

# National Income and Product Statistics of the United States, 1929-46

**THIS REPORT** presents a basic revision of the estimates of national income and national product and their component series,<sup>1</sup> parts of which have appeared in preliminary form in the *SURVEY OF CURRENT BUSINESS*<sup>2</sup> during the past few years. The revision was designed to accomplish three objectives: (1) to complete the setting up of the whole body of national income statistics as an interrelated and consistent system of national economic accounting,<sup>3</sup> (2) to improve the statistical procedures used in estimating all the series and to base them on the latest source data, and (3) to incorporate a number of changes in the basic aggregates so as to achieve more generally useful and clear-cut definitions of national income and national product. The definitions and presentation of the statistics were worked out in consultation with technicians from other countries in order to promote international comparability of national income statistics.<sup>4 5</sup>

<sup>1</sup> The revisions have been incorporated in all series except income payments by States. Current personal income data will be published monthly on page S-1 of the *SURVEY OF CURRENT BUSINESS*. Estimates keeping the other tables up to date will be released periodically in the *SURVEY*. It will not be possible to introduce the revisions into the State data for 1946 to be published shortly. The State estimates will be reworked at a later date in conformity with the changes introduced into the national estimates. The present State income payment series is described in: Charles F. Schwartz and Robert E. Graham, Jr., *State Income Payments in 1945*, *SURVEY OF CURRENT BUSINESS*, August 1946.

<sup>2</sup> See Edward F. Denison, *Consumer Expenditures for Selected Groups of Services, 1929-41, October 1942, Revised Estimates of Wages and Salaries in the National Income, 1929-43, June 1945*, and extension of the latter estimates, October 1946; William H. Shaw, *The Gross Flow of Finished Commodities and New Construction, 1929-41, April 1942 and Consumption Expenditures, 1929-43, June 1944*; Dwight B. Yntema, *Rents in the United States, 1929-44, March 1946*; and Gardner F. Derrickson, *Trend of Corporate Profits, 1929-45, April 1946*.

<sup>3</sup> For previous steps in this process see Milton Gilbert and R. B. Bangs, *Preliminary Estimates of Gross National Product, 1929-41*, *SURVEY OF CURRENT BUSINESS*, May 1942; Milton Gilbert and George Jaszi, *National Income and National Product in 1942*, *ibid.*, March 1943; and Milton Gilbert and George Jaszi, *National Product and Income Statistics*, *Dun's Review*, February 1944 (reprinted in *Readings in the Theory of Income Distribution*, published for the American Economic Association by Blackiston, 1946).

<sup>4</sup> A report on our discussions with British and Canadian experts was presented to the Conference on Research in Income and Wealth by Edward F. Denison. It will be published shortly in vol. 10 of the Conference series by the National Bureau of Economic Research. For the recommendations of a larger international group of experts, see *Measurement of National Income and the Construction of Social Accounts*, a Report of the Sub-Committee on National Income Statistics, League of Nations, Princeton, N. J. (mimeographed), now in process of publication by the United Nations Secretariat.

<sup>5</sup> For a review of the extent to which the national income statistics being issued by five English-speaking countries are based on a common viewpoint, see J. R. N. Stone, *National Income and Expenditure: A Review of the Official Estimates of Five Countries*, *The Economic Journal*, June 1947.

The results constitute far more than a routine revision. For in addition to statistical refinements, the data have been cast into a theoretical mold which, we believe, constitutes a major improvement in the structure of national income statistics. Considerable new information has been provided, particularly the complete accounts for the major sectors of the economy and the distribution of national income by legal form of organization. A much improved and more detailed industrial classification has been adopted and extended back through the estimates to the year 1929.<sup>6</sup> In general, the new series have been computed with better articulation of detail, not only in the interest of statistical accuracy, but to clarify the meaning and content of the aggregates and to provide an expanded body of data for analytical purposes.

The net effect of the changes made in the estimates has been to raise the level of the national income and the other basic aggregates. For the period before the war the increases are of relatively small magnitude but for the war period they reach sizeable proportions. To some extent the numerical changes have resulted from statistical revisions—that is, the incorporation of later source data and of improved estimating procedures—but primarily they have been due to changes in definition. These changes are listed, and their quantitative importance shown, in a subsequent section of this report.

With respect to the estimates for recent years, it should be recognized that the most complete and accurate source materials become available only after considerable lapse of time. During that interval, the Department of Commerce prepares estimates for all the component series on the basis of the partial information available. These estimates must be subject to revision until the basic sources can be used. For example, the various censuses are taken only periodically and then cannot be made available for some time after the year the census covers, while tabulations of income tax returns are generally not available for more than two years after the tax year. At the present time the difficulties of preparing estimates for recent years are in-

<sup>6</sup> See table VIII for the detailed content of this industrial classification.

Table I.—National Income and Product Account, 1939

(Millions of dollars)

Compensation of employees:		Personal consumption expenditures.....	67,466
Wages and salaries.....	45,745	Gross private domestic investment.....	9,004
Supplements.....	2,075	Net foreign investment.....	888
Income of unincorporated enterprises and inventory valuation adjustment.....	11,282	Government purchases of goods and services.....	13,068
Rental income of persons.....	3,465		
Corporate profits and inventory valuation adjustment:			
Corporate profits before tax:			
Corporate profits tax liability.....	1,462		
Corporate profits after tax:			
Dividends.....	3,796		
Undistributed profits.....	1,209		
Inventory valuation adjustment.....	—714		
Net interest.....	4,212		
National income <sup>1</sup> .....	72,532		
Indirect business tax and nontax liability.....	9,365		
Business transfer payments.....	451		
Statistical discrepancy.....	462		
Less: Subsidies minus current surplus of government enterprises.....	485		
Charges against net national product <sup>2</sup> .....	82,325		
Capital consumption allowances.....	8,101		
CHARGES AGAINST GROSS NATIONAL PRODUCT <sup>3</sup> .....	90,426	GROSS NATIONAL PRODUCT <sup>3</sup> .....	90,426

<sup>1</sup> Data for other years in table 1.<sup>2</sup> Data for other years in table 4.<sup>3</sup> Data for other years in table 2.

creased by the fact that no censuses of manufactures or business were taken during the war emergency.

While this report contains an enumeration of the changes in national income and product that have been made and a series of definitions of the major aggregates and their components, it cannot deal adequately with the problems involved in concepts, statistical methods, and use of sources. A comprehensive volume containing a full discussion of these matters is in preparation and will be published as soon as possible. We appreciate that during the last few years users of income and product statistics have encountered difficulties because the data were not conveniently assembled or adequately described. Within the limit of available resources, every effort is being made to correct this situation.

In this report we begin with a brief description of the framework of the national income accounts as a guide to those unfamiliar with this approach. There follow a series of definitions of the major aggregates and their components used in the present estimates and a description of the changes from our previous estimates.

### The National Economy and Major Economic Sectors

National income research over the past decade and the experience gained in using the statistics in analytical work have broadened the scope of the field. It has become evident that a single national income aggregate is not applicable to all problems requiring a measure of the income or output of the national economy, but that alternative measures are at times better adapted to the needs at hand. Furthermore, it has been found illuminating not only to measure the various aggregates of income and product but to develop national income and related statistics into a system of economic accounting.

In its work in the field of national income statistics, the Department of Commerce presents the series believed to be most generally useful—national income, national product, personal income, and disposable income—arranged to show the interrelations of the various magnitudes. As an integral part of this work, the current income and outlay accounts for the major sectors of the economy and a consolidated capital account are drawn up, both because they are of interest in themselves and because they show the interactions of these sectors and how the whole is derived as the sum of the parts.

These accounts for the national economy and the major sectors thereof are illustrated in tables I to VI by data for the year 1939. The accounts are shown in detail to clarify their composition and to permit the tracing of the various flows from one account to another. It will be apparent, however, that less detailed tables are sufficient for most analytical problems.<sup>7</sup>

### Summary National Account

Table I is the summary income and product account for the national economy. It is a summary account in that the items on each side are derived from the current transactions of businesses, consumers, and government. Of course, in the drawing up of the national income and product account some difficult and controversial decisions must be made as to whether certain activities represent economic production or income. Government interest, the services of housewives, and income from illegal activities are examples of items we exclude from national income and product. On the other hand, we include

<sup>7</sup> For a simplified version of this approach see Milton Gilbert and George Jaszi, *National Product and Income Statistics*, op. cit. An elaborate system of national accounts is presented by J. R. N. Stone as an appendix to the League of Nations report cited in footnote 4.

Table II.—Consolidated Business Income and Product Account, 1939<sup>1</sup>

[Millions of dollars]

Compensation of employees:		Consolidated net sales:	
Wages and salaries:		To consumers.....	63,816
Disbursements.....	36,250	To government.....	5,375
Excess of accruals over disbursements.....	0	To business on capital account.....	8,563
Supplements:		To abroad.....	1,123
Employer contributions for social insurance.....	1,330	Change in inventories.....	441
Other labor income.....	431		
Income of unincorporated enterprises and inventory valuation adjustment.....	11,282		
Rental income of persons.....	3,465		
Corporate profits before tax and inventory valuation adjustment:			
Corporate profits before tax:			
Corporate profits tax liability.....	1,462		
Corporate profits after tax:			
Dividends.....	3,659		
Undistributed profits.....	1,162		
Inventory valuation adjustment.....	-714		
Net interest.....	3,284		
Income originating.....	61,611		
Indirect business tax and nontax liability.....	9,365		
Business transfer payments.....	451		
Statistical discrepancy.....	462		
Less: Subsidies minus current surplus of government enterprises.....	485		
Charges against net product.....	71,404		
Capital consumption allowances.....	7,914		
CHARGES AGAINST BUSINESS GROSS PRODUCT.....	79,318	BUSINESS GROSS PRODUCT.....	79,318

<sup>1</sup> Data for other years in table 7.

various items of income in kind, such as rental value of owner-occupied houses and banking services rendered to persons without explicit payment.

