals, children's apparel, and cost of home ownership, which it was felt were not properly represented by other items in the Index. The question of the price of restaurant meals arose out of the increased importance of eating out during periods of wartime shortages. The Bureau of Labor Statistics assumed that prices of these meals moved the same as prices of food purchased in the stores. Review of the evidence presented in the Meany-Thomas report and materials made available by BLS and other agencies led the Mills committee to conclude that restaurant prices rose at about the same rate as retail food store prices and hence did not contribute materially to any understatement. Apart from shoes and girls' winter coats, the BLS was pricing no infants' and children's clothing since earlier investigations had indicated that their prices moved in the same way as the prices of adults' clothing. Studies made since the war, however, have indicated the desirability of adding children's apparel to the Index and this was done in 1947.

Owner-occupied dwellings

Changes in home-owner-maintenance costs (interest, taxes, repairs, etc.) are represented in the BLS index by changes in the rents paid for identical rented dwellings, with identical facilities and services included in the rent. The imputation of changes in home owners' costs to rents has long been a source of concern in the make-up of the Index. In the fall of 1933 in its Indexes of Cost of Living of Federal Employees in Washington, D. C., the Bureau priced changes in current housing costs of home owners (investment in homes and payment on principal of mortgages were excluded), as well as changes in rent for rented dwellings and found a similarity of price movement for both.

Since 1942 residential rents have been subject to price regulation while home-owner-maintenance costs have not. In 1934-36, 30 percent of the families studied owned their own homes; and even a larger proportion own their homes today. This is a matter which requires further study.

New rental dwellings

A corollary to this problem has persisted because of the difference between the rental price of dwellings still under ceilings and the rents of newly constructed dwellings. The Bureau periodically revises its rent samples to reflect changes in the rental market such as the inclusion of newly constructed rental dwellings and other housing market changes. Rent changes which occur thereafter for these new units are reflected in the Index. The differential in rent at which these new units enter the rental market from the rent for existing rental dwellings of the same quality is not reflected in the rent Index. The Bureau is currently investigating ways of defining qualities of housing which will permit an accurate measurement of the differential in price for old and new dwellings of the same quality.

Current applicability of 1934-36 patterns

The Bureau of Labor Statistics, through a number of studies in individual cities, has attempted to check the reliability of the 1934-36 expenditure patterns as a basis for present-day consumers' price index computations. Special adjustments were made to account for war-time changes from the 1934-36 pattern and the return to prewar conditions of supply makes the use of the 1934-36 pattern somewhat more reliable. More exhaustive studies on a national basis may, however, disclose the need for different coverage and a reweighting of the Index to account for changes which have occurred since 1934-36. In terms of public confidence alone, it may be desirable to have an index related to a period which includes the technological progress of 12 years and the consumption habits of a fully employed labor force. The Bureau is contemplating a revision of the index weights based on current expenditure data within the next several years.

QUALITIES OF GOODS PRICED

One of the problems the Bureau has had to deal with is that of adequately representing in its sample of items priced, the qualities purchased by and available to the moderate-income city family. For some items only one quality is priced; for others, two or more qualities are priced. The qualities included in the Index were so selected as to be typical of those most commonly purchased by the families sur-

veyed in 1934-36. Thus, as a rule, both the lowest and the highest qualities that were used by some wage earners and lower-salaried clerical workers surveyed in 1934-36 are excluded. Available data indicate that in times of shortages and inflation the lower the quality the greater is the percentage price rise.

The actual result of this practice may be that during such times the Index understates somewhat the price rises for the lower income families, but there is probably equal reason to believe that when supplies are adequate and prices in general are declining or holding stable the Index overstates the change in the actual "real price" for such families.²

The BLS insofar as possible prices goods of constant quality from period to period, but improved products or changes in buying habits or disappearance of the specific quality priced by the Bureau make this procedure difficult.³ The Mitchell committee in discussing this question said:

What people are most concerned about is the change in real price, that is, the cost of a given quantity of utility or serviceability. If the poorer quality resulted in their needing a larger quantity of the product, allowance for quality deterioration might be made by increasing the quantity weights. We know no satisfactory way of measuring changes in "real prices"—that is, the prices of a given quantity of utility, usefulness, or service, such as occurs when poorer qualities are priced.

