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PART ONE

Concepts, Classifications, and Procedures

CHAPTER 1

Concept of National Income

1 *National Income an Appraisal Notion*

NATIONAL income may be defined as the net value of all economic goods produced by the nation. Each term in this definition—'net value', 'economic goods', 'produced', 'nation'—is circumscribed by a wide area of reference accepted by common agreement and a substantial periphery subject to controversy and treated differently from time to time, country to country, and investigator to investigator.

When any estimate is examined critically, it becomes evident that the maker, wittingly or unwittingly, has used one or more criteria of productivity. The statistician who supposes that he can make a purely objective estimate of national income, not influenced by preconceptions concerning the 'facts', is deluding himself; for whenever he includes one item or excludes another he is implicitly accepting some standard of judgment, his own or that of the compiler of his data. There is no escaping this subjective element in the work, or freeing the results from its effects. In consequence, all national income estimates are appraisals of the end products of the economic system rather than colorless statements of fact; and, like all appraisals, they are predetermined by criteria that are at worst a matter of chance, at best a matter of deliberate choice.

This thesis may be disputed. It may be contended that national income can be so measured as to be an objective record

of the net product of all activities that eventuate on the market, plus some of the non-market goods whose value is measurable: all inclusive, the estimate would involve no selection and, therefore, no criteria based upon some ethical notion of productivity.

But if no criteria of social productivity are used, national income becomes a mechanical total of all net receipts of individuals and business agencies, regardless for what activity or even whether there is any activity. It would include the compensation of robbers, murderers, drug peddlers, and smugglers, differential gains from the transfer of claims, and pure transfers such as gifts and contributions, which, in the absence of a productivity criterion, cannot be distinguished from payments for services. Such a judgmentless estimate would be of little use, since, to measure all market transactions, some gross rather than net total is requisite. It would measure neither the positive contribution of the country's economic system to the needs of its members for purposes of consumption or capital formation nor the sum total of what the inhabitants of the country *think* their income is. Any claim to significance such a total would have would lie in its presumptive usefulness as an appraisal of the contribution of economic activity to the welfare of the country's inhabitants, present and future. Consequently, to include such items as smuggling and robbery would have ethical implications just as truly as trying to exclude everything except 'economic goods'—implications that exist whether the compiler recognizes them or not.

Whatever the criteria, they imply an underlying scheme of values or social philosophy. The part of wisdom is to make this scheme of values explicit and allow it to guide the procedure. An investigator can decide intelligently what items to include and how to treat each only by formulating criteria of productivity and the principles of valuation to be applied. To do without this preliminary and decide each issue as it arises in accordance with 'common sense' is to conceal from himself and others what rules he follows, and to run grave

risks of vitiating his results by inconsistencies. The proper role of common sense is to aid in choosing the fundamental principles of selection and valuation and in deciding just how they can best be applied to imperfect or recalcitrant sections of the data.

For those not intimately acquainted with this type of work it is difficult to realize the degree to which estimates of national income have been and must be affected by implicit or explicit value judgments. The items about which estimators using different criteria reach conflicting conclusions may seem to be of little moment theoretically and to involve magnitudes picayune in comparison with those beyond controversy. But such an impression is misleading. Unless the cases that lie on the borderlines are considered, the very areas that are beyond dispute are obscure; and analysis of the borderline cases themselves usually shows that they are far reaching. Correspondingly, the magnitudes involved increase as the search for a substantive meaning of the estimates becomes more thoroughgoing. The apparent relative unanimity produced by empirical writings on national income is due largely to the estimators' unconscious acceptance of one social philosophy and their natural reluctance to face such fundamental issues as would reveal that estimates are conditioned by controversial criteria.

The demonstration of the conditional character of the national income concept and hence of national income estimates is neither thankless nor purely destructive. It is necessary for a proper interpretation of national income estimates because they are used extensively in controversial issues. It is also a stimulus toward their improvement in two respects, consistency and explicitness. First, all questions of scope must be decided consistently and can be only if the reasons for the decisions are clear. Second, national income estimates must be presented in explicit detail and in several variants. The purposes these variants may serve must be kept in mind when the criteria are set up.

2 Economic Goods

The chief characteristic of goods is that they are sources of satisfaction. Most of such sources are economic in that they are relatively scarce and at the disposal of the active unit (individual, enterprise, nation) in economic life. The goods may assume the tangible form of a commodity, appear in more elusive form as a service separable from its material source, or be perceived as a social or personal arrangement inseparable from the human beings that constitute society. Underlying the variety of their manifestations and the qualitative diversity of physical shape are the scarcity and disposability of these sources of satisfaction, characteristics without which they would not be involved in economic behavior or give rise to social relations that are the concern of economic study.