On the right side of the account are the consolidated sales of the economy, adjusted for the change in inventories so as to measure the market value of the goods and services produced. On the left are the various costs incurred in producing the gross national product, part of which are the earnings of the factors of production that make up the national income. The two sides of the account must, in principle, balance exactly. Any error in estimation prevents statistical equality, however, unless an entry for the "statistical discrepancy" is included on one side or the other of the account.<sup>2</sup>

The economy covered by this account, and hence by the various income and product aggregates, is the continental United States. Thus it does not coincide with the customs area of the Nation since territories and possessions are excluded. However, the account does not measure the income and product of factors of production physically located in the continental United States but rather the income and product attributable to factors supplied by residents of the continental United States.

Not only individuals who contribute their labor and property to the productive process, but nonprofit institutions and governmental bodies supplying capital re-

sources are viewed as residents supplying factors of production. Corporate enterprises are not considered residents in this connection since corporate income does not accrue to corporations as such, but to the holders of their securities.

The meaning of "resident individuals" is largely self-explanatory. Our usage of the term in national income statistics may be more precisely formulated, however, by reference to the following three attributes: permanent residence, place of performing work, and location of employer. A worker is counted as a resident individual if at least two of these attributes refer to the continental United States. For example, United States Government military and civilian personnel whose usual residence is in the United States are counted as residents, even though they are stationed abroad. Also, foreign border workers employed in this country by domestic employers, as well as permanent residents of the United States employed in this country by foreign governments or international government organizations, are counted as resident individuals.

#### Business Account

Table II shows the income and product account for the business sector of the economy. In essence, this table is a consolidated profit and loss account relating to current business operations. Consolidated sales, adjusted for the change in inventories, appear on one side of the account whereas the various charges against sales and the earnings of business appear on the other. It is a consolidated statement in that all intrabusiness trans-

<sup>2</sup> It will be noticed that we have omitted an item required to make the two sides of the account equivalent in concept. This is the financial costs of acquiring property and issuing securities, to the extent that these costs are charged to capital account by business. The item, undoubtedly of significant magnitude in certain years, has been neglected for lack of data.

Table III.—Consolidated Government Receipts and Expenditures Account, 1939 <sup>1</sup>

(Millions of dollars)

Purchases of goods and services:		Personal tax and nontax receipts.....	2,440
Purchases of direct services:		Corporate profits tax accruals.....	1,462
Compensation of employees:		Indirect business tax and nontax accruals.....	9,365
Wages and salaries <sup>2</sup> .....	7,343	Contributions for social insurance:	
Supplements:		Employee contributions <sup>3</sup> .....	596
Employer contributions for social insurance <sup>2</sup> .....	199	Employer contributions:	
Other labor income <sup>2</sup> .....	87	Business <sup>4</sup> .....	1,330
Income originating and net and gross product.....	7,629	Government <sup>2</sup> .....	199
Net purchases from business.....	5,375	Households and institutions <sup>2</sup> .....	11
Net purchases from abroad.....	64	Deficit (+) or surplus (—) on income and product transactions <sup>5</sup> .....	1,867
Transfer payments.....	2,512		
Net interest paid.....	1,205		
Subsidies minus current surplus of government enterprises.....	485		
GOVERNMENT EXPENDITURES.....	17,270	GOVERNMENT RECEIPTS AND DEFICIT.....	17,270

<sup>1</sup> Data for other years in tables 8 and 9 except where otherwise noted.<sup>2</sup> Data for other years in table 12.<sup>3</sup> Data for other years in table 35.<sup>4</sup> Data for other years in table 7.<sup>5</sup> Data for other years in table 5.Table IV.—Rest of the World Account, 1939 <sup>1</sup>

(Millions of dollars)

Net payments of factor income to the United States:		Net disinvestment in the United States.....	888
Wages and salaries.....	2		
Interest.....	127		
Dividends.....	137		
Branch profits.....	47		
Income originating and net and gross product.....	313		
Net purchases from the United States:			
From business.....	1,123		
From government.....	—64		
From persons.....	—484		
NET CURRENT PAYMENTS TO THE UNITED STATES.....	888	NET DISINVESTMENT IN THE UNITED STATES.....	888

<sup>1</sup> Data for other years in table 11.

actions on current account are netted out. On the sales side the data are net of current purchases of goods and services from other businesses, and on the cost side dividends and interest originating in the business sector are net of dividends and interest received by business.

The business sector of the economy covers all the firms, organizations, and institutions which produce goods and services for sale at a price intended at least to approximate costs of operation. In the main, it covers all private enterprises organized for profit, both corporate and noncorporate, including farm operators, independent professional practitioners, and lessors of real property. Mutual financial institutions, cooperatives, nonprofit organizations serving business, and owner-occupied houses are also classified in the business sector, as are government enterprises with respect to their purchases and sales on current account.

#### Government Account

The other sectors of the economy are the government, the personal, and the rest of the world. In contrast to the business sphere, for which the account is essentially a profit and loss statement, the accounts of these sectors are merely receipt and expenditure accounts. The receipts represent income and other revenues, rather than sales as in the business account. Similarly, the expenditures constitute purchases for consumption and transfers

to other sectors, rather than the costs of producing for sale (and profit) as in the business account.

The receipts and expenditures account for the government sector of the economy is given in table III. This account shows essentially the consolidated general governmental operations of Federal, State, and local governments, inclusive of social insurance funds. It incorporates also, however, the purchases of government enterprises on capital account, their net interest payments, and their operating surplus or deficit.<sup>9</sup>

<sup>9</sup> To explain how government enterprises are fitted into our economic accounting system, three points must be brought out: (1) the distinction between government enterprise and general government activities; (2) the handling of capital outlays of these enterprises; and (3) the treatment of their interest income and their profits and losses.

(1) The distinction between general government and government enterprises can be readily understood even though it cannot be drawn with theoretical precision. Government enterprises are those agencies of government bodies whose operating costs are at least to a substantial extent covered by the sale of goods and services, in contrast to the general activities of government which are financed by tax revenues and debt creation. Government enterprises, in other words, conduct operations essentially commercial in character even though they perform them under the auspices of the State. The Post Office and public power systems are typical examples of government enterprises. On the other hand, State universities and public parks, where the fees and admissions collected cover only a nominal part of operating costs, are part of general government activities.

This distinction, itself, explains in part why government enterprises are classified as businesses rather than combined entirely with general government. It is so that each of these sectors of the economy will reflect activities as homogeneous as is feasible, given the diversity of the real world that we are confronted with. But more important, it is desirable to consolidate government enterprises with business so that neither the goods they purchase from private business for resale, nor the goods they sell to private business for resale, will be counted twice in the national income and product account.

Table V.—Personal Income and Expenditure Account, 1939

[Millions of dollars]

Personal consumption expenditures:		Wage and salary receipts:	
Purchases of direct services:		Disbursements by:	
Compensation of employees:		Business <sup>3</sup> .....	36, 250
Wages and salaries paid <sup>1</sup> .....	2, 150	Government <sup>1</sup> .....	7, 843
Supplements paid:		Households and institutions <sup>1</sup> .....	2, 150
Employer contributions for social insurance <sup>1</sup> .....	11	Rest of the world <sup>1</sup> .....	2
Other labor income <sup>1</sup> .....	17	Less: Employee contributions for social insurance <sup>6</sup> .....	596
Interest paid <sup>1</sup> .....	801	Other labor income:	
Income originating in and net product of households and institutions.....	2, 979	Business <sup>3</sup> .....	431
Institutional depreciation <sup>2</sup> .....	187	Government <sup>1</sup> .....	87
Gross product of households and institutions.....	3, 166	Households and institutions <sup>1</sup> .....	17
Net purchases from business <sup>3</sup> .....	63, 816	Income of unincorporated enterprises and inventory valuation adjustment <sup>3</sup> .....	11, 282
Net purchases from abroad <sup>4</sup> .....	484	Rental income of persons <sup>3</sup> .....	3, 465
Personal tax and nontax payments <sup>5</sup> .....	2, 440	Dividends <sup>1</sup> .....	3, 796
Personal saving <sup>5</sup> .....	2, 701	Personal interest income <sup>6</sup> .....	5, 417
		Government transfer payments <sup>7</sup> .....	2, 512
		Business transfer payments <sup>7</sup> .....	451
PERSONAL OUTLAY AND SAVING.....	72, 607	PERSONAL INCOME.....	72, 607

<sup>1</sup> Data for other years in table 12.<sup>2</sup> Data for other years in table 5.<sup>3</sup> Data for other years in table 7.<sup>4</sup> Data for other years in table 11.<sup>5</sup> Data for other years in table 3.<sup>6</sup> Data for other years in table 35.<sup>7</sup> Data for other years in table 4.Table VI.—Gross Savings and Investment Account, 1939<sup>1</sup>

[Millions of dollars]

Business purchases on capital account <sup>2</sup> .....	8, 563	Excess of wage accruals over disbursements.....	0
Change in business inventories <sup>2</sup> .....	441	Undistributed corporate profits (domestic) <sup>2</sup> .....	1, 162
Net disinvestment in the United States by rest of world.....	888	Corporate inventory valuation adjustment.....	-714
Government deficit (+) or surplus (-) on income and product transactions.....	1, 867	Statistical discrepancy.....	462
		Capital consumption allowances by private business <sup>2</sup> .....	7, 914
		Foreign branch profits (net) <sup>2</sup> .....	47
		Institutional depreciation.....	187
		Personal saving.....	2, 701
GROSS INVESTMENT AND GOVERNMENT DEFICIT.....	11, 759	GROSS PRIVATE SAVING.....	11, 759

<sup>1</sup> Data for other years in table 5 except as noted.<sup>2</sup> Data for other years in table 7.<sup>3</sup> Data for other years in table 11.