ESTABLISHMENTS FROM WHICH PRICES ARE OBTAINED

As with the individual items there is the question of whether the price change in the reporting stores and service establishments represents the price change in all outlets. Since the Index measures the trend of prices of goods purchased by wage earners and lower-salaried clerical workers, the stores selected for the sample are in general those representative of the outlets patronized by such families.

The outlets from which retail prices are collected have been selected on the basis of size and kind of outlet, type of operation, quality of commodities sold or services rendered, and location and clientele. To maintain the accuracy of the data used in the Index, the Bureau revises this reporter sample when important changes occur.

Retail food prices are collected from the same stores at each pricing period the first 3 days of the week containing the 15th of the month. When a store is dropped from the sample for any reason, a replacement having the same type of operation is chosen from the same neighborhood and the same sales-volume group.

For items other than food, price quotations are obtained from at least five stores or service establishments in New York City and at least four in other cities. Some stores visited supply prices for just one article, others for several articles, but only a few stores are able to give prices for all of the articles in a commodity grouping as described by the specifications. Thus, in most cities 10 or more stores are visited in order to obtain at least 4 quotations for each article priced in the clothing group.

Prices for all items except fuel, electricity, telephone, transportation, and a few other miscellaneous items are collected by personal visits of field representatives. Rents are collected by personal visit to tenants at least once a year. Other collections are made by mail questionnaires.

² See appendix on special wartime adjustment.

³ See appendix on collection procedures.

USES OF THE INDEX

While the Index was originally developed for use in wage negotiations, other uses for the Index have arisen which could not have been anticipated when the Index was conceived, in particular its use as a guide to general economic policy.

Adjustment of wages

The Index has always been an important factor in wage negotiations, but prior to the war (August 1939) its use in union-management contracts to provide for wage adjustments during the life of the contract was not widespread. At that time, approximately 5 percent of the union agreements in manufacturing industries allowed for interim adjustments of wages based on the Index. Soon after the war began an increasing number of agreements were concluded specifying automatic adjustments, but under the wage-stabilization program, these clauses were eliminated or suspended as a result of orders of the War Labor Board.

It was when the Board later adopted the Little Steel formula for wage adjustments that the Index came into great prominence.

The "Little Steel" formula originated as a guiding policy of the National War Labor Board in its wage decision of July 1942 in the Little Steel case of Bethlehem Steel Corp., Republic Steel Corp., Youngstown Sheet & Tube Co., and Inland Steel Co. and was expressed as a definite policy for all industries in October 1942. Between January 1, 1941, and May 1942 the cost of living as measured by the Bureau's Index increased by about 15 percent. The formula limited general wage increases to a total of 15 percent above January 1, 1941, in order to compensate for increased living costs between January 1941 and May 1942.

The War Labor Board, in its statement of policy in October 1942, specified that general wage increases of up to 15 percent above January 1, 1941, were permissible and in his speech on February 9, 1943, Director Byrnes announced as a basic wage policy that there should be no general wage increases in excess of the "Little Steel" formula.

In 1942 about 40 percent of manufacturing agreements had wage reopening provisions. Approximately a third of these agreements based wage reopening on cost-of-living changes. A few based reopening on such factors as profits, prevailing wages, etc., but the majority did not specify conditions for reopening.

Since the end of the war there has been a decided increase in the number of agreements which provide in one form or another for wage reopening. Of 99 key agreements in 22 major industry groups, 71 agreements in 1946 provided for wage reopening during the life of the agreements. While only 5 of these 71 agreements related wage negotiations exclusively to changes in the Consumers' Price Index, the Index was one of a number of factors to be considered in reopening most of the contracts.

On May 25, 1948, one of the most important agreements using the Index was made between the General Motors Corp. and the United Automobile Workers (CIO) granting an immediate cost-of-living adjustment of 8 cents an hour and subsequent quarterly adjustments based on changes in the Bureau's national Consumers' Price Index.⁴

⁴ See Cost-of-Living Wage Clauses and UAW-GM Pact, by Nelson M. Bortz in Monthly Labor Review, July 1948.