This description of economic goods indicates their broadest characteristics, but is too wide for a measurable concept of national income. First, it covers many services and arrangements and some commodities that result from the general functioning of individuals in aspects of everyday life not usually associated with economic activity and not considered germane to the understanding of economic reality. Second, it provides no basis for deciding how to treat a commodity, service, or arrangement that is a source of satisfaction to some people and of dissatisfaction to others. We discuss separately the two groups of items that consequently should be considered for exclusion, the first under the head of non-market goods, the second, of non-productive activities.

A NON-MARKET GOODS

An individual spends most of his time producing scarce and disposable sources of satisfaction. In accordance with the above definition, most acts that might be called 'personal', such as washing, shaving, and playing for amusement on the piano would be treated as economic activity and their results as economic goods, since, when judged by the attributes of

satisfaction-yielding, scarcity, and disposability, they do not differ from the same activities carried on for money as services to other people (nursing, barbering, and giving concerts). Every canon of proper definition would be violated if we included almost all active life under economic activity and all its positive results under economic goods.

To draw a line between economic activity and economic goods on the one hand and active life in general and its stream of satisfactions on the other is the more difficult the greater the diversity of social experience for which the distinction is to be valid. It would not be easy to formulate a distinction that would be valid for both the primitive tribes in the wildernesses of Africa and South America and the nations of North America and Western Europe; or for the institutional settings of European society in both the tenth and the twentieth centuries. Fortunately, the practical purposes of our estimates, which are for recent years and a highly developed national economy, enable us to simplify the task by drawing the line between economic activity and active life in general in a way that will fit the experience of recent decades alone and be valid solely for mature economies.

For this range of experience the most distinctive attribute of economic activity, not considered heretofore, is its close connection with the market; and the most conspicuous characteristic of economic goods, not mentioned so far, is that they usually appear on the market. It is the market, with its vast mechanism for the disposition of diverse goods, that reveals the ties binding the separate units in the economic system and segregates economic goods from others. Therefore, we define economic goods as commodities, services, arrangements, etc. that are dealt in on the market; and since the attributes mentioned earlier are implicit in marketability we can dispense with them. Unless an object is a source of satisfaction, relatively scarce, and disposable, it is not bought or sold. Marketability implies these three attributes and adds an important fourth, viz., that the goods are involved in the complex of

social relations that are of especial concern to economic study.

But if the market is considered as a complex of social relations of a certain type, and marketability as the characteristic of goods involved in them, it must be recognized that there are different kinds of market expressive of significantly different underlying social relations. In an attempt to assure meaning for the distinction, and essential homogeneity for the realm of economic life, the definition may be narrowed still further, restricting economic goods to those that appear on markets of one specific type. For example, some investigators confine the concept to results of private industry, excluding the activities of public agencies.

We are now in a position to see clearly the limits within which the national income investigator can choose his definition of economic goods. He can restrict the concept to goods dealt in on markets of the types that seem to him most expressive of the essential features of the economic system under study. For the modern economy these would presumably be the competitive markets of the private business system. Or he can accept the broadest definition and make economic activity almost co-extensive with active, satisfaction-producing life.

These two concepts are not the horns of an either/or dilemma, but rather the limits of a range within which significant stages can be distinguished. Obviously, differences in the scope of the concept of economic goods will produce corresponding differences in the scope of the national income estimate, and no one variant of national income along this range is best for all purposes. The stages in the full range of variants are described in the accompanying tabular arrangement which shows the groups of goods that are to be added progressively to the narrowest concept.

The investigator should recognize this variety of concepts and purposes and so arrange his data that variants of totals can be derived along the entire range from the narrowest to the broadest. But complete coverage of the possible variants is an

VARIANTS OF DEFINITION OF ECONOMIC GOODS

I (narrowest)—goods exchanged for money on private markets

II (I) + (1)—all goods exchanged for money on all markets of the country

III (II) + (2)—all goods exchanged on all markets, whether for money or by barter

IV (III) + (3a) + (3daa) + (3e)—all products of the business and public economy but excluding most products of the family economy

V (I) + (1 + 2 + 3)—all economic goods most broadly defined

ADDITIONAL GROUPS OF GOODS

1 goods sold by public agencies on markets characterized by compulsory powers of public authorities

2 goods entering barter exchange (payments in kind by enterprises to employees or other participants in their activity)

3 goods not appearing on markets
- a products retained by producers for their own consumption (especially important for farmers)
- b services and products of individuals outside the market system, flowing to other individuals (especially services of housewives and other members of households)
- c services of individuals outside the market system to themselves (largely personal self-service which accounts for a great deal of active life outside 'working' hours)
- d services of commodities owned and used by consumers
  - aa residential real estate
  - bb other consumers' durable commodities
  - cc other consumers' goods
- e services of publicly owned commodities to ultimate consumers and business agencies, e.g., roads

ideal that cannot be attained, partly because data are lacking and partly because some groups of goods included in the broader variants are not measurable. As far as we could, we based our estimates on a definition corresponding to Variant IV, omitting item 3e. It includes all goods appearing on the markets of the country (subject to restrictions imposed by other issues), whether exchanged for money or for other goods, plus the retained products of activities most of which result in marketable goods, plus the imputed return from a type of consumer good whose services are in large degree separable from the commodity itself and are bought and sold on markets.