(2) Once government enterprises are classified as businesses, it is necessary to segregate their current expenses from their outlays on fixed capital and the changes in their inventories. The reason is, as with private business, that investment outlays cannot be deducted from sales in obtaining net output for the accounting period but must be reflected in the summation of the total product of the year in question.

In the statistical accounts and tables, however, we have not combined investment by government enterprises with gross domestic investment on private account because we believe that the investment series is more useful analytically when restricted to private outlays. Rather we have included them in general government expenditures. It would be desirable, needless to say, to distinguish all government capital outlays from current government expenditures for goods and services; but, aside from some difficulties of defining government capital, this cannot be done adequately from the available statistical sources.

(3) As just indicated, the classification of government enterprises as businesses involves offsetting their operating expenses against their sales receipts, as in the customary profit and loss statement. In our treatment, the resulting surplus or deficit, calculated without allowance for depreciation, is then consolidated with general government receipts and expenditures.

In order to make the handling of government enterprises with respect to their profits strictly parallel with private business it would be necessary, of course, to add them to other factor costs. Hence, they would appear in the national income just as the profits or losses of private business. This procedure has often been used in national income accounting. We have not adopted it, as yet at least, because of the fact that some transactions of these enterprises have been noncommercial in character, particularly during the war, and have not been separated statistically. It will be recognized, moreover, that even with such an improvement of the source data the rather continuous intrusion of public policy considerations into the operations of government enterprises would leave some doubt as to which treatment should be preferred.

A corollary of the treatment of government enterprise surplus or deficit is that their receipts and payments of interest are combined with other government interest rather than counted as factor costs.

In summary, our handling of the surplus, net interest, and capital outlays of government enterprises results in a consolidated government surplus or deficit which reflects the receipts and expenditures both of general government and of government enterprises.

Social insurance funds consist of government-administered funds established for the benefit of individuals in an employee status. These are the funds set up by the Social Security and Railroad Retirement programs, State health insurance funds, the retirement funds of government employees, and military life insurance funds. Since it is convenient for some purposes to analyze social insurance funds separately from other government operations, the transactions of the former are shown separately in table 10.

#### Foreign Account

The net transactions on current account of the rest of the world with domestic businesses, persons, and governments are given in table IV. The rest of the world covers foreign countries, territories and possessions of the United States, international government organizations, and the United States monetary gold stock. The gold stock is included in this sector because acquisition of gold by the monetary authorities, like the acquisition of foreign exchange, is considered in United States balance of payments statistics as foreign investment.

It may seem strange at first that the "rest of the world" is a sector of the national economy. It will be recalled, however, that the national income and product account relates to the income and product attributable to factors of production supplied by residents of the continental United States. It is necessary to include in an accounting of the national economy, therefore, the earnings of United States residents received from abroad and to exclude earnings of foreigners paid by domestic establishments. Moreover, as the national product is measured in terms of purchases of goods and services, the purchases of United States production by foreigners must be added to domestic purchases in obtaining the national product and the purchases of foreign production by United States producers and consumers must be deducted. These transactions are shown on a net basis in the rest-of-the-world account.

#### Personal Account

The personal income and expenditures account, shown in table V, covers essentially the consuming public. It consists chiefly of individuals in their capacity as income receivers and buyers of consumption goods, but includes also nonprofit institutions serving individuals, private trust funds, and private pension and welfare funds. It should be noted that in the consolidation of the accounts of persons, gifts and other transfers among persons cancel out.

The entries in these four sector accounts show the current account transactions of the economy, with the transactions for each sector on a consolidated basis. A logical and useful extension of this national accounting system would be the construction of the corresponding asset and liability accounts for each sector.

#### Capital Account

The data necessary for so complete a structure of accounts have not yet been developed.<sup>10</sup> Consequently, it has been possible to present a gross saving and investment account only on a consolidated basis for the economy as a whole. This is shown in table VI. The various entries represent changes in the relevant items of assets, liabilities, and surplus arising out of the current production and current flow of income in the accounting period. The account contains, of course, only such capital account items as are made explicit in the framework of our estimates. It does not provide a complete statement of current capital formation from some standpoints since, as has been noted, government capital outlays have not been segregated from total government expenditures and consumer durables are treated as current expenditures rather than as capital investment.

<sup>10</sup> The next annual meeting of the Conference on Research in Income and Wealth will be devoted to the statistical and theoretical problems involved in developing the balance sheet aspects of the national economic accounts.

#### Relation of the Accounts

It may be seen that the current accounts of the sectors and the consolidated capital account constitute an internally consistent and self-contained accounting system for the national economy. This system shows not only the consolidated transactions of each sector of the economy but the relations of the transactions among the accounts. As with any double-entry system, every item in the accounts must appear twice, once as a debit in the account making payment and once as a credit in the account receiving payment. For example, consumers' purchases from business appear as a credit or sale in the current account of business and also as a debit or purchase in the current account of persons. Likewise, business taxes are a debit or payment in the business account and a credit or receipt in the government account. In the case of items of gross savings and investment, the corresponding debit (credit) to each credit (debit) in the four current accounts is to be found in the consolidated capital account and not in the current account of some other sector. Thus, the credit of "sales to business on capital account" in the business account is matched by a debit in the gross saving and investment account. Also, undistributed profits is a debit in the business account and a credit in the consolidated capital account.

As has been indicated, the national income and product account (table I) is designed to summarize the transactions relating to productive activity shown in the current accounts of the four sectors of the economy and their consolidated capital account. In order to derive this summary account it is necessary only that the items taken be restricted to those relating to the product of the economy and that each item be taken once, from the account of the buyer or from that of the seller. The process may be illustrated by showing how the national income and the gross national product can be added up from the five basic accounts.

The national income can be secured by adding either the factor incomes paid out (or retained) by the sectors of the economy or the factor incomes received (or retained) by them. It should be emphasized again that not all items paid out, received, or retained by the various sectors constitute factor income. Only items which are part of the total factor cost of producing the national output constitute factor income. For instance, as is explained below,<sup>11</sup> government interest payments are not regarded as factor income in the definitions used here, but corporate profits taxes are considered as part of corporate profits in their factor cost aspect.

The national income can be secured most readily by adding the factor incomes originating in the sectors of the economy from the debit side of each of the current accounts, as shown at the top of page 7.

<sup>11</sup> See discussion on p. 11 ff.

	<i>Millions of dollars</i>
From the debit side of the business account (table II):	
Wage and salary disbursements.....	36,250
Excess of wage accruals over disbursements.....	0
Employer contributions for social insurance.....	1,330
Other labor income.....	431
Income of unincorporated enterprises and inventory valuation adjustment.....	11,282
Rental income of persons.....	3,465
Corporate profits tax liability.....	1,462
Corporate dividends.....	3,659
Undistributed corporate profits.....	1,162
Corporate inventory valuation adjustment.....	-714
Net interest.....	3,284
From the debit side of the government account (table III):	
Wages and salaries.....	7,343
Employer contributions for social insurance.....	199
Other labor income.....	87
From the debit side of the rest-of-the-world account (table IV):	
Wages and salaries.....	2
Net interest.....	127
Net dividends.....	137
Net branch profits.....	47
From the debit side of the personal account (table V):	
Wages and salaries paid.....	2,150
Employer contributions for social insurance.....	11
Other labor income.....	17
Interest paid.....	801
National income, 1939.....	72,532

The national income can be secured also by adding the factor incomes received by the various sectors of the economy and the retained factor incomes transferred to capital account, as follows:

	<i>Millions of dollars</i>
From the credit side of the personal account (table V):	
Wage and salary receipts:	
Disbursements by business.....	36,250
Disbursements by government.....	7,343
Disbursements by households and institutions.....	2,150
Disbursements by the rest of the world.....	2
Less: Employee contributions for social insurance.....	596
Other labor income from business.....	431
Other labor income from government.....	87
Other labor income from households and institutions.....	17
Income of unincorporated enterprises and inventory valuation adjustment.....	11,282
Rental income of persons.....	3,465
Dividends.....	3,796
Personal interest income.....	5,417
From the credit side of the government account (table III):	
Corporate profits tax accruals.....	1,462
Employee contributions for social insurance.....	596
Employer contributions for social insurance (business).....	1,330
Employer contributions for social insurance (government).....	199
Employer contributions for social insurance (households and institutions).....	11
Less: Net interest paid <sup>12</sup> .....	1,205

<sup>12</sup> In this summation of the national income, interest paid by government must be deducted. The reason for this is that such interest is included in the receipts of the other accounts. As it is not considered to be income arising out of current production, it must be taken out to secure the national income.

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	<i>Millions of dollars</i>
From the credit side of the gross saving and investment account (table VI):	
Excess of wage accruals over disbursements.....	0
Undistributed corporate profits (domestic).....	1,162
Corporate inventory valuation adjustment.....	-714
Foreign branch profits (net).....	47
National income, 1939.....	72,532

In similar manner, the gross national product can be obtained by summing either the gross product originating in the various sectors or the purchases of output by the various sectors.