Determination of real wages

The Index has been used for many years as a broad statistical measure of the changes in the purchasing power of the consumer's dollar. It is the basis for most estimates of changes over a period of years in the real earnings of labor. Since it is a direct measure of the retail price of goods and services purchased by wage earners in large cities, it is most satisfactorily used as a measure of changes in the buying power of money wages of large groups of city workers.

The Index has been used to obtain a general measure of real wages as compared with productivity in a number of industries; to estimate average weekly real earnings in manufacturing during World War II as compared with World War I; and to compare the increase in man-hour output with the movement of real average hourly earnings in various industries. It is, of course, considerably less satisfactory when used for specific occupational groups, or in an area where buying and price conditions may vary markedly from the average.

Guide to general economic policy

One of the developing uses of the Consumers' Price Index is as a guide to broad economic policy. It is used as a measure of the extent of inflation; that is, as a barometer of the effect of the price changes on the workers' families' earnings and by extension, to the United States population as a whole. During the war, the Index and the components of the Index served as a guide to formulating administrative and fiscal policies in determining which commodities to control, decontrol, or subsidize. It was extremely valuable in measuring the effectiveness of the community ceiling price program and in determining the effects of proposed changes in price ceiling regulations or subsidies. The Index in comparison with the Canadian and British indexes has been used to gage the relative effectiveness of the price-control policies in different countries. The rent index, one of the major groups of living essentials included in the Consumers' Price Index, continues to be used as a measure of the effectiveness of the rent-control program.

International comparison

The rate of change in consumers' prices in different countries is a useful tool in the analysis of business cycles and related problems, and is intimately connected with the stabilization of international exchange rates.

Allowance adjustment

The Index or some of its components is also used by welfare agencies to adjust allowances for families at the relief level, and by unemployment commissions as a criterion for revising unemployment compensation allowances. According to BLS even alimony payments are occasionally adjusted on the basis of changes in consumers' prices.

General measure of price level in long-term contracts

A fairly rare use of the Index, but of considerable importance when it does occur, is as a measure of the price level in long-term contracts. It has been used to adjust rentals in 99-year leases, and to provide income payments to beneficiaries so that annual payments change according to the purchasing power of the dollar.

APPENDIX

COLLECTION PROCEDURES

Collection of prices

The prices recorded by the Bureau's representatives are prices actually charged customers. Every effort is made to obtain prices for goods and services of the same quality from one period to another. For example, the agent does not ask for the price of a "medium-priced shirt," but obtains the price of a shirt in stock which meets detailed specifications as to workmanship, thread count, etc. Sales taxes and Federal excise taxes are included in the reported prices when applicable.

Pricing to specification

A major problem in the collection of prices is the matter of quality. The price of pork chops can vary considerably, depending on how near the center of the loin they are cut. If center-cut pork chops are priced one month and end-cut the next month, the price of pork chops might seem to have gone down. But in fact this would reflect a difference in quality, not a change in prices.

In order to standardize its measurement of price changes from month to month the Bureau draws up detailed specifications to describe the qualities of the articles priced each month. These specifications are carefully built up with the advice of manufacturers and retailers who know these commodities. For example, the following is a specification for one of the men's shirts priced:

Shirt: Business, broadcloth, nationally advertised.

Style: Collar attached; may or may not have fused collar.

Fabric: Cotton; broadcloth, white. Yarn: Combed. Number of threads per inch: Warp, 128 and Filling, 68 or Warp, 136 and Filling, 60. Finish: Sanforized shrunk.

Construction: Full cut; clean workmanship; 31 to 32 yards/dozen based on 36-inch fabric and neckband size scale 14 to 17.

Brand: Manufacturer's brand, nationally advertised.

When the Bureau agents price these shirts for the Index they make sure that the shirt actually found in the reporting store falls within the quality range described by this specification.