The other items under 3 cannot be estimated adequately on a continuous basis, although in Chapter 9 we indicate the approximate magnitudes of most items mentioned. On the other hand, we do attempt to break down the national income total so that each item added in passing from the narrowest concept to the broadest measured can be subtracted, thus making it possible to measure variants based on somewhat less inclusive definitions of economic goods.

The national total just described may seem at first to be an arbitrary stopping point between the two extremes. But it is more than that. It is essentially an appraisal of the final net product of the business and public economies of the country, two of the three important social institutions that contribute to the production of economic goods; and excludes completely the product of the third—the family. This sweeping statement is true with the relatively minor exceptions that some interpretations would classify the services of houses to owners who inhabit them as products of the family rather than the business economy; and that free services of publicly owned commodities to ultimate consumers are not included.

Exclusion of the products of the family economy, characteristic of virtually all national income estimates, seriously limits their validity as measures of all scarce and disposable goods produced by the nation. The line of division between the business and the family economy differs from country to country, and for the same country from time to time. The temporal differences are especially important for our estimates, since they occur not only over long periods but also, given violent cyclical fluctuations, over short. A severe depression with its attendant unemployment may force many individuals to return to household tasks that in prosperity are performed by hired labor or by manufacturing enterprises; and an opposite shift may take place during prosperity. Over longer periods distinct secular shifts occur in the relative contributions of the business and the family economy to the total of economic goods, most broadly defined. One must, therefore, guard

against the common tendency to consider national income totals as all inclusive summaries of the scarce and disposable sources of satisfaction produced by the nation. Such summaries would become practicable only if the data improved substantially or if the family disappeared entirely as a producer of goods.

B NON-PRODUCTIVE ACTIVITIES

The assumption implicit in our discussion so far, that all money and barter transactions on markets involve goods and hence should be included in national income, is far from true. While all goods that pass through markets are economic, not all the *quid pro quos* changing hands on markets are necessarily goods; and not all money and barter transactions involve *quid pro quos*. The exclusion of these marketable non-goods and of transfers raises one of the most complex problems in defining national income.

Since we aim to ascertain, as accurately as we can, the contribution of economic activities to the consumption of the inhabitants of the country and to their stock of capital goods, our estimates must exclude results of market transactions that do not add to the flow of goods at their disposal. The application of this criterion of productivity leads to excluding from national income the results of transfer transactions when carried on for philanthropic (contributions, etc.), business (capital gains), or mixed motives (gambling, etc.); and the monetary equivalents of activities that may directly and explicitly be recognized as unproductive (theft, etc.).

No theoretical difficulties stand in the way of excluding from national income the results of such transactions as gifts, contributions, and relief payments. It is of their essence that no productive service is rendered by the recipient, even though he may so expend the proceeds of the gift, contribution, or relief payment as to induce the production of new goods. True, the donor may derive satisfaction from making the gift, contribution, etc., and the willingness of the recipient to accept the

transfer may be viewed as a source of this new satisfaction. But our aim in measuring national income is not to gauge the flow of satisfactions from all sources, but rather to record the production of tangible and observable sources of satisfaction attained by the use of scarce and disposable resources—among which willingness to receive gifts is obviously not one. Contributions, gifts, and similar transfers should, therefore, be treated as a redistribution of goods produced currently or in the past, rather than as the production of new goods. Proceeds from gambling of various sorts, in which goods already produced are redistributed, the gains of some individuals being offset by the losses of others and the net gains not representing any services rendered by the gainers to the losers or to society at large, should be treated similarly.

Gains and losses on capital, i.e., on assets of various types, may be actually realized or merely imputed. At least realized gains and losses on sales of assets are often included in national income because individuals tend to think of national income as an exact analogue to their incomes; and both individuals and taxation laws in this country consider gains on sales of assets as *bona fide* income. Yet capital gains and losses are not increments to or drafts upon the heap of goods produced by the economic system for consumption or for stock destined for future use, and they should be excluded.

Most broadly conceived, capital gains and losses result from changes in the value of a given capital asset, whether or not due to its physical transformation. These changes may, in turn, reflect changes in the general price level, caused by changes in the supply of the monetary media and of all assets; or they may be specific to a given group of assets or even a single asset, caused by changes either in demand for the asset itself or in the number of effective units in it. Obviously, an increase or decrease in the price of a capital asset, caused by a general change in the price level arising from monetary inflation or deflation, is not evidence of any production or productive consumption of goods; therefore, the resulting gain or loss should

not be included in national income. Nor is a change in the price of a given asset due to a shift in demand evidence of production or consumption although it may mean an accretion to or depletion of the country's stock of wealth. If for some reason consumers lose interest in maple furniture and acquire a passionate liking for mahogany, the consequent losses and gains in value do not in themselves represent any extraordinary consumption of maple furniture or new production of mahogany. In other words, autonomous changes in consumers' tastes, i.e., changes not brought about by the expenditures of enterprises, are not part of economic activity and should be excluded. Fully aware that we thereby exclude sources of changes in the value of wealth that lie beyond the production process proper, we decided to confine national income to the net product of economic activity of production processes broadly conceived.