The following summation shows the purchases of output by the various sectors on both current and capital account:

	<i>Millions of dollars</i>
From the debit side of the personal account (table V):	
Wages and salaries paid.....	2,150
Employer contributions for social insurance.....	11
Other labor income.....	17
Interest paid.....	801
Institutional depreciation.....	187
Net purchases from business.....	63,816
Net purchases from abroad.....	484
From the debit side of the government account (table III):	
Wages and salaries.....	7,343
Employer contributions for social insurance.....	199
Other labor income.....	87
Net purchases from business.....	5,375
Net purchases from abroad.....	64
From the debit side of the gross saving and investment account (table VI):	
Business purchases on capital account.....	8,563
Change in business inventories.....	441
Net disinvestment by rest of world in the United States.....	388

Gross national product or expenditure, 1939..... 90,426

From the standpoint of the sector of origin, the gross national product is secured by taking the total charges incurred in production from the debit sides of the sector accounts, as follows:

	<i>Millions of dollars</i>
From the debit side of the business account (table II):	
Wage and salary disbursements.....	36,250
Excess of wage accruals over disbursements.....	0
Employer contributions for social insurance.....	1,330
Other labor income.....	431
Income of unincorporated enterprises and inventory valuation adjustment.....	11,282
Rental income of persons.....	3,465
Corporate profits tax liability.....	1,462
Corporate dividends.....	3,659
Undistributed corporate profits.....	1,162
Corporate inventory valuation adjustment.....	-714
Net interest.....	3,284
Indirect business tax and nontax liability.....	9,365
Business transfer payments.....	451
Statistical discrepancy.....	462
Less: Subsidies minus current surplus of government enterprises.....	485
Capital consumption allowances.....	7,914
From the debit side of the government account (table III):	
Wages and salaries.....	7,343
Employer contributions for social insurance.....	199
Other labor income.....	87

From the debit side of the rest-of-the-world account (table IV):	Millions of dollars
Wages and salaries.....	2
Net interest.....	127
Net dividends.....	137
Net branch profits.....	47
From the debit side of the personal account (table V):	
Wages and salaries paid.....	2, 150
Employer contributions for social insurance.....	11
Other labor income.....	17
Interest paid.....	801
Institutional depreciation.....	187
Gross national product or expenditure, 1939.....	90, 426

These illustrations do not exhaust the combinations of items that can be taken from the sector accounts to secure the national income or product. Since the accounts are interrelated and are all arithmetical equations, the possible combinations of items that can be made are many. It may be suggested, moreover, that the useful combinations of items are not restricted to those that add up to national income or national product.

The Nation's Economic Budget is an interesting arrangement of the data that has become familiar through its use in the President's annual budget message and his economic reports to the Congress.

### Definitions of Concepts and Terms

With this summary of our general approach, we now present a series of definitions to which our estimates of the national income aggregates and their components conform. The definitions are intended to give concise, accurate descriptions of the coverage of the various series and, at the same time, to call attention to the principal aspects of the series which are not readily apparent from their titles. The definition of each of the national income aggregates should be considered in conjunction with the definitions of its components as the details of the latter are not repeated in the former. The more technical aspects are brought out in the footnotes to the various tables.

A complete description and explanation of the series will be presented in the comprehensive volume now in preparation.

#### I. National Income Aggregates

*National Income* is the aggregate earnings of labor and property which arise from the current production of goods and services by the Nation's economy. Thus, it measures the total factor costs of the goods and services produced by the economy. The Nation's economy in this context refers to the labor and property supplied by residents of the Nation. Earnings are recorded in the forms in which they accrue to residents of the Nation, inclusive of taxes on those earnings. As such, they consist of the compensation of employees, the profits of corporate and unincorporated enterprises, net interest, and the rental income flowing to persons.

*Gross National Product or Expenditure* is the market value of the output of goods and services produced by the Nation's economy, before deduction of depreciation charges and other allowances for business and institutional consumption of durable capital goods. Other business products used up by business in the accounting period are excluded. The Nation's economy in this context refers to the labor and property supplied by residents of the Nation. Gross national product comprises the purchases of goods and services by consumers and government, gross private domestic investment, and net foreign investment.

*Net National Product or Expenditure* is the market value of the net output of goods and services produced by the Nation's economy. All business products used up by business in the accounting period are excluded to avoid duplication. The Nation's economy in this context refers to the labor and property supplied by residents of the Nation. Net national product comprises the purchases of goods and services by consumers and government, net private domestic investment, and net foreign investment.

*Personal Income* is the current income received by persons from all sources, inclusive of transfers from government and business but exclusive of transfers among persons. Not only individuals (including owners of unincorporated enterprises), but nonprofit institutions, private trust funds, and private pension and welfare funds are classified as "persons." Personal income is measured as the sum of wage and salary receipts, other labor income, proprietors' and rental income, interest and dividends, and transfer payments.

*Disposable Income* is the income remaining to persons after deduction of personal tax and other payments to general government.

#### II. Components of National Income and Product Aggregates

##### A. National Income (as in table 1).

*Compensation of Employees* is the income accruing to persons in an employee status as remuneration for their work. From the employer's standpoint, it is the direct cost of employing labor. It is the sum of *wages and salaries* and *supplements to wages and salaries*.

*Wages and Salaries* consists of the monetary remuneration of employees commonly regarded as wages and salaries, inclusive of executives' compensation, commissions, tips, and bonuses, and of payments in kind which represent income to the recipients.

*Supplements to Wages and Salaries* is the monetary compensation of employees not commonly regarded as wages and salaries. It consists of employer contributions for social insurance, employer contributions to private pension and welfare funds, compensation for injuries, directors' fees, pay of the military reserve, and a few other minor items of labor income.



*Income of Unincorporated Enterprises* measures the monetary earnings and income in kind of sole proprietorships, partnerships, and producers' cooperatives from their current business operations—other than the supplementary income of individuals derived from renting property. As with *corporate profits*, capital gains and losses are excluded and no deduction is made for depletion.

*Inventory Valuation Adjustment* measures the excess of the value of the change in the volume of nonfarm business inventories, valued at average prices during the period, over the change in the book value of nonfarm inventories.<sup>13</sup> This adjustment is required because corporate profits and income of unincorporated enterprises are taken inclusive of inventory profit or loss, as is customary in business accounting, whereas only the value of the real change in inventories is counted as current output in the national product. No valuation adjustment is required for farm inventories because farm income is measured exclusive of inventory profits.

*Rental Income of Persons* consists of the monetary earnings of persons from the rental of real property, except those of persons primarily engaged in the real estate business; the imputed net rental returns to owner-occupants of nonfarm dwellings; and the royalties received by persons from patents, copyrights, and rights to natural resources.

*Corporate Profits before Tax* is the earnings of corporations organized for profit which accrue to residents of the Nation, measured before Federal and State profit taxes, without deduction of depletion charges and exclusive of capital gains and losses. Profits accruing to residents are measured by eliminating intercorporate dividends from profits of domestic corporations and by adding the net receipts of dividends and branch profits from abroad. In other respects, the definition of profits is in accordance with Federal income tax regulations.

*Corporate Profits Tax Liability* comprises Federal and State taxes levied on corporate earnings. Disbursements of tax refunds are deducted from tax liability in the year in which the tax liability was incurred.

*Net Interest* measures the monetary interest and imputed interest accruing to the Nation's residents from private business and from abroad, minus government interest disbursements to corporations. *Imputed interest* consists of the value of financial services received by persons without explicit payment and property income withheld by life insurance companies and mutual financial intermediaries on the account of persons. As government interest paid to corporations appears as part of corporate profits, it is deducted in computing net interest to prevent its inclusion in the national income.

B. *Gross National Product* (as in table 2).

*Personal Consumption Expenditures* consists of the market value of purchases of goods and services by individuals and nonprofit institutions and the value of food, clothing, housing, and financial services received by them as income in kind. It includes the rental value of owner-occupied houses but does not include purchases of dwellings, which are classified as capital goods.

*Gross Private Domestic Investment* consists of acquisitions of newly produced capital goods by private business and nonprofit institutions and of the value of the change in the volume of inventories held by them. It covers all private new dwellings, including those acquired by owner-occupants.

*Net Foreign Investment* is the net change in international assets and liabilities, including the monetary gold stock, arising out of the current international flows of goods and services, factor incomes, and cash gifts and contributions. Thus it measures the excess of (1) domestic output sold abroad over purchases of foreign output, (2) production abroad credited to United States-owned resources over production at home credited to foreign-owned resources, and (3) cash gifts and contributions received from abroad over cash gifts and contributions to foreigners. The net transfer of cash gifts and contributions offsets corresponding entries in *personal consumption expenditures* and *government purchases of goods and services*.

*Government Purchases of Goods and Services* measures purchases of goods and services by government bodies, exclusive of acquisitions of land and used depreciable assets and of current outlays of government enterprises. It consists of general government expenditures for compensation of employees, purchases from business (net of sales by government of consumption goods and materials), net government purchases from abroad and international contributions, and the gross investment of government enterprises. Therefore, *government purchases of goods and services* excludes transfer payments, government interest, and subsidies, as well as loans and other financial transfers outside the scope of income and product transactions.

C. *Personal Income and Disposition of Income* (as in table 3).

*Wage and Salary Receipts* is equal to *wages and salaries* less employee contributions for social insurance, except that retroactive wages are counted when paid rather than when earned.

*Proprietors' and Rental Income* is the sum of *income of unincorporated enterprises* and *inventory valuation adjustment* and *rental income of persons* as given in the components of national income.

*Personal Interest Income* measures the monetary interest and the imputed interest accruing to individuals and nonprofit institutions. *Imputed interest* consists of the value of financial services received by persons without

<sup>13</sup> See Simon Kuznets, *Changing Inventory Valuations and Their Effect on Business Savings and on National Income Produced*, Conference on Research in Income and Wealth, vol. 1, National Bureau of Economic Research, 1937.

explicit payment and property income withheld by life insurance companies and mutual financial intermediaries on the account of persons.

*Transfer Payments* consists of monetary income receipts of individuals from government and business (other than government interest) for which no services are rendered currently, of government payments and corporate gifts to nonprofit institutions, and of individuals' bad debts to business.

*Personal Tax and Nontax Payments* consists of the taxes levied against individuals, their income, and their property that are not deductible as expenses of business operations, and of other general government revenues from individuals in their personal capacity. It includes payments for such specific services as are provided within the framework of general government activity. It excludes, however, purchases from government enterprises. Tax refunds are deducted from payments at the time of refund.

*Personal Consumption Expenditures* is the same as in gross national product.

*Personal Saving* is the excess of personal income over personal consumption expenditures and taxes and other payments to general government. It consists of the current saving of individuals (including owners of unincorporated businesses), nonprofit institutions, and private pension, welfare, and trust funds. Personal saving may be in such forms as changes in cash and deposits, security holdings, indebtedness, and reserves of life insurance companies and mutual savings institutions, the net investment of unincorporated enterprises, and the acquisition of real property net of depreciation.