Each specification represents, in the opinion of commodity experts and specialists in industry and the various trades, the article most frequently purchased in the price lines in which wage earners and clerical workers were concentrating their purchases in 1934-36. Each article is described in terms used in the trade, and details of construction are given in order that the article may be readily identified. For clothing, the fabric, stitching, size ranges, style, and other features are stated. For furniture, the kind of wood, finish construction, metal fixtures, and other details are fully described.

Since these descriptions are designed primarily for the collection of prices on the same qualities in many cities from time to time, some range in construction details is allowed in order that prices may be obtained on goods sold in different parts of the country. Thus, although the specifications are detailed, more than one type or price level may satisfy a given specification. In the usual practice,

the quality satisfying the specification and selling in largest volume is selected in each outlet giving price information, and this choice is followed throughout the period during which the particular specification is used for that outlet.

Because of changes in manufacturing processes, kinds of materials available, style, etc., certain specifications become outmoded, the length of the period for which they are valid varying for the different groups of merchandise. The specifications for such articles as winter clothing need to be modified about every 2 years in normal times, and in wartime even more frequently. The new specification is made to adhere as closely as possible to the one used in the previous periods in respect to such fundamental characteristics as utility, materials, designs, and price movements.

Collection of prices by trained agents

Most of the prices used in the calculation of the index are obtained by trained representatives through personal interviews with store managers, or buyers. As a rule, the only data not obtained by personal call are prices of household fuels, rates for electricity and gas, streetcar and bus fares, newspapers, telephone service, and auto insurance which change only occasionally, and some of which are officially maintained for public scrutiny by State public service commissions. Retail fuel prices are reported on questionnaires mailed directly to the dealers, and all data on rates for electric current are obtained from the Federal Power Commission. Gas rates and prices of a few other items are obtained by mail questionnaires. Rent collection is described below. Insurance rates, automobile licenses and fees, and railroad fares are obtained from official manuals and rate books.

In food stores where prices are regularly posted in full view of the customers, the representative obtains price data by personal inspection of the posted prices and checks these with proprietors or managers. If prices are not posted, the representative fills out the schedule by questioning the manager.

Food prices are collected by 125 part-time agents, usually housewives, school teachers, or ex-Government employees, who have the qualifications to meet civil-service requirements for work of this kind. They are people who live in the community and visit local stores around the middle of each month to price the 50 articles on which the food index is based.

The collection of prices for commodities other than food is conducted by 30 full-time field agents. These agents are carefully chosen through the Federal Civil Service System and undergo a 4-week course of training before being allowed to collect price information. Agents obtain prices by interview with the buyer or manager and check the information by examining the merchandise and price tags.

In the collection of prices of foods as well as of other commodities, in order to maintain comparability each representative is provided with a set of records which gives the brand, lot number, or grade (where it is available), and other identifying information relative to the prices obtained during previous months, as well as the general "specifications" described above. If the same brand or quality is no longer available, the representative substitutes a new one, which conforms with the specification.

Rent information is collected directly by the agents from a sample of renting families varying in number from about 600 to 3,000 depending on the population of the city. Once a year a Bureau agent goes in person to the home; then for three subsequent quarters, the Bureau collects rent reports by mail, followed at the end of the year by another visit to the home. Prior to the middle of 1942, rents had been obtained from rental-management agencies.

Items priced for the Index

In choosing 190 individual items to represent the movement of prices of all living essentials in the family budget, the Bureau was guided by three major principles: First, all items which were important in family expenditures in 1934-36 were included in the list of items to be priced. Second, items whose price movements were most representative of larger groups were selected for pricing. Third, since the Index represents a selected list of items of fixed quality, the items included must be capable of description for continuous pricing. Thus, if any item is not susceptible to description it was excluded from the Index.

The Bureau has found that average prices of commodities within a class tend to move together. Thus, if a few articles are selected carefully, these articles can be used to represent the class. However, if several articles within a group are of major importance in family purchases, like round steak and chuck roast, these important articles were all included even though, statistically, price changes for one are similar to price changes for others.