Similar reasoning applies when the number of effective units in an asset changes either because of previous investment or disinvestment or because of discovery or other accidental causes outside the regular production process. The rise in the value of a farm due to the expenditure of preceding years' income to increase the herd and add machinery has already been included in national income for these years, and to include the capital gain once more when it is realized or recognized as accrued would be double counting. The rise in the value of a corporation due to the ploughing back of profits in preceding years has already been included in national income for these years and it would be duplication to include realized or unrealized capital gains by holders of this corporation's securities. Any real investment made in the course of a fortunate discovery that enhances the value of a given asset has already been recorded under preceding years' income; and so far as the appreciation in value actually exceeds this previous investment, it cannot be considered a part of continuous economic activity. It may best be treated as an accidental shift in technical conditions of production, similar to

the autonomous shift in consumers' tastes. Likewise, capital losses due to regular and forecastable functions of productive operation that can be offset by depreciation, insurance premiums, etc. are taken account of in calculating the net income for each current year of operation. And any losses sustained above that amount because of floods, hurricanes, and other acts of God can best be treated as accidental shifts in conditions of production, outside economic activity proper. Here again, as in the case of autonomous changes in consumers' demand, we limit national income to results of productive activity broadly defined; and exclude exogenous, accidental changes on both the demand and supply sides, changes that nevertheless affect the value of wealth at the disposal of the inhabitants of the country.

There is general agreement, we believe, that gains and losses on capital assets arising from the previous disposition of income (i.e., previous investment and disinvestment) should not again be included in national income; also, that in measuring the real contents of national income, gains and losses on capital assets arising from general shifts in price levels should be excluded. The issue then reduces itself to the treatment of changes in the value of capital assets that arise from autonomous changes in consumers' tastes and in conditions of production, autonomous meaning in both cases outside the processes of economic production (extraction, fabrication, transportation, trade, direct services of various types). The concept of production could be extended to include changes in consumers' tastes and such extraordinary events as great discoveries, floods, and hurricanes. But we prefer to confine it to those numerous production processes in which there is some pattern of regularity and some effective control by individual producers and hence some economic rationality in their behavior. The narrower definition yields estimates that can more easily be interpreted in terms of a contribution by the economic system and removes possible fluctuations in national

income estimates from year to year that would be introduced by external, ungovernable, disturbing factors.[1]

While gifts, contributions, and relief payments are not tokens of productive services rendered by their recipients, and appreciation and depreciation of assets likewise cannot be included under national income as we define it, the activities that facilitate the administration of relief or charity and the realization of gains and losses from sales of assets are productive, unless characterized otherwise on grounds different from the ones adduced. It may seem absurd to declare a given activity unproductive and an activity intended to facilitate it, productive. But this absurdity is merely apparent. If individuals derive satisfaction from gambling and from other methods of transferring money without a *quid pro quo* in terms of goods, these activities are unproductive in the sense that the monetary gains realized by the lucky members of the group do not measure any goods produced by them. But so far as gambling and similar pursuits are pleasurable, and the balance of satisfaction they render is positive, the provision of facilities for them must be considered productive and included under national income. Similar reasoning applies to the administration of charity or relief, as well as to any receipts representing gains by a broker on the sale of assets.

We pass now to the more difficult case of market transactions involving objects that are sources of satisfaction to some members of society but of dissatisfaction to others. Few goods, no matter how universally their usefulness is recognized, escape being sources of dissatisfaction to some members of society; and the issue, therefore, affects a major proportion of all objects that are exchanged on the market. We speak glibly of marketable commodities, services, etc. as positive magnitudes, partly because of a ready acceptance of willingness-to-pay as the ultimate test of what economic goods are, and of a

1 Analysis at this point bears almost as much upon the meaning of 'produced' as of 'economic goods', but it is impossible to discuss productivity without at the same time elucidating production.

tendency to read rationality into the arrangements of a social order to which we are accustomed; partly because of the interchangeability of marketable objects and the individualistic argument that no matter how useless or even harmful a specific object may seem to us, so long as it fetches a price it can be exchanged for a useful one. Neither view can be followed in arriving at a national income concept valid for the social system as a whole.

The problem might conceivably be treated in either of two ways. The first, theoretically more desirable but impossible in practice, would be to weigh for each object (commodity, service, arrangement, etc.) both the satisfactions and the dissatisfactions it renders; and then include in national income only the net balance. Could this be done, some objects might appear in the final addition with a negative sign, thereby reducing the positive balances contributed by others. But neither social institutions nor scientific disciplines have as yet evolved a calculus by which the various products of economic activity can be measured as sources of satisfaction or dissatisfaction to all members of a society. The market mechanism does not provide such evaluation. The price an object fetches on the market is determined in general by costs on the supply side, and preferences, backed by means of purchase, on the demand side. The parties affected indirectly by the object do not usually participate in the transaction, and except when society intervenes legally, have no effect on it.