#### D. Reconciliation Items Between National Income and Gross National Product (as in table 4).

*Depreciation Charges* represents the charges made by private business against receipts for the current consumption of durable capital goods and comparable allowances for nonprofit institutions. It includes depreciation charges against owner-occupied houses. Depreciation reported by business is not adjusted for changes in the replacement value of capital goods, except for farm enterprises.

*Accidental Damage to Fixed Capital* measures the value of the physical losses by fire, natural events, and other accidents to fixed capital of private business, not covered by depreciation charges.

*Capital Outlays Charged to Current Expense* represents the purchases of new durable capital goods included in gross private domestic investment that are charged as current expense by business rather than entered on capital account.

*Indirect Business Tax and Nontax Liability* consists of tax liabilities incurred by businesses, except corporate income taxes, and other general government revenues from business. It includes all sales taxes. It includes

payments for such specific services as are provided within the framework of general government activity. It excludes, however, purchases from government enterprises. Government receipts from the sale of surplus property are not included in this item. Tax liabilities are net of refunds.

#### *Subsidies Minus Current Surplus of Government Enterprises:*

*Subsidies* are the monetary aids provided by government to private business.

*Current surplus of government enterprises* represents the excess of sales receipts over current operating costs of government enterprises. In the calculation of the current surplus, no deduction is made for charges to depreciation or other reserves and interest is not counted in either receipts or costs.

*Subsidies* and *current surplus* are shown as a single item because of the difficulties involved in segregating subsidies paid through Federal Government enterprises from other expenditures of these enterprises.

*Statistical Discrepancy* is the excess of the value of the estimated gross national product computed by the final products method over its independently estimated value computed by adding necessary conceptual adjustments to the national income.

#### Terminology Used

Before discussion of the changes from our previous estimates that are implicit in the definitions just given, a few comments on terminology seem appropriate.

While the term "national income statistics" has come to be used to designate the entire field of statistics embracing value measures of the income and product of the economy, "national income" is also widely used as the title of a specific statistical series. We have followed this practice and utilized "national income" to designate total factor costs of current output.

It will be noted that we use the terms "national income" and "net national product" to designate the current production of the economy at factor cost and at market value, respectively.<sup>14</sup> Some technicians prefer to use the single term "national income" but to modify it by the phrases "at factor cost" and "at market value" to distinguish between what we call national income and net national product. We prefer our terminology because we have found that the nontechnician more readily distinguishes the two concepts by visualizing the national income as a summation of factor incomes and the national product as a summation of goods and services produced.

As to gross national product or expenditure, this term is used to designate the market value of current output before deduction of allowances for capital consumption. While the gross national product is a somewhat arbitrary

<sup>14</sup> With regard to the theoretical distinction between the two concepts, see the stimulating and original article by Prof. J. R. Hicks, *The Valuation of the Social Income*, in *Economica*, 1940.

measure from a theoretical standpoint, depending as it does upon what categories of goods one chooses to call durable capital, it has the advantage of being more precise statistically than the net national product. The latter is theoretically preferable when defined as the amount of production that could be consumed without impairing the stock of capital. It suffers, however, from the serious obstacle that there is no satisfactory operational definition of the consumption of fixed capital.<sup>15</sup> We measure capital consumption charges merely in a way required to reconcile the income and product sides of the national income and product account. The estimates of depreciation charges used are, in the main, business allowances for depreciation for tax purposes. In the light of the basic general difficulty of measuring capital consumption, accounting depreciation charges have not been revalued to reflect changes in the current prices of capital goods, though such revaluation is indicated on conceptual grounds.

The net national product has been incorporated into the definitions and illustrative tables of the report primarily to help clarify the nature of the concepts of national income and gross national product. We do not intend to feature the net national product regularly in summary public releases because the addition of one more series to the other basic aggregates would probably be more confusing than helpful to those who are interested primarily in following broad changes in economic conditions. All the data for its computation will be available to technicians who may prefer the concept for certain analytical work.

Another matter of terminology that should be noted is that the name of the series "income payments to individuals" has been changed to "personal income." The main reason for this change is that the latter term seems more appropriate for an aggregate that includes, as previously, such items as income in kind, income of proprietors, and rental income to which no explicit cash payments correspond. Unfortunately, we have not been able to find a descriptive title for the series which at the same time would draw attention to another of its characteristics, namely, that it covers nonprofit institutions and private pension, welfare, and trust funds as well as individuals proper.

For the convenience of those who want an income total that is closer to a cash basis, the major items of income and expenditure in kind that are included in personal income and personal consumption expenditures are shown in table 39.

In connection with the data on personal income, we call attention to the fact that the monthly series and its components will henceforth be issued in the form of seasonally adjusted annual rates rather than as index

numbers.<sup>16</sup> The use of annual rates of income has a great advantage over indexes in that the components of income for each month add to the income total and in that the monthly series are more easily compared with annual data. In addition, this technique eliminates the need for base periods which seem inevitably to gather an aura of normality. The unadjusted data on personal income will be issued quarterly rather than monthly.

### Changes in Content of National Income Aggregates

As stated earlier, the content of the national income and product aggregates in this report differs in several respects from the estimates previously issued by the Department of Commerce. The conceptual changes which should be taken into account in weighing the meaning of the various aggregates are the following:

1. Interest payments on government debt have been eliminated from the national income and product. This change is designed to make the aggregates conform better to the commonly accepted idea of current production. As the bulk of government debt was created to finance wars and current expenditures, most writers in the national income field believe that interest on such debt does not represent currently produced goods and services or the current use of economic resources. For example, it seems sensible that a comparison of the pre-war and postwar volume of production should not be distorted by the continuing interest on the national debt that arose during the war.

Some measure of the current services of durable capital used by public authorities (and, indeed, of consumers' durables, in addition to housing) might be included in national income and product for some purposes. It is highly questionable, however, that interest paid on the debt incurred to acquire government capital would provide an appropriate measure of such imputed income and product.

2. Imputed net rent on owner-occupied dwellings has been added to national income and product and to personal income. It is generally agreed that this change should be made to provide comparable treatment between rented and owner-occupied housing.

As a corollary to the inclusion of imputed net rent, depreciation and taxes on owner-occupied dwellings have been added to the consumer expenditure component of the gross national product.

3. Corporate profits before taxes have been included in the national income rather than profits after taxes. This change has been made so that the national income will more accurately reflect factor costs of current production, which is the basic idea used in defining national income. It means that all factor incomes are now included in the national income before taxes levied on income.

<sup>15</sup> For a comprehensive study of capital consumption, see Solomon Fabricant, *Capital Consumption and Adjustment*, National Bureau of Economic Research, 1938. See also Wendell D. Hance, *Adequacy of Estimates Available for Computing Net Capital Formation*, in *Studies in Income and Wealth* (vol. 6), National Bureau of Economic Research, 1943.

<sup>16</sup> The revised monthly series for the period 1929-46 on this basis are presented in table 48.

The rationale for the inclusion of corporate profits before taxes must rest ultimately, of course, on the incidence of taxes on profits. Although this question probably cannot be settled definitively, the weight of theoretical and statistical evidence is that changes in corporate profit tax rates affect profits after taxes more significantly than prices of output. Certainly, the high proportion of profits taken in taxes during the war period meant a substantial reduction in the income accruing to stockholders. In addition, the carry-back and carry-forward provisions of the corporate tax law make each year's taxes partly dependent upon events in other years. This introduces an increasingly arbitrary element into profits after taxes, and virtually necessitates the use of profits before taxes in any measure, like national income, that relates to current production.

It should be emphasized that the inclusion of profits taxes in the national income in no way implies that they directly benefit stockholders. This applies, of course, to taxes levied on all the distributive shares of national income—they cannot be used directly as measures of benefits to the recipients of those shares.

4. National income has been computed without deduction of allowances for depletion. This change affects both corporate profits and unincorporated business income. It is required because the value of new discoveries of natural resources is not counted as part of gross capital formation, or of profits in the year of discovery, and consequently deduction of a capital consumption charge for impairment of the stock of natural resources would be inappropriate.

5. The inventory valuation adjustment has been incorporated into the national income in order to secure conceptual comparability with the national product. We have hesitated until now to make this change because of the difficulty of preparing adequate estimates—particularly on an industry basis. While this difficulty still remains, we have thoroughly reworked the estimates industry by industry and now feel that whatever statistical inaccuracies remain are a lesser evil than the continued conceptual inconsistency of excluding the adjustment from the national income. It will be noted that we have presented the data so that the user, according to his needs or preference, can readily obtain profit estimates either with or without this adjustment.

6. National income and product have been revised to include income in kind received by the armed forces, the Government's contribution to military life insurance funds, and the Government's contribution to family allowances to dependents of enlisted personnel. Income in kind comprises the value of food consumed by the armed forces and of issues of personal clothing. The purpose of these changes is to make the measurement of military income conform more closely to the measurement of income for civilian labor.<sup>17</sup>

<sup>17</sup> Bonuses and other deferred payments (e. g., mustering-out pay, adjusted service compensation, and payments under the GI bill) are in many respects similar to items

Personal income has been revised to include military income in kind in conformity with the change in national income. Benefit payments from military life insurance funds have been added to personal income and premiums paid to the funds deducted. These changes follow from the fact that military life insurance funds are now classified as social insurance funds, whereas in the former income payments series they were handled like private life insurance. No change was required in respect to the Government's contribution to family allowances, as this item was included as a transfer payment in our previous income payments series.

One other change, of minor importance, might be noted here. Military retirement pay, formerly counted as a supplement to wages and salaries, has been classified as a transfer payment. It is, therefore, no longer included in the national income and national product. It seemed desirable to include this item in the broad category of military pension, disability, and retirement payments.

7. Government subsidies paid to private enterprises have been eliminated from the national product. This change has been made so that the national product will consistently measure the purchases of goods and services valued at their market prices. With this definition of national product, the inclusion of subsidies would involve the artificial assumption that the Government, in paying a subsidy, is in effect purchasing goods or services.