Food prices are obtained currently for 50 items including staple foods, such as bread, butter, potatoes, etc., and meats, fruits and vegetables, dairy products, and others. The list of clothing items includes such items as men's suits, work clothing and shirts, women's dresses, hose, shoes, and various accessories. Children's apparel was added to the list of items priced in 1947. Housefurnishings items include living room and dining room suites, mattresses, springs, stoves, washing machines, sheets, glassware, etc. Ten different kinds of fuels are priced, according to their importance in the specific city. Typical bills for gas are computed from the rate schedules obtained from utilities and for electricity from data obtained through the Federal Power Commission. A large variety of goods and services are priced for the miscellaneous goods and services group. These include such diverse commodities as drugs, automobiles, and tires; and such services as medical and dental care and haircuts.

The complete list of items priced for the Index and their relative importance in December 1947 is published in the August 1948 issue of the Monthly Labor Review.

Sample of reporters scientifically selected

The sample of reporters selected to represent all retail stores and service establishments patronized by wage earners and lower salaried clerical workers is based on the latest and most authentic information which can be obtained. Wherever possible, as for food and rents, scientific sampling procedures are employed in making selections. When complete information is not available, the samples are selected after consultation with local authorities by the Bureau's supervisors.

For the collection of food prices independent outlets are selected by random sampling within geographical areas of the city. The individual food stores in the sample are chosen so that the number of

each type of store from each sales-volume group is proportional to the total sales of that group. The stores are classified by type of store, i. e., groceries, combination stores, meat markets, produce markets, etc.; and by annual sales volume groups, under \$50,000; \$50,000 to \$250,000; and \$250,000 or more.

All important grocery chains within the corporate limits of the city are included in the sample, and if more than one type of store is operated by a particular chain, prices are secured from each type having different selling prices. The prices from chain and independent stores are combined by use of weights, based on the total sales for the two types of organization as reported by the Bureau of the Census, and other reliable sources. Prices from the individual corporate chain organizations are weighted according to each organization's annual sales in each city as reported by each firm to the Bureau.

In all, 1,129 independent grocery stores and markets, 208 chain organizations, 152 dairies, and 340 bakeries are included in the sample. The 208 chains represent 8,640 stores, making a total of 10,261 outlets represented.

The outlets from which retail prices of other goods have been priced have been selected by Bureau supervisors on the basis of size and kind of outlet, type of operation, quality of commodities sold or services rendered, and location and clientele. Both department and specialty stores are included in the store samples, as well as national, sectional, and local chains, and independent stores. Outlets selling commodities or rendering services on a cash-and-carry basis are represented as well as those granting regular credit and delivery service or installment credit. Stores operated by mail-order houses are included in the Bureau's sample in those cities where they are situated. Laundry and dry-cleaning establishments, beauty and barber shops, automobile repair shops, appliance stores, doctors, dentists, etc., also are part of the outlet sample.

Prices of apparel, housefurnishings, and miscellaneous goods and services are obtained from 3,500 stores and service establishments.

The sample of dwellings for which rental data are obtained is based on a comprehensive housing survey in each city (called a master sample). All blocks in a city are stratified by size of block. A random selection of small blocks is made by applying a sampling ratio. All dwellings in these small blocks are included in the master sample. A random selection of large blocks is made by applying three to five times the sampling ratio. In the large blocks one-third or one-fifth of the dwellings are included in the master sample. The collection of rents each quarter is made from a subsample of rental dwellings selected at random from the master sample. Both the master sample and the subsample of rental dwellings cover suburban areas which constitute an integral part of the city's housing market.

Frequency of price collection and city coverage

The Consumers' Price Index is computed monthly and relates to prices in effect on the 15th day of the month. Food prices are collected monthly in 56 cities and fuel prices in 34 cities.

