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I DEFINITIONS AND SCOPE

1 GROSS AND NET NATIONAL PRODUCT

NET national product or national income may be defined as the net value of commodities and services produced by the nation's economic system. It is 'net' in that the value of output of all commodities and services is reduced by the value of commodities (fuel, raw materials and capital equipment) consumed in the process of production. And it refers, by design, to the net product of the economic system, which, for economically advanced nations of recent times, may be treated as identical with the market economy. If 'market' is understood broadly as the meeting place of all buyers and sellers, no matter how greatly freedom of transactions may be curbed by custom or by regulation, then national income measures the net product of activities connected through the market, and excludes the results of other activities that may supply utilities but are outside the market mechanism.

Interpreted thus as the net current supply of goods available either for immediate consumption or for addition to the already existing stock of wealth, national income is a uniquely determined concept. But other comprehensive measures may be conceived wherein the product is 'gross' in that it is not fully adjusted for the value of commodities consumed in the process of production. For example, it is possible and sometimes proper, in measuring the result of economic activity, to count the value of both the coal and the machine in whose production the coal was consumed; to include both the automobile and the machine tools used in making it, although the latter in each case were at least partly consumed in turning out the former. Thus, in contrast to the single concept of net national product, there may be several concepts of gross national product, which vary with the amount of duplication involved. Such duplication may be allowed among separate plants, separate enterprises, separate industries, or major industrial branches of the economic system—yielding several gross totals of the national product, each substantially different from the others. The magnitude of these gross totals will vary with the amount of duplication desired and obtainable with the available data.

Of these several possible concepts of gross na-

tional product one appears of greater importance than the others, that in which the value of commodities and services produced is not adjusted for the value of durable capital goods consumed in the process of production, but is adjusted for raw materials, partly fabricated products and fuel consumed. It is this concept that is referred to below as gross national product and is measured in the tables. The reason for singling out this particular concept of gross national product lies in the peculiar nature of the durable¹ commodities that constitute capital equipment. It is characteristic of durable commodities that they are modified only gradually during the process of consumption. In contrast to the consumption of raw materials, which is a clearly apprehended and measurable process, the current consumption of durable commodities is at best a rough estimate, even when its evaluation is attempted by the productive or consumptive agency that uses the durable goods in question. Hence gross national product has the advantage of being a variable that can be measured more accurately than net national product. More important is the fact that the replacement of durable capital goods in use by new commodities is not as rigidly controlled by technical considerations as is the replacement of raw materials; considerable discretion is left to business enterprise. This means that over short periods the stock of capital equipment may be treated as indestructible, and its consumption in the process of production neglected. On this assumption the supply of commodities and services resulting from economic activity and at the disposal of the nation during any brief period includes not merely the net value of commodities and services produced, but this net value augmented by the deductions made for the presumptive current consumption of durable capital goods. Consequently, in addition to net national product or national income, we also measure gross national product, i.e., the volume of commodities and services produced, corrected for all duplications in fuel, raw materials, semifinished and finished products, but not reduced by deductions for the current consumption of capital equipment.

¹ For purposes of this study durable commodities are those whose period of utilization is more than three years; see Section VI.

2 THE NATIONAL PRODUCT AT SUCCESSIVE STAGES OF ECONOMIC CIRCULATION

The above definitions describe the net and gross results of economic activity at the point of production, referring as they do to the values of commodities and services *produced*. But in the circuit flow of goods and money that constitutes the functioning of our economic system, the yardstick that would provide a comprehensive measure of the results of economic activity may be used at any stage. National income and gross national product are produced, distributed and consumed, and it is possible to define and measure them not only at the point of production but also at the point of distribution and of consumption.