We must, therefore, adopt the second method, namely, consider whether, from the viewpoint of society at large, the net balance of satisfactions and dissatisfactions the object as an economic good gives is positive or negative or neutral. It is thus the sign, rather than both the sign and the size, of the net balance that is decisive. If the sign is positive, the object is declared to be an economic good and its full value included in national income; conversely, its value is excluded if the satisfactions yielded are more than outweighed by the dissatisfactions, or if no element of satisfaction is perceptible.

But how does one decide whether an object bought and sold on the market yields a positive balance of satisfaction? Upon what basis are some activities that fetch a price on the market and a fairly substantial price at that, considered unproductive by important groups in our society? Upon what basis do we often go even further and grade productive activities according to some more or less common scale of the satisfaction their products render?

The variety of answers to these questions is well evidenced by the diversity of ways in which productivity has been defined by economists since the days of the Classical School and by the substantial list of activities that have been classified as unproductive by national income investigators for various countries and at various times. Differences in viewpoint, determined largely by differences in social organization and by class or group interests, affect national income estimates markedly. Except for activities directly concerned with the production of the commodities that constitute necessities of life, all economic activities have probably at some time or other, by one investigator or another, been treated as unproductive.

Here again, as in the case of non-market goods, the national income investigator can lighten the burden of definition by so arranging his data that both productive and non-productive activities are measured. Users of the estimates can then derive various totals in accordance with their own notions of productivity. But this procedure does not obviate the necessity of clarifying notions of productivity, since they must serve as guides to classifying the components of the most inclusive national income total. Moreover, practical considerations force the investigator to adopt, consciously or unconsciously, some criterion of productivity to guide his efforts to measure the parts that are germane to national income as a concept of net product and keep him from wasting efforts on measuring activities whose productive character is doubtful.

In general, two types of decision concerning the criterion of productivity can be made. One is to accept the notions that

have been expressed overtly by the body social in prohibiting some activities and encouraging others: illegal activities would be classified as unproductive; and any activities that are both legal and marketable would be classified as productive and their products included under national income. The other type of decision would entail the formulation of criteria of productivity with merely partial or no reference to the overt notions of society as expressed in its laws.

Either decision means approaches so complex that an investigator who conscientiously tried to carry out all their implications would never arrive at a national income estimate. The first, to take as the framework of one's concept the overt opinion of the body social as expressed in its legal statutes, seems to have the advantage of utilizing a recorded set of rules, especially definite with respect to items and activities that should be excluded as unproductive. But even brief and amateur consideration of the meaning of legality and illegality would immediately reveal a host of difficulties. Illegality ranges all the way from barring itinerant shoe shining or keeping a dog without a license to killing your neighbor. Quite frequently activities that seem equivalent in both substance and economic meaning are prohibited if performed in one way and permitted if performed in another. If the concept of illegality is to be taken literally, many economic activities accepted by the body social as productive would have to be declared unproductive. If, however, we try to distinguish among degrees of illegality by the severity of the penalty or some other feature, we become bewildered in a maze of equivocations and are likely to emerge with results that will be both arbitrary and subject to erratic changes from time to time or country to country.

The second decision, to set up substantive criteria of productivity with little or no reference to the consensus of the body social, is even more difficult. It may be easy to single out a few activities of so clearly an unproductive character that they would be classified as such by any set of criteria. But it is

doubtful that objective standards of satisfaction can be worked out that would allow us to classify properly the thousand and one activities whose results appear on the market; and even were it possible, such standards might not be acceptable to society at large, nor might national income estimates built on them be acceptable appraisals of the past performance of the economic system or bases for more intelligent consideration of public policy.

The ideal solution would be to attempt both approaches: to study in detail how the legal system expresses the judgment of society concerning the productive character of activities; to explore the various bases of objective and widely acceptable substantive criteria of productivity; and to implement these analyses by statistical measures of productive and unproductive activities thus distinguished. But such a solution is far beyond the scope of our investigation. With the data and time we had, we thought it most practicable to follow the first type of decision, i.e., to base the criterion of productivity upon the judgment of the body social as expressed in laws. This application does not mean that we classified all illegal activities as unproductive. We rejected as unproductive only those few activities—theft, robbery, organized private murder, forbidden drug peddling, and the like—whose detrimental character is obvious enough to preclude any doubt that it was the basis for the legal prohibition. A rather broadly inclusive concept of national income results: it excludes few activities and includes many that may seem from any long range viewpoint of social utility to be not only non-productive but actually harmful.