Prices of apparel, housefurnishings, and miscellaneous goods and services are collected each month in 10 key cities, and in the other 24 cities quarterly. Prices are collected in eight of the quarterly cities each month. The "all items" index is computed for each of 18 cities in which all groups of items are surveyed during the month. The

schedule for pricing commodities and services other than foods and fuels in the 34 cities is as follows:

Every month	January, April, July, October	February, May, August, November	March, June, Sep- tember, December
Birmingham Boston Chicago Cincinnati Detroit Houston Los Angeles New York Philadelphia Pittsburgh	Buffalo Denver Indianapolis Kansas City Manchester Portland, Oreg. Richmond Savannah	Atlanta Cleveland Milwaukee New Orleans Norfolk Scranton Seattle Washington	Baltimore Jacksonville Memphis Minneapolis Mobile Portland, Maine St. Louis San Francisco

The national indexes, for large cities combined, are computed monthly by weighting individual cities on the basis of the latest available population data. The food and fuel indexes are weighted averages of the cities in which these groups are priced each month—56 for foods and 34 for fuels. Indexes for all other groups are weighted averages of the 18 cities surveyed during the month and estimated changes in retail prices for the other 16 cities.

FORMULA

The Bureau's Consumers' Price Index is based on the formula of Laspeyres:

$$R_i = \frac{\sum q_o p_i}{\sum q_o p_o}$$

where the (q_o)'s are the average quantities of each item used by families in the wage earner and clerical groups in the base period, the (p_o)'s are the prices for these items in the base period and the (p_i)'s the prices in a current period.

In practice, the Bureau calculates the index on a variation of this formula as a weighted average of price relatives for each item.

$$R_i = R_{i-1} \left(\frac{\sum q_o p_{i-1} \left(\frac{p_i}{p_{i-1}} \right)}{\sum q_o p_{i-1}} \right)$$

where ($q_o p_{i-1}$)'s are the "cost weights" in the previous period and

$$\left(\frac{p_i}{p_{i-1}} \right)$$

are the price relatives for each item and R_{i-1} is the index for the previous period.

SPECIAL WARTIME ADJUSTMENT

From June 1944 to January 1947 the Bureau of Labor Statistics with each month's release on the Consumers' Price Index explained that "the Index does not show the full wartime effect on the cost of living of such factors as lowered quality, disappearance of low-priced goods, and forced changes in housing and eating away from home." This statement was expanded after the report of the President's Committee on the Cost of Living in November 1944, which recommended—

Under the exceptional market conditions which exist in wartime, and so long as we have a seller's market, allowance should be made for a hidden increase in

the cost of living of probably as much as 3 and certainly not more than 4 percentage points, due to quality deterioration, disappearance of cheaper goods, decrease of special sales, and increases in underreporting of prices actually charged.

In December 1945 the Stabilization Director, in connection with Executive Order No. 9599 and No. 9651, indicated that if account were taken of continued deterioration of quality and unavailability of merchandise between September 1944 and September 1945, the over-all allowance for the period from January 1941 to September 1945 would total approximately five points for large and small cities combined. No agency has attempted to take account of quality changes and other hidden factors affecting the Consumers' Price Index since September 1945.

The President's Committee, in establishing the original adjustment, explained that the disadvantage to a buyer in a seller's market "can be expected to disappear as soon as we can resume full production of consumer goods and services in a competitive market." By the end of 1946 it was evident that several of the factors had disappeared or diminished in importance since the end of World War II, such as the failure to measure adequately overceiling food prices. Other factors still remained, and some had increased, such as special rental charges. The Bureau of Labor Statistics had never been able to make any precise estimate of the amount of these adjustments. In fact, the President's Committee noted that the methods applied by its technical committee—

to estimate the hidden increase in living costs in a seller's market * * * should not be adopted by the Bureau of Labor Statistics.

These adjustments were never included in the Consumers' Price Index, and the Bureau of Labor Statistics, after January 1947, dropped the explanation from its reports.

AMERICAN STATISTICAL ASSOCIATION REMARKS ON USES¹

The American Statistical Association report on the Index makes a number of remarks regarding the uses which the Index can appropriately serve.

"1. Does the Index of Living Costs measure changes in average family expenditures on consumer goods and services? This question reflects the popular interpretation of the phrase 'cost of living' as representing the total amount families spend for goods and services.