At the point of production, national income, so far as it represents the net result of economic activity, represents that part of gross national product which is largely imputable to individuals who contribute to production either their labor or the services of their property. The compensation received by these individuals in return for this participation accounts for the preponderant share of national income produced in any given year. But there may be two other elements in national income. First, the producing enterprises may make payments not only to individuals who, in a given year, participate in the productive process, but also to individuals who participated in it in the past or have not participated at all. Pensions, compensation for injuries, relief payments, and charity contributions by business enterprises are channels through which income produced in a given year may be paid to individuals other than those sharing in the process of producing it. Second, enterprises may distribute to individuals amounts not necessarily equal to the part of the national income that these enterprises produce. In some years a business firm or other producing enterprise may pay out to individuals an amount smaller than its share in national income, thus retaining what we designate as positive net savings of enterprises. In other years an enterprise may distribute to individuals an amount larger than its share in the national total, thus giving rise to negative net savings of enterprises. If we designate all receipts by individuals from the producing enterprises as income payments to individuals, national income is equal to the algebraic sum of income payments to individuals and of net savings of all enterprises.²

² National income as defined here is identical with what in earlier publications we designated as 'national income produced' (see *National Income, 1929-1932*, Senate Doc. 124, 73d Cong., 2d Sess.,

Gross national product includes, besides income payments to individuals and net savings of enterprises, the amounts deducted by the users of durable capital goods as an allowance for the current consumption of these goods in the productive process. If these deductions, which appear largely as depreciation and depletion charges, are added to net savings of enterprises, the resulting total represents the share of gross national product retained by enterprises. If we designate this share as gross savings of enterprises, then gross national product, at the point of distribution, is equal to income payments to individuals plus gross savings of enterprises.

Furthermore, the individuals who comprise a nation are ultimate consumers, and the value of the products they consume during a given year may be larger or smaller than the aggregate of incomes paid them. The difference between aggregate incomes paid to individuals and the value of products consumed by them represents individuals' savings, which may be either positive or negative. Consequently national income may be defined, third, as an algebraic sum of the value of the products that individuals consume, plus their aggregate savings, plus net savings of enterprises. Likewise, gross national product is equal to the value of the products consumed by individuals, plus their aggregate savings, plus gross savings of enterprises.

The three definitions indicate that national income and gross national product may be represented as a cross-section at any stage in the circulation of economic goods—production, distribution or consumption—with results that, if no statistical difficulties are met, should be identical.³ But equa-

and *Bulletins 49* and *59* of the National Bureau of Economic Research). The magnitude designated in these publications as 'national income paid out' is here identified as 'aggregate income payments to individuals'. This change in terminology resulted from the discussions prior to and at the meeting of the Conference on Research in National Income and Wealth held in January 1937. It was concluded that the use of the two terms 'national income produced' and 'national income paid out' as equally important concepts created confusion and led to misinterpretations; that the term 'national income' should be reserved for the magnitude formerly called 'national income produced', as being the most inclusive category and most consonant with the national income concept in economic writings; and that the magnitude formerly called 'national income paid out', being a subdivision of national income, would be best described by a specific term. For a more extended discussion see Part One of *Studies in Income and Wealth*, Volume I, by the Conference on Research in National Income and Wealth (National Bureau of Economic Research, 1937).

³ This identity is true for any time unit for which the national product is measured, provided that we conceive national product properly as a sum of values rather than identify it improperly with a congeries of specific commodities and services. The

tion of the national product, whether net or gross, as determined by the three definitions, is valid only if its various elements are defined consistently. If we exclude the results of certain activities (for example, gambling) from the first definition, we cannot, when we use the second definition, include in individuals' incomes the compensation received from these activities, nor, when we use the third definition, can we include in the value of products consumed the expenditures on these activities. Such judgments as to what constitutes commodities and services, income shares, consumption, savings, etc., are of telling importance in the measurement of the national product. They are based, consciously or unconsciously, upon concepts of economic activity and productivity implicit in all measures. We cannot discuss here the numerous decisions based on these judgments, but it is essential to indicate how, in making the most important, the scope of the measures presented below was determined.

3 SCOPE OF THE ESTIMATES

The available data render it necessary to estimate national income by a procedure corresponding to the second definition, i.e., the aggregate of all incomes paid to individuals plus net savings of all enterprises. Likewise, gross national product is estimated by adding to national income the amounts previously deducted as representing the current consumption of durable capital goods. We therefore indicate the scope of the measures in terms of the second set of definitions. Obviously the limits established by it automatically indicate the scope of the national product in terms of either of the other two sets of definitions.