8. The value of the services of banks and other financial intermediaries rendered to persons without the assessment of specific charges are regarded as imputed interest (income in kind) accruing to persons.<sup>18</sup> This item is included in the national income and product and in personal income both because it represents a real element of income and product in the national economy and because it permits a sensible solution to the problem of allocating the national income by industries. While alternatives from the latter standpoint are possible, we believe the imputation of interest to the depositors of banks conforms most closely with economic reality.<sup>19</sup>

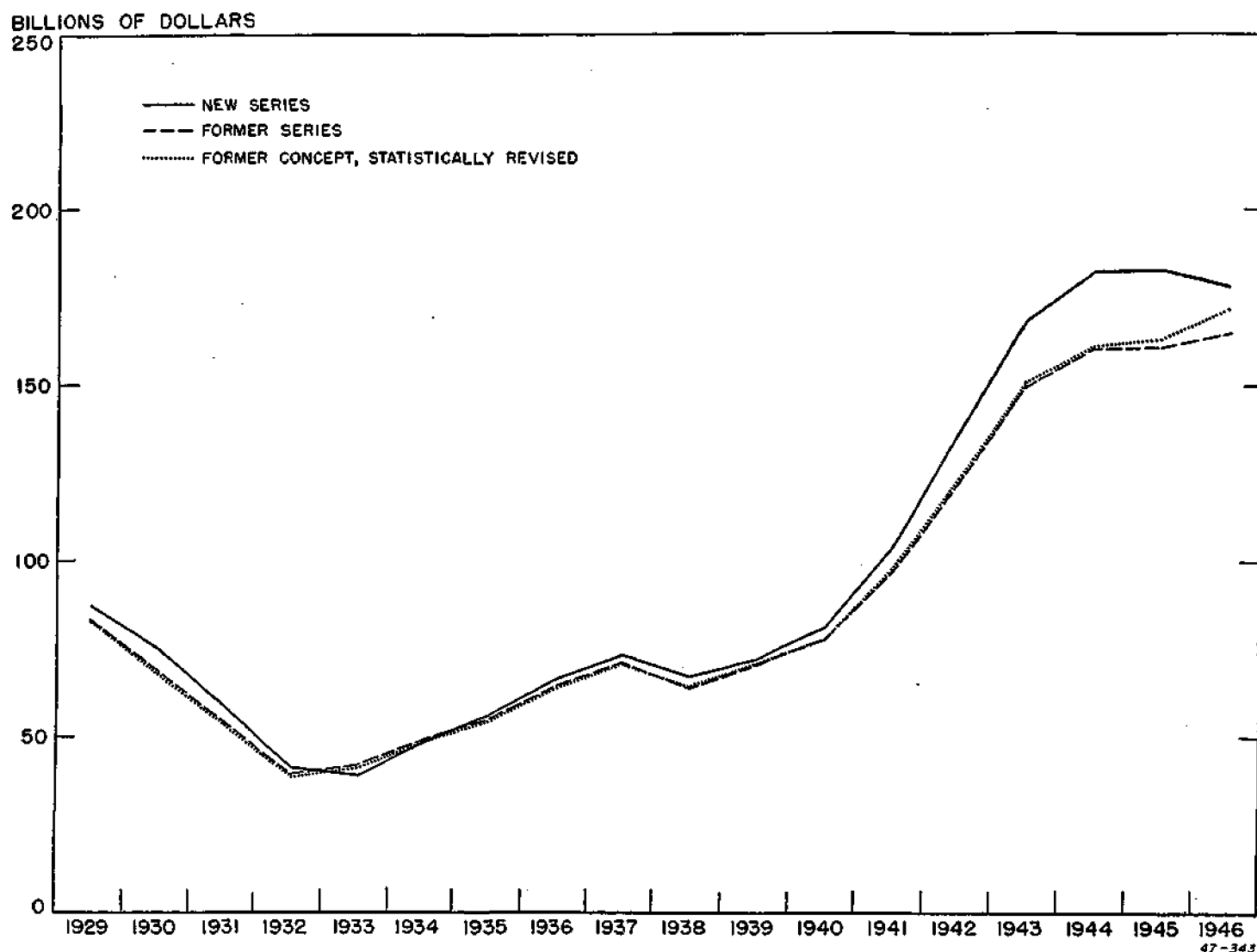
Formerly the expedient used in this connection was to assume that all long-term interest originating in the economy, except government interest received by non-financial corporations, accrued to persons and that short-term interest accurately reflected inter-business interest payments. These assumptions have been abandoned in

included in the national income, but since the timing of the payment is not synchronized with the performance of military duty it seemed best to handle them as transfer payments.

<sup>18</sup> It should be noted that not all "imputed interest" shown in table 37 is of this nature. Much of it represents interest received by life insurance companies and mutual financial institutions in behalf of individuals but not paid out to them as cash interest in the current period.

<sup>19</sup> For discussion of the treatment of financial intermediaries, see the paper by Dwight B. Yntema presented to the Conference on Research in Income and Wealth, Treatment of Financial Intermediaries (mimeographed). This paper will shortly be published in Vol. 10 of the Conference Studies by the National Bureau of Economic Research. For an alternative method of measuring income originating in banking see M. A. Copeland, Some Problems in the Theory of National Income, *Journal of Political Economy*, February 1932.

Chart 1. - NATIONAL INCOME, 1929-1946



favor of actual measurement of both monetary interest flows and imputed interest arising in financial intermediaries.

9. Employer contributions to private pension and welfare plans have been substituted for benefit payments under such plans in national income and personal income. These plans have grown so greatly during the past five years that the previous assumption that benefit payments and contributions are roughly the same magnitude has become artificial. Thus, the change is designed to make the estimates of national income and of supplements to wages and salaries more accurate. This change means that private pension plans are treated in personal income like private life insurance companies. This is particularly desirable in view of the fact that many of these plans are administered by life insurance companies.

10. The change in farm inventories of crops not held for sale, positive or negative, has been added to national income, national product, and personal income. Former-

ly, the definition of the change in farm inventories was restricted to total livestock and crops held for sale. This addition, which is quantitatively important in some years, was made to obtain complete coverage of goods-in-process inventories in the private business system.

11. Business transfer payments have been included in personal income. Such payments were previously neglected essentially for statistical reasons but now have been estimated to effect a better reconciliation of the accounts for the sectors of the economy.

#### Comparison With Former Estimates

In all, the result of the revisions has been to increase the levels of the national income, personal income, and gross national product. The magnitude of the increases over the whole period is indicated in the charts while the precise effects of the various changes in each year are shown by the reconciliation of our old and new esti-

mates in table VII. It may be seen that the increases in the aggregates are substantially accounted for by the changes in concepts that have been listed. As the most important of these changes concerned items which expanded substantially during the war, they exert the greatest effect in raising the new series during the war years. The three items of military income—income in kind to the armed forces, the Government's contribution to military life insurance funds, and the Government's contribution to family allowances—which account for a large part of the addition to the national income and gross national product in 1945, were negligible in 1939. The level of the national income since 1941 is also raised considerably by the inclusion of corporate profits before taxes rather than profits after taxes, particularly during the period of high excess-profits taxes. The

revisions in the aggregates arising from purely statistical changes are generally fairly small on balance.

The most important statistical revision has been in consumer expenditures, arising principally from a fundamental change in the estimating procedure for this component of national product. Those familiar with the details of our previous estimates will recall that the gross national product for the period before the war was computed from the income side of the national account by adding the necessary adjustment items to the national income. In the filling in of the product side of the account, consumer expenditures were obtained as a residual, as direct estimates of this component were not then available.<sup>20</sup> In our present esti-

<sup>20</sup> For the period after 1939 the estimates of consumer expenditures were obtained by extrapolating the 1939 residual on the basis of retail trade and other information relating to consumers' purchases. Hence, the estimates for this period were independent as to movement but not as to level.