This aspect of our decision must be clearly borne in mind. The criterion of productivity followed in our estimates, chosen in line with current social opinion, classifies as productive activities that, for a society organized differently from the United States in this century, might well be considered worthless and even harmful. It swells national income with items that represent what many citizens condemn as a misuse of

energy and the inadequacies of the existing social structure. It includes dreadnoughts, bombing planes, poison gas, and patent medicines because they are rated economic goods in our country today. Obviously, national income estimates based upon formal criteria of productivity retain meaning only so long and so far as the legal structure of a society reflects fairly accurately the opinions of the body social and so long as these opinions correspond, however crudely, to standards of satisfaction that can be established objectively. They are the results of a compromise that any critic who has time and data can supplement or replace by criteria of productivity that go far beyond the notion represented by the attributes of marketability and legality. It may well be that social standards will be so modified as to reduce our present estimates to absurdity. If so, all we can claim is that they have historical validity.

To summarize: our estimates cover primarily the product of the business and public economies. Of the goods not appearing on the market they include only those retained by producers for their own consumption, payments in kind to employees, and imputed rent on owner-occupied houses. On the other hand, of the net money receipts by individuals from ordinary market transactions or other sources the following are excluded: (a) receipts from pure transfers, such as relief payments, contributions, gifts, and gambling debts; (b) gains or losses on already existing assets, whether actually realized on their sale or accrued because of changed valuation; (c) products of illegal activities, such as smuggling, racketeering, bootlegging, and drug peddling.

Only the *direct* value of these receipts is omitted: net monetary receipts from transfers or non-productive marketable activities and, in the case of non-market goods, imputed values. Even though racketeering is not productive, and the income originating in it is excluded, we cannot eliminate the indirect effects, e.g., racketeers' demand for steel. Likewise, gains from sales of assets, as well as the activity of the family economy

outside the market, affect market activity, and hence the goods included in national income. Since the business, public, and family economies are closely interrelated with the various parts of the market mechanism, the indirect consequences of the excluded activities on activities whose products are properly included in national income are far reaching and it would be exceedingly difficult to eliminate them. But elimination of the indirect effects of the excluded activities on the areas covered, though a challenging task, is not indispensable. For what we measure is the net product of the economic system, regardless of its causal factors. Important as estimates of capital gains and losses and products of illegal activities may be in explaining how the national income came to be what it is, an estimate that omits them is useful; and when explanation is attempted, such factors as are comprised under the family economy, transfers of claims, or illegal activities, will have to be considered together with many others not mentioned here.

3 Economic Value

In discussing the inclusion and exclusion of certain groups of items, we touched indirectly upon how the items included among economic goods and hence in national income are to be combined. The diversity of physical shapes economic goods display and of wants they serve compels us to express them in terms of a common unit that will reveal their economic significance and allow them to be added and subtracted in various combinations. This measurable aspect, common to all economic goods and revealing their economic significance, we designate 'economic value'.

The yardstick of economic value is fashioned on the market place. It is in markets that economic goods are brought together and their relative importance gauged for purposes of sale and purchase; that the members of the community vote, in terms of the common currency unit, upon the relative value to them of various commodities, services, and arrangements.

In fact, to identify economic value with market price is, at least as the first step, the one possible solution of the problem. Nevertheless, market prices are a somewhat defective yardstick. Though unable to remedy its defects, we discuss them here to give a better understanding of the totals and subtotals derived with its help.

A GOODS NOT APPEARING ON THE MARKET

Strictly speaking, there are no prices for non-market goods. How then should the value of goods that do not appear on the market be measured? The usual answer is that almost all non-market goods have their counterparts on the market and that they should be assigned the prices their counterparts fetch. For example, the value of payments in kind to employees is to be measured at the market prices of the goods distributed; the value of housewives' services, at prices paid domestic servants.

Though the only practicable one, this solution overlooks an important element making for lack of comparability between non-market goods and seemingly identical market goods. The purchaser of the latter ordinarily has considerable freedom of choice and opportunity to change his mind; the recipient of the former usually does not. For example, a household can choose among many types of servant, hire on trial, and dismiss as often as it is so inclined; a gentleman would not treat his wife so summarily. An employee receiving payments in kind as part of his wages may put a low valuation upon them and might not purchase them if he had to buy them at their market price. Were he to receive cash instead, he might be willing to accept less than the equivalent of the market price. Thus by assigning the full price of their market counterparts to non-market goods we may overvalue them. A similar conclusion would apply to almost all other non-market goods whose counterparts appear on the free markets of the business economy. The only items to which it does not apply are products retained by producers for their own consumption.

Moreover, prices of market goods, whether or not counterparts of non-market goods, are affected by the fact that of a given volume of goods produced, all is not put on the market to compete with market products. We should perhaps evaluate both non-market goods and all others at prices we think they would fetch if all goods were offered for sale. The amount of money remaining the same, the addition to the goods on the supply side would lower the prices of all goods. But, other conditions being equal, the decline in market prices might be greater for those goods a large share of which do not ordinarily appear on the market. If this reasoning is valid, then the application of existing market prices to non-market goods overvalues them on two counts: first, because of the distinct probability that they are of lower quality than the market goods with which they are *at all* comparable; second, because withholding them from the market may have served to maintain the prices of their *exact* counterparts at a level, relative to the prices of all other goods, higher than it might otherwise have been.