As already stated, national income and gross national product measure the result of activities that are closely connected with the market system. With respect to that part of the national product which was designated as income payments to individuals, the natural procedure would be to include only income payments resulting from the specific commodities and services produced in one time unit may be disbursed in another time unit, and the commodities and services themselves consumed in a still different time unit. But when the national product is conceived as a sum of values, the total value of goods produced *must* be equal to income payments to individuals plus savings of enterprises, and to consumption by individuals plus savings of individuals and of enterprises; since whatever values have been produced must either be paid out to individuals or retained by enterprises, and whatever income payments were received by individuals must either be spent on goods consumed or retained as individuals' savings.

those shares that are received on the market in the form of money. This would mean including such payments as wages, salaries, dividends and interest, and excluding returns to individuals from their activity within the family system (housewives' services, etc.), or from other pursuits that are not, strictly speaking, working for the market. While such limitation is, on the whole, acceptable, there are a few types of income that do not pass through the market and do not find their equivalent in the sphere of monetary circulation, but that should nevertheless be included as representing the result of economic activity: (1) the share of the product retained by entrepreneurs for their own consumption (largely on farms); (2) payments in kind to employees (a practice especially important in compensating farm laborers, domestic servants, steamer crews, etc.); (3) services of houses inhabited by their owners. Except for these three groups of non-monetary payments, covered as adequately as possible with the data available, national income and gross national product include only such individuals' shares as are paid in money and constitute a part of the monetary circulation in the economy.

However, not all compensation to individuals for marketable activities is included, for a considerable number of such activities cannot be adjudged productive by the most lenient standard of productivity. For example, 'racketeering' services are obviously rendered in return for compensation, at prices determined by the balance of supply and demand on the market for such services. They are thus part of our economic system; but to include them in the national product totals would make it impossible to interpret the latter as the contribution of the economic system that appears useful to society at large. Such a criterion of productivity is unavoidable if estimates of the national product are not to become purely superficial measures of one aspect of the market mechanism.

In general, the national product totals presented below exclude the returns from three sources: (1) activities that have been explicitly recognized by society at large, overtly in the form of legal prohibition, not only as unproductive but also as distinctly harmful: theft, robbery, prostitution, murder, smuggling, counterfeiting, forgery, drug peddling; (2) activities that while legal, represent largely shifts of income among individuals rather than additions to the command over goods: gambling profits and speculative gains from the sale of assets by non-professional groups that can in no way be interpreted as resulting from skill in the performance of any useful functions that speculative

markets may be presumed to render; (3) gains and losses that result from a mere change in the price level, on the same grounds that apply to the exclusion of speculative gains resulting from non-professional activity. However, while it was possible to exclude the direct results of these three sources of income, it was impracticable to eliminate their indirect effects on the valuation of income payments that were included as representing compensation for what is largely a productive activity.

The treatment of net and gross savings of enterprises should, of course, be strictly parallel to that indicated for income payments to individuals. Hence, with one exception, we include net and gross savings of only such enterprises as are engaged in buying and selling goods, savings that thus represent shares in commodities and services that appear on the markets of the nation. The single exception is the item of capital consumption charges on residential real estate inhabited by its owner. This item was included in gross savings of enterprises and gross national product although it is not a share of any current service appearing on the market. On the other hand, we excluded net and gross savings of enterprises engaged in illegal activities and attempted to exclude that element in the savings item which is due to changes in the price level.⁴

Finally, whatever results of economic activities were included in the national product totals were assigned the value they brought on the market. Thus the activity of a miner was valued at the wage he received. The services rendered by a capital investment were measured by the interest or dividends that the investor received. Clearly, certain peculiarities of the market place assign the various activities values other than those they would have within the framework of a different social system, or as measured from the standpoint of a social philosophy different from that of the market place. But the investigator who attempts to measure the national product in terms acceptable to society at large must use a valuation that, by its wide acceptance, represents approximately the valuation put by society on the various activities. So long as in our economic system the market place is the only mechanism by which the contributions of various individuals in various types of service are made commensurate, an estimate that is intended to be used widely must be referred to it. This does not affect the advisability of introducing corrections for some of the obscuring influences of market valuation upon the measurement of the command

⁴ See discussion in Section IV.

over goods that national product totals represent. Of such adjustments the only one found practicable concerned changes over time in the general price level. In all other respects the various activities were valued at market prices, in spite of the differences in the valuation of the same type of activity from one market to another.