Table VII.—Reconciliation of New and Old Series of Gross National Product, National Income, and Personal Income, 1929-46<sup>1</sup>  
(Billions of dollars)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946
Gross national product (new series)	103.8	90.9	75.9	58.3	55.8	64.9	72.2	84.7	90.2	84.7	90.4	100.5	125.3	159.6	192.6	210.6	213.1	203.7
Less items in new series, but not in old:																		
Net imputed rent of owner-occupied dwellings	2.8	2.5	2.1	1.6	1.2	.9	.9	1.0	1.2	1.4	1.5	1.5	1.7	2.0	2.4	2.7	3.0	2.9
Depreciation of owner-occupied dwellings	1.0	1.0	1.0	.9	.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.3	1.3	1.4	1.5
Taxes on owner-occupied dwellings	1.0	1.1	1.0	1.0	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	1.0	1.0	1.1	1.2
Institutional depreciation	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
Change in farm inventories not held for sale	-.1	-.3	.2	(2)	-.2	-.7	.4	1.4	.8	.1	(2)	.2	.2	.4	-.7	-.2	(2)	.3
Construction expenditures for crude petroleum and natural gas drilling	.3	.3	.1	.2	.1	.2	.2	.3	.4	.4	.4	.4	.4	.8	.3	.5	.6	.7
Income in kind to armed forces	.1	.1	(2)	(2)	(2)	(2)	(2)	.1	.1	.1	.1	.1	.4	1.4	2.7	3.8	4.1	1.4
Government's contribution to military family allowances														.1	1.0	2.5	2.9	.7
Government's contribution to military life insurance funds	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	.3	1.3	1.6
Plus items in old series, but not in new:																		
Government interest payments	1.0	1.0	1.1	1.1	1.2	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.5	2.1	2.8	3.7	4.5
Subsidies minus current surplus of government enterprises	-.1	-.1	(2)	(2)	(2)	.3	.4	(2)	.1	.2	.5	.4	.1	.2	.2	.7	.8	.8
Military retirement payments	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	.1	.1	.1	(2)	.1	.1	.1	.1
Equals: Former concept, statistically revised <sup>2</sup>	99.4	86.9	72.8	55.6	53.9	63.6	70.0	81.0	87.4	82.0	88.2	97.9	121.8	154.7	186.8	201.9	203.1	193.7
Less: Gross national product (former series)	99.4	88.2	72.1	55.4	54.3	63.8	70.8	81.7	87.7	80.6	88.6	97.1	120.2	152.3	187.4	197.6	190.2	194.0
Equals: Statistical revision		-1.3	.2	.1	-.9	-.2	-.8	-.7	-.3	1.4	-.4	.8	1.6	2.4	-.6	4.3	3.9	4.7
National income (new series)	87.4	75.0	58.9	41.7	39.6	48.6	56.3	66.9	73.6	67.4	72.5	81.3	103.8	136.5	168.3	182.3	182.8	178.2
Less items in new series, but not in old:																		
Corporate profits taxes	1.4	.8	.5	.4	.5	.7	1.0	1.4	1.5	1.0	1.5	2.9	7.8	11.7	14.2	13.9	11.3	8.6
Depletion charges	.6	.5	.3	.3	.3	.3	.4	.4	.5	.4	.5	.6	.6	.6	.7	.7	.6	.6
Net imputed rent of owner-occupied dwellings	2.8	2.5	2.1	1.6	1.2	.9	.9	1.0	1.2	1.4	1.5	1.5	1.7	2.0	2.4	2.7	3.0	2.9
Change in farm inventories not held for sale	-.1	-.3	.2	(2)	-.2	-.7	.4	1.4	.8	.1	(2)	.2	.2	.4	-.7	-.2	(2)	.3
Employer contributions to private pension and welfare funds	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1	.2	.2	.2	.2	.4	.7	.8	.9
Income in kind to armed forces	.1	.1	(2)	(2)	(2)	(2)	(2)	.1	.1	.1	.1	.1	.4	1.4	2.7	3.8	4.1	1.4
Government's contribution to military family allowances														.1	1.0	2.5	2.9	.7
Government's contribution to military life insurance funds	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	.3	1.3	1.6
Inventory valuation adjustment	.6	4.0	3.0	1.3	-2.7	-.7	-.3	-.9	-.1	1.2	-.9	-.2	-3.3	-1.6	-1.0	-.4	-.6	-6.0
Plus items in old series, but not in new:																		
Government interest payments	1.0	1.0	1.1	1.1	1.2	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.5	2.1	2.8	3.7	4.5
Private pension payments	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
Military retirement payments	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	.1	.1	.1	(2)	.1	.1	.1	.1
Equals: Former concept, statistically revised <sup>2</sup>	83.0	68.3	53.8	39.2	41.7	49.2	55.5	64.5	71.3	64.3	71.2	77.7	97.7	123.3	150.9	161.2	163.3	171.9
Less: National income (former series)	83.3	68.9	54.5	40.0	42.3	49.5	55.7	64.9	71.5	64.2	70.8	77.6	96.9	122.2	149.4	160.7	161.0	165.0
Equals: Statistical revision		-.6	-.7	-.8	-.6	-.3	-.2	-.4	-.2	.1	.4	.8	1.1	1.1	1.5	.5	2.3	6.9
Personal income (new series)	85.1	76.2	64.8	49.3	46.6	53.2	59.9	70.6	74.0	68.3	72.6	78.3	95.3	122.2	149.4	164.9	171.6	177.2
Less items in new series, but not in old:																		
Noncorporate depletion charges	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Net imputed rent of owner-occupied dwellings	2.8	2.5	2.1	1.6	1.2	.9	.9	1.0	1.2	1.4	1.5	1.5	1.7	2.0	2.4	2.7	3.0	2.9
Change in farm inventories not held for sale	-.1	-.3	.2	(2)	-.2	-.7	.4	1.4	.8	.1	(2)	.2	.2	.4	-.7	-.2	(2)	.3
Employer contributions to private pension and welfare funds	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1	.2	.2	.2	.2	.4	.7	.8	.9
Income in kind to armed forces	.1	.1	(2)	(2)	(2)	(2)	(2)	.1	.1	.1	.1	.1	.4	1.4	2.7	3.8	4.1	1.4
Government military life insurance benefits	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	.1	.1	.1	.1	.1	.1	.3	.3
Business transfer payments	.6	.5	.6	.7	.6	.6	.6	.6	.6	.6	.5	.4	.5	.5	.5	.5	.5	.5
Inventory valuation adjustment (noncorporate)	.1	.8	.6	.3	-.5	-.1	-.1	-.1	(2)	.2	-.2	-.1	-.6	-.4	-.1	-.1	-.1	-1.3
Plus items in old series, but not in new:																		
Premiums to military life insurance funds	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.6	.9	1.0	.6
Private pension payments	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
Equals: Former concept, statistically revised <sup>2</sup>	81.7	72.6	61.3	46.6	45.5	52.3	57.9	67.6	71.9	66.1	70.7	76.1	93.1	118.1	145.0	158.3	164.1	173.0
Less: Income payments to individuals (former series)	82.6	73.3	62.0	47.4	46.3	52.9	58.8	68.1	72.4	66.2	70.8	76.2	92.7	117.3	143.1	156.8	160.8	165.1
Equals: Statistical revision		-.9	-.7	-.8	-.8	-.6	-.7	-.5	-.5	-.1	-.1	-.1	.4	.8	1.9	1.5	3.3	7.9

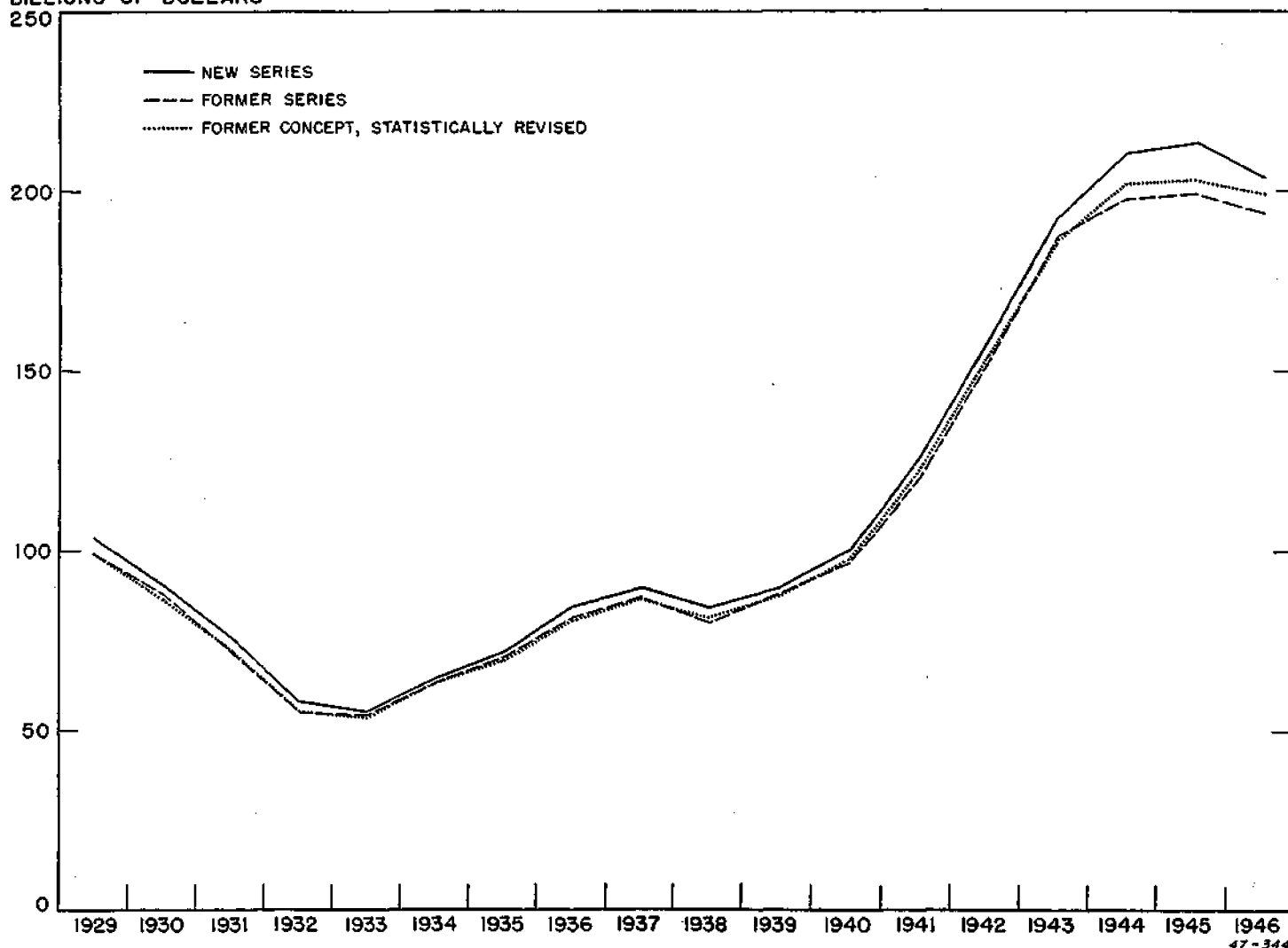
<sup>1</sup> Detail will not necessarily add to totals because of rounding.

<sup>2</sup> No entries for private interest have been included in this table because the effect upon the series of changes in statistical procedures cannot be distinguished from that of the conceptual clarification of the estimates.

<sup>3</sup> Less than \$50,000,000.

## Chart 2.- GROSS NATIONAL PRODUCT, 1929-1946

BILLIONS OF DOLLARS



mates, however, all the items on both sides of the account are obtained independently. As was indicated by the data in earlier articles,<sup>21</sup> the direct estimates of consumer expenditures have proved to be significantly higher than the previous residual estimates—quite apart from definitional differences.