In addition to goods withheld from the market, a considerable quantity is in production and does not appear on the market by the end of the period for which national income is estimated. Some may never appear on the market in the exact form in which they are completed by their producers (e.g., a machine built by an enterprise for its own use); others will appear shortly after their completion (e.g., goods in process). Such uncompleted production must, nevertheless, be recorded and evaluated. In the absence of current market prices for them, the only basis for measurement is outlays incurred, i.e., essentially past market prices of the components of these uncompleted products.

Evaluating uncompleted products at cost and completed products at current market prices introduces an element of incomparability. In general, costs are less sensitive to changing conditions than current market prices; and the price set upon uncompleted goods evaluated on a cost basis may be quite

different from the price actually realized when they are completed and sold. This element of incomparability is minor if the value of uncompleted goods is small relative to that of completed and marketed goods. But the shorter the interval for which national income is estimated, the greater the ratio of uncompleted to completed goods tends to be; and the larger the element of incomparability introduced by using the two bases of evaluation.

B PECULIARITIES OF THE MARKET MECHANISM

But how valid is market price as a measure of the value even of marketed goods? Does the price a commodity or service fetches reflect faithfully its importance relative to other commodities and services, when judged from the viewpoint of society at large? Though markets are the sole mechanism by which goods are compared for purposes of exchange, and hence market prices are the sole directly available measure of the relative economic importance of diverse goods, they may distort economic value judged by any substantive criterion. Indeed, closer scrutiny of the market mechanism reveals numerous peculiarities that indicate that market prices do not accurately measure how well goods and services satisfy the needs of the body social. We describe these peculiarities briefly, primarily in order that the necessity of using market prices to evaluate the components of national income may not be misunderstood.

1) It is axiomatic that economic goods derive their values from the contributions they are deemed capable of making directly or indirectly to the satisfaction of present or future needs. Yet, because no practical calculus of satisfaction has been devised, we cannot appraise 'the net value of all economic goods produced' in terms of this fundamental criterion; instead we must use price as the criterion. We realize that we thereby accept the institutionalized valuations of a society in which market demand reflects human needs only so far as they are backed by purchasing power. No one supposes that the

distribution of income parallels the distribution of wants or satisfactions. At one end of the scale are people whose incomes are insufficient to buy adequate food, clothing, and shelter; at the other end are people whose incomes suffice to satisfy not merely the imperious necessities of life, but also the innumerable less intense wants men conceive when they are well fed, well clothed, and well housed. Therefore we cannot claim that our estimates of national income, based as they must be upon market valuations, evaluate goods as means of satisfying directly or indirectly the present or future needs of the population.

Within the limits of their purchasing power consumers exercise their buying rights in accordance with their preferences and what they think their needs are. Just as one may be critical of the effects on market valuation of an uneven distribution of purchasing power, so one may doubt the wisdom of consumers in their choice of goods and services. From the standpoint of objectively established tests and criteria of what people should demand and how they should apportion their resources, the behavior of consumers may seem irrational.[2] It may be argued, therefore, that whatever the effect of consumers' purchases on market valuation, it does not lead to estimates that reveal accurately how well various goods satisfy social needs objectively and scientifically determined.

But if we accept society's classification of activities as productive and unproductive, we must accept the market mechanism as it functions: with the exercise of unevenly distributed purchasing power and of free if irrational choices (limited for only a very few commodities, such as poisonous drugs) by ultimate consumers. We make the statement here to emphasize

[2] This statement, as well as some of the discussion in Section 2 B above, implies that objective standards of needs are possible. This possibility could scarcely be denied for some of the more elemental needs of sustaining and reproducing life, but, of course, is more remote for other needs and wants. The reference to such objective standards and tests should not be interpreted as an assertion that they exist now, that they can be so formulated as to be studied in detail, or that they should be imposed upon society.

how a viewpoint penetrates the entire network of definition and procedures; and again call attention to other viewpoints and the differences in quantitative results they are likely to cause.

2) Under conditions of effective competition, prices are set at the intersection of the supply curve with the demand curve; i.e., where the quantity of products turned out is as great as will be purchased by people wanting them and able to pay a price neither smaller nor greater than the marginal cost. With the development of significant departures from competitive conditions, there are corresponding changes in the mechanism of market prices. A distinctive feature of monopolistic conditions on the supply side is that an individual producer can alter prices for his product by putting a larger or smaller volume of goods on the market. More specifically and simply, he can restrict the total output of his product and charge a higher price per unit. If all other conditions remain the same, the monopolist's price is likely to be above marginal cost to him and also above marginal competitive cost.