4 LIMITATIONS OF THE ESTIMATES

Estimates of the national product constitute a comprehensive gauge of the result of economic activity in our society. They are therefore useful in evaluating the contribution of the economic system to the needs of consumption and of capital accumulation, and constitute a comprehensive total, a general frame of reference, for studying changes over time in the productivity of the economic system and in the differences in the apportionment of the total product among various significant groups. These possible uses of the national product estimates will appear more clearly when we present them and attempt to indicate their significance. Here we must note the considerable limitations to which they are subject, and which must be taken into account in order to avoid common misinterpretations.

First, even if we disregard limitations imposed by lack of data, national income and gross national product do not measure all the goods and services produced in the nation, since they exclude, by design, a large volume of services and a substantial volume of commodities produced outside the economic system proper. The great contribution to our stock of utilities made within the family system and by numerous activities of mankind engaged in the ordinary processes of life is not included. Since the line between economic activity proper and other utility producing activities shifts from time to time and from country to country, this limitation of national product estimates to the result of economic activity proper should be kept in mind in any attempt to interpret them as approximations to the value of the total stock of commodities and services produced.

Second, even within these limits estimates of the national product do not necessarily measure adequately the result of economic activity in terms of command over commodities and services. As has been mentioned, the results of economic activity are evaluated at current market prices. These evaluations reflect, among other factors, inequalities in the distribution of income, differences among vari-

ous types of service with respect to the competitive position of their producers, changes in the effective supply of money, and differences over space or time in the method of estimating the consumption of durable capital goods.

Third, the national product, even when we consider the part designated as aggregate income payments to individuals, does not represent all the means of purchase that are available to individuals during any given year. The power of individuals to buy in markets depends not only upon the current flow of income but also upon the possibility of exploiting other sources, such as assets and credit facilities. This suggests that measures of the national product, in order to be adequate as a gauge of the performance of the economic system even in terms of the market place, must be supplemented by a study of wealth and capital structure. Strictly defined, national product measures reflect only such changes in wealth as result from the disposition of the current flow of goods and services produced. Other important changes in the capital and wealth structure of a nation's economic system must be taken into account, in addition to those revealed by measures of the national product, in order to obtain a complete picture of the basic changes in the economic scene.

Besides these limitations there are the usual limitations arising from lack of reliable data for the accurate measurement of some constituent parts of the national product totals. These limitations could be understood clearly only from a detailed discussion of the sources and methods used in deriving the various estimates of which each national product total is an amalgam. Such a discussion cannot be entered upon in this report. In general, it may be said that lack of data limits the coverage of the product retained by entrepreneurs for their own consumption to farm produce retained by farmers for family consumption; prevents an adequate measure of all payments in kind to employees; leads to the exclusion of the small amount of imputed rent on owned farm homes; and results in an

omission of a large number of incomes from odd jobs that are not recorded in the basic surveys of production and employment. Of the areas actually covered, the estimates are most reliable for the industrial branches for which basic data have been available for some time (mining, manufacturing, public utilities reporting to the Interstate Commerce Commission), and least reliable for the industrial branches for which basic Census data are still lacking or are of only recent origin (service industries, real estate, and, of course, the miscellaneous group). Of the various types of income the estimates are most reliable for those whose flow is recorded directly in the data (wages, salaries, dividends and interest), and least reliable for entrepreneurial withdrawals, rents and net savings of enterprises.

The effect of some of these limitations is reduced by the presentation of not only the national product totals, but also as many significant distributions as can be derived from the available data. Such allocations make it possible to distinguish the various areas of the economic system in which the peculiarities of the approach and the various inclusions and exclusions affect the estimates in different ways; and to indicate what particular parts of the estimates are especially tentative because of deficiencies in the data. But most important, the apportionments of the national product totals enable us to understand more clearly the character, causes and effects of the observed changes in these totals. For this reason, the discussion following Section II is devoted largely to a treatment of the various significant allocations made possible by the available data. After showing how national income and gross national product are distributed among the various industrial branches in which they originated or were produced, we pass to the distribution of national product by type of income. Finally, we distinguish between consumers' outlay and capital formation as the two components of the national product total, and discuss the composition of capital formation and of consumers' outlay.