"Answer: No. The Index is designed to measure only those changes in family expenditures resulting from changes in unit prices. It is not designed to measure alterations in family expenditures resulting from changes in manner of living, whether the changes are due to choice or necessity. Such alterations can be measured only by other statistical devices, such as direct inquiry into actual family incomes and expenditures or the index of consumer expenditures now being published by the Department of Commerce. The distinction between changes in family expenditures due to price movements and those due to shifts in the way of living is of special concern today when the pattern of living is being altered for a great many consumers. Rising incomes are giving many families opportunities to live on higher levels than they have known before."

¹ See An Appraisal of the United States Bureau of Labor Statistics Cost of Living Index by a special committee of the American Statistical Association.

"2. The value of the Index for certain uses is greatly enhanced if it is used as one among several measures rather than alone. For some problems it should be used as a first approximation to the truth, to be corrected by knowledge of the particular situation. A thermometer reading is useful to the physician if used in conjunction with other indicators of the health of the patient and as a guide to further diagnosis."

They cite three examples of public use of the Index to illustrate this point:

"(a) Use of the Index to measure the degree of inflation.

"If we define inflation as a situation in which the aggregate value of all goods and services exchanged in an economy increases more rapidly than the physical volume of these goods and services, a cost-of-living index is an obviously relevant measuring tool. The Bureau of Labor Statistics Index, however, does not cover all consuming groups in our economy. It relates only to the retail prices of consumers' goods purchased by families of moderate income in large cities. Prices in primary markets and in various wholesale markets are also important indicators of inflation. For this reason we do not believe that the Bureau's Cost of Living Index should be used by itself as a measure of the extent of inflation. It has great value as one among a group of measurements available to administrators of an anti-inflation program.

"(b) Use of the Index in the control of retail prices.

"The Index is a useful instrument in retail price control. Its use would be greater if coverage were broadened to include prices of more commodities. However, it should be remembered that the commodities selected for measurement are chosen not only because they are important in the customary purchases of consumers, but also because their price movements are like those of related commodities. If the present national and city averages were supplemented by regional measures and by more detailed index numbers for commodity groups, their usefulness would be greatly increased. Effective price control cannot be based solely upon averages comprising great diversity.

"(c) Use of the Index as an instrument in making wage and salary adjustments. On the general question of policy involved in deciding whether wage rates and salaries should in times of peace be adjusted in accordance with movements of an index of living costs the committee does not speak. However, we have been asked to appraise the Bureau's index with reference to the uses to which it is now put. If the Index is to be appropriately used in this connection, several facts must be kept in mind.

"The general index is a national average, and relates to large cities only. There is considerable variation in the level of living costs in different parts of the country, and in the degree of change in living costs in different regions. There are industrial variations in living costs. Costs in coal towns and textile towns are affected by special factors and have distinctive movements. Living cost changes vary also with income levels. Recent advances have been somewhat greater for workers at lower income levels because foods, which have risen sharply in price, are of greater importance in the budgets of low-income families. Such variations are characteristic of economic changes in a system as diverse as that of the United States."

MONTHLY MOVEMENTS OF THE CONSUMERS' PRICE INDEX 1947-48 AND ANNUAL AVERAGES 1913-1947

Consumers' price index for moderate-income families in large cities

[1935-39=100]