There is another closely related feature of monopolistic behavior. Unlike a competitive producer, a monopolist can charge discriminatory prices, i.e., demand and obtain different prices for goods of one and the same kind from would-be purchasers of different classes. This substitution of several prices for the single price of a competitive market does not often invalidate the statement made above that, in general, monopolized goods are valued on the market at prices substantially higher than they would have fetched under competitive conditions;[3] but 'prices' must be a weighted average of all the monopolist's prices for the product, not any single price charged by him. In addition, the varying degree to which monopolists can charge different customers different rates becomes in itself a factor in setting the weighted prices of

[3] In some cases, however, it may reverse the result and lead to an average price lower than that charged for a competitive product.

monopolized products at certain levels above their competitive counterparts.

It may be argued that 'economic value' is measured properly only in competitive markets, for only here are real costs and returns (qualified by the distribution of purchasing power) allowed full play; that the existence of monopolies distorts price relationships and introduces an element of incomparability between goods sold on competitive and on monopolistic markets. And were one to meet the requirement of homogeneity of the competitive structure of markets, it would be exceedingly difficult to correct for this peculiarity of market prices, for competitive or monopolistic prices would have to be constructed in areas where they do not exist, causing a realignment throughout the price system.

The real question, however, is whether, recognizing this peculiarity of market prices as a limitation of the market mechanism when viewed as a way of determining values in some ideal system, we should not also admit it as part and parcel of a functioning society, which accepts it. Whether or not the investigator as an individual considers this aspect of the price structure beneficial, he must accept prices as they function, including their structural imperfections, if he bases his estimates upon the accepted notions of society. This is, perhaps, all the more true since monopolistic features have been directly attacked by society, which exercises whatever power it sees fit in governing price and other policies. In a sense, monopoly prices, although not determined by exactly the same processes as competitive prices and having a somewhat different meaning, do represent the valuation that society allows to be assigned a given category of goods or activities.

3) Almost all market transactions take place with the help of money, the exchange of one good for another being split into two separate acts of sale for and purchase with money. In comparisons at a given time, the possibility that money itself is an independent factor in determining market prices remains elusive: a universally accepted and all pervading

medium of exchange, money seems at any instant to be merely the unit of accounting, a transparent veil through which the relations among diverse goods can be seen but which in itself has no effect on these relations. When changes over time are considered, this impression proves erroneous. Market values, all expressed in terms of money, can fluctuate because of fluctuations in monetary conditions, even if the supply of goods remains constant. And money, understood in the broad sense as all means of payment in market transactions, is itself subject to several independent influences though they may on second or third remove originate in the circulation of goods.

The most immediate effect of monetary fluctuations on market prices is to make market value totals unreliable guides to temporal changes in the quantity of goods on the market. The instability of the unit by which market value is measured at different times is an obvious defect of current prices, and one for which statistical and economic analysis has most arduously attempted to adjust.

But there is another and much less obvious effect of fluctuations in money. The shift in the level of market prices they cause does not affect the prices of various goods either simultaneously or equally. Since fluctuations in money, as well as other disturbances, are not infrequent, relations between market prices are continually being modified by differences in the time and amplitude of the reaction. Consequently in temporal comparisons price changes caused by fluctuations in the value of money are not uniform among economic goods; and any attempt to adjust for fluctuations in the value of money is, therefore, much more difficult than if we could assume a uniform rise or decline of all prices.

The devices used to evaluate the real contents of monetary transactions vary in complexity and accuracy. The most common is to measure fluctuations in the value of money or in the general price level. Prices at successive points of time are recorded for one and the same group of economic goods. An index constructed from the observable fluctuations in

them is assumed to measure fluctuations in the general price level or in the value of money. With its help, totals of market values in current prices are adjusted for fluctuations in prices.[4]

The numerous practical difficulties that arise in compiling price indexes need not be discussed here. We note merely that the all inclusive character of national income totals makes especially difficult the compilation of indexes that reflect changes in the prices of all goods entering them. Of more immediate interest is a difficulty central to the entire procedure: the conflict between the requirement that the index cover prices of the goods included in national income and the impossibility of meeting the requirement, owing to qualitative changes in the goods.

As noted above, the prices of diverse goods react with different intensity and timing to current or prospective changes in monetary conditions. If, therefore, the index is to measure fluctuations in prices common to all goods and hence ascribable to fluctuations in money, it cannot be computed for merely a part of the price universe. The assumption that prices of goods not included in the index move in the same direction and to the same extent as the prices included is dangerous. Such a selective coverage would be justified only if we could classify goods according to the responsiveness of their prices to fluctuations in money. The goods from each class included in the index could then be assigned a weight determined by the importance of the class as a whole. Since a reasonably complete classification of this type is not available, a price index cannot be satisfactory unless it has relatively complete coverage.

But prices can be compared at successive points of time only if goods of identical type appear on the market. Yet changes in technology and in the tastes of ultimate consumers spell qualitative changes