Since the major changes introduced into this revised body of national income statistics are due to differences in definitions, they do not in general alter the quantitative ideas about the American economy that have become familiar on the basis of our previous estimates. This is not to overlook the inconvenience involved in adjusting one's thinking to a new set of definitions and numerical values.

Special comment should be made, however, on the estimates of personal saving. The new estimates run at a considerably lower level than our previously published series. While the change is partly due to dif-

ferences in concept, the greater part arises from the fact that, in obtaining personal saving as a residual from disposable income, a higher level of consumer expenditures is subtracted than was formerly the case.

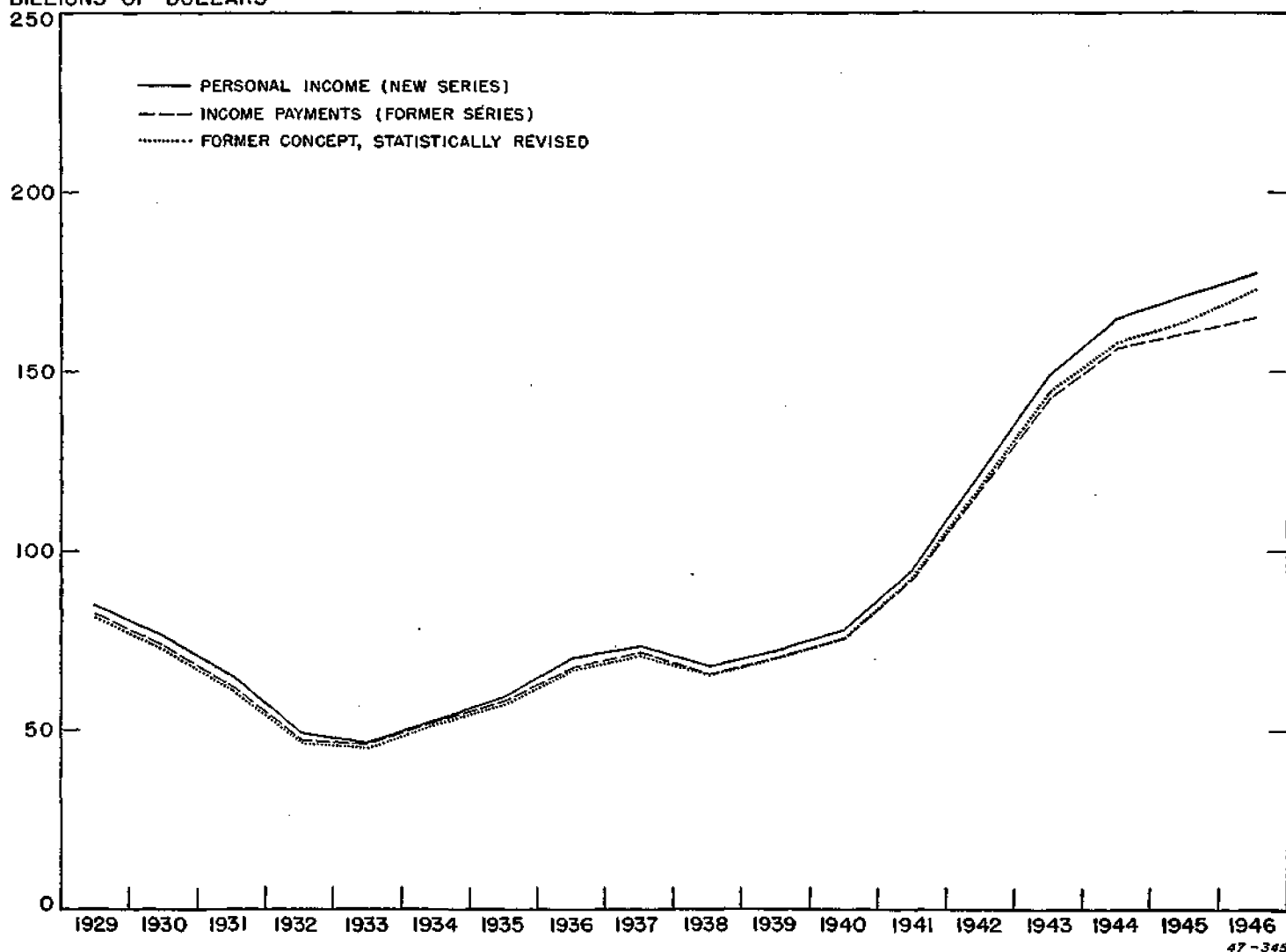
It should be emphasized that the personal saving estimates of the Department of Commerce are obtained as residuals and hence are subject to errors in the various statistical series from which they are derived. In view of the rather substantial difference in level between these estimates and the results of several earlier investigations, we should like to explore some of the problems involved in assessing the accuracy of the Commerce personal saving estimates.

In any comparison of the general level of personal saving shown in this report with earlier estimates, it is first necessary that the differences in the concepts of saving employed be fully recognized. Our concept implies a quite complete measurement of personal saving from an economic standpoint, in contrast to various other

<sup>21</sup> SURVEY OF CURRENT BUSINESS, April 1942, October 1942, and June 1944.

Chart 3.—PERSONAL INCOME AND INCOME PAYMENTS, 1929-1946

BILLIONS OF DOLLARS



estimates that have not attempted to measure all types of saving on a net basis. In addition to the types of liquid assets that readily come to mind in estimating personal saving, such as changes in cash and deposits, in life insurance reserves, in building association reserves, in security holdings, and in consumer debt, our concept includes the direct investment of individuals in housing and the direct investment of owners of unincorporated enterprises in real property, equipment, and inventories. Moreover, in our definition of personal saving, the depreciation of houses owned by individuals and of capital owned by unincorporated enterprises is counted as negative saving. Similarly, declines in inventories of unincorporated enterprises constitute negative saving. Also, our definition of saving is net of capital gains and losses and of the financial costs of acquiring property or securities—important points in considering the net saving figure for a year like 1929. These conceptual points considerably narrow the differences between our estimates and those of certain other investigators. As

compared with our own previous estimates, our new series is conceptually lower by depreciation on owner-occupied homes and on the property of nonprofit institutions, by the noncorporate inventory valuation adjustment, and by the change in farm inventories of crops not held for sale. The two last-named items, which may be positive or negative, significantly affect the year-to-year movement of personal saving.

We turn now to the more statistical aspects of the estimates. What is presented in this report is not a single estimate of personal saving for any given year but three estimates that are derived by largely independent methods. One is the residual estimate obtained from the data on personal income and its disposition, as shown in table 3, to which the "personal saving" label is attached. Concerning this series it need only be said that the components of personal income, taxes, and expenditures have been more carefully defined and the statistics more meticulously compiled than has previously been the case in national income estimation.



Another estimate of personal saving can be derived from our accounts as a residual from the data on sources and uses of gross saving given in table 5. It will be seen that most of the items in table 5 are statistically independent of the items in table 3 and that the former yield alternative estimates of "personal saving" equal to that item plus the statistical discrepancy.<sup>22</sup> So long as the statistical discrepancy remains small, there must be some presumption that the true figure for personal saving is approximately indicated by the estimates. For this not to be the case would imply a somewhat unlikely combination of errors in the two tables. For example, for personal saving to be appreciably higher in the decade before the war, it would be necessary not only that income be higher or expenditures lower than they are shown to be in table 3 but also that gross capital investment be higher or gross business saving and government surplus lower than shown in table 5.

A third method of deriving personal saving in this report is the direct estimation of changes in the various assets and liabilities of persons. A virtually complete reconciliation of the familiar Securities and Exchange Commission estimates with those of the Department of Commerce is shown for the first time. These data were prepared by the research staff of the Securities and Exchange Commission and are shown in table 6. The reconciliation items represent, in the main, types of personal saving measured by changes in the relevant assets or liabilities.

We feel that the similarity in both levels and movements of the estimates of saving derived by these three methods is striking in view of the fact that the basic data involved in each are so largely independent. For

<sup>22</sup> This series ("personal saving" plus "statistical discrepancy") is also the saving series which would be obtained if the double-residual method formerly used for the decade of the thirties—obtaining personal consumption expenditures by deducting other gross national product components from the gross national product aggregate obtained from the income side, and deducting personal consumption expenditures from disposable income—were applied with our revised estimates.

example, the cumulative difference between the direct estimates of saving in table 6 and the residuals in table 3 for the period from 1933<sup>23</sup> to 1946 amounts to only 0.2 billion dollars per annum, while the cumulative discrepancy in the two series derived from the national income and product accounts from 1929 to 1946 amounts to only 0.6 billion dollars per annum.

While we have found these considerations impressive, we are aware that the saving estimates, or other data in this report, may be modified by future research. In particular, as national income statistics do not rest upon the foundation of a consistently conceived statistical program designed to yield a complete and integrated portrayal of the economy, the current efforts of Federal statistical agencies to increase the coverage and accuracy of economic data should lead to further improvements in national income estimation.

#### Note on Industrial Classification

For the convenience of the technical users of the data for national income and the various distributive shares by industry, a comparison of our industrial classification with those of the Social Security Administration and the Bureau of Internal Revenue, and that given in the Standard Industrial Classification Manual is provided in table VIII. From the standpoint of the general user of the estimates, the most important point to be emphasized is that, because of the nature of the basic sources, corporate profits, the corporate inventory valuation adjustment, and corporate interest are on a company basis of industrial classification, while the other distributive shares are on an establishment basis. This is a serious limitation on the comparability of the distributive share estimates for some industrial groups, and one which should be considered carefully by those who use the data for particular industries. All the estimates are on a current product classification; that is, firms and establishments which converted to new products during the war were reclassified to the appropriate industry.

<sup>23</sup> Unfortunately, S. E. C. data on savings are not available prior to 1933 due to the inadequacy of source materials. In connection with our residual estimate for 1929, which may appear low at first sight, it should be noted that personal saving in the form of cash and deposits was a substantial negative figure in that year.