Date	All items	Food	Apparel	Rent	Fuel, electricity and refrigeration	House furnishings	Miscellaneous
1947—Jan. 15	153.3	183.8	179.0	108.8	117.3	179.1	137.1
Feb. 15	153.2	182.3	181.5	108.9	117.5	180.8	137.4
Mar. 15	156.3	189.5	184.3	109.0	117.6	182.3	138.2
Apr. 15	156.2	188.0	184.9	109.0	118.4	182.5	139.2
May 15	156.0	187.6	185.0	109.2	117.7	181.9	139.0
June 15	157.1	190.5	185.7	109.2	117.7	182.6	139.1
July 15	158.4	193.1	184.7	110.0	119.5	184.3	139.5
Aug. 15	160.3	196.5	185.9	111.2	123.8	184.2	139.8
Sept. 15	163.8	203.5	187.6	113.6	124.6	187.5	140.8
Oct. 15	163.8	201.6	189.0	114.9	125.2	187.8	141.8
Nov. 15	164.9	202.7	190.2	115.2	126.9	188.9	143.0
Dec. 15	167.0	206.9	191.2	115.4	127.8	191.4	144.4
1948—Jan. 15	168.8	209.7	192.1	115.9	129.5	192.3	146.4
Feb. 15	167.5	204.7	195.1	116.0	130.0	193.0	146.4
Mar. 15	166.9	202.3	196.3	116.3	130.3	194.9	146.2
Apr. 15	169.3	207.9	196.4	116.3	130.7	194.7	147.8
May 15	170.5	210.9	197.5	116.7	131.8	193.6	147.5
June 15	171.7	214.1	196.9	117.0	132.6	194.8	147.5
July 15	173.7	216.8	197.1	117.3	134.8	195.9	150.8
Aug. 15	174.5	216.6	199.7	117.7	136.8	196.3	152.4
Sept. 15	174.5	215.2	201.0	118.5	137.3	198.1	152.7
Oct. 15	173.6	211.5	201.6	118.7	137.8	198.8	153.7
Nov. 15	172.2	207.5	201.4	118.8	137.9	198.7	153.9
Dec. 15							

Consumers' price index for moderate-income families in large cities, estimated annual averages

[Average 1935-39=100]

Year	All items	Food	Apparel	Rent	Fuel, electricity, and refrigeration	House furnishings	Miscellaneous
1913	70.7	79.9	69.3	92.2	61.9	59.1	50.9
1914	71.8	81.8	69.8	92.2	62.3	60.7	51.9
1915	72.5	80.9	71.4	92.9	62.5	63.6	53.6
1916	77.9	90.8	78.3	94.0	65.0	70.9	56.3
1917	91.6	116.9	94.1	93.2	72.4	82.8	65.1
1918	107.5	134.4	127.5	94.9	84.2	106.4	77.8
1919	123.8	149.8	168.7	102.7	91.1	134.1	87.6
1920	143.3	168.8	201.0	120.7	106.9	164.6	100.5
1921	127.7	128.3	154.8	138.6	114.0	138.5	104.3
1922	119.7	119.9	125.6	142.7	113.1	117.5	101.2
1923	121.9	124.0	125.9	146.4	115.2	126.1	100.8
1924	122.2	122.8	124.9	151.6	113.7	124.0	101.4
1925	125.4	132.9	122.4	152.2	115.4	121.5	102.2
1926	126.4	137.4	120.6	150.7	117.2	118.8	102.6
1927	124.0	132.3	118.3	148.3	115.4	115.9	103.2
1928	122.6	130.8	116.5	144.8	113.4	113.1	103.8
1929	122.5	132.5	115.3	141.4	112.5	111.7	104.6
1930	119.4	126.0	112.7	137.5	111.4	108.9	105.1
1931	108.7	103.9	102.6	130.3	108.9	98.0	104.1
1932	97.6	86.5	90.8	116.9	103.4	85.4	101.7
1933	92.4	84.1	87.9	100.7	100.0	84.2	98.4
1934	95.7	93.7	96.1	94.4	101.4	92.8	97.9
1935	98.1	100.4	96.8	94.2	100.7	94.8	98.1
1936	99.1	101.3	97.6	96.4	100.2	96.3	98.7
1937	102.7	105.3	102.8	100.9	100.2	104.3	101.0
1938	100.8	97.8	102.2	104.1	99.9	103.3	101.5
1939	99.4	95.2	100.5	104.3	99.0	101.3	100.7
1940	100.2	96.6	101.7	104.6	99.7	100.5	101.1
1941	105.2	105.5	106.3	106.2	102.2	107.3	104.0
1942	116.5	123.9	124.2	108.5	105.4	122.2	110.9
1943	123.6	138.0	129.7	108.0	107.7	125.6	115.8
1944	125.5	136.1	138.8	108.2	109.8	136.4	121.3
1945	128.4	139.1	145.9	108.3	110.3	145.8	124.1
1946	139.3	159.6	160.2	108.6	112.4	159.2	128.8
1947	159.2	193.8	185.8	111.2	121.1	184.4	139.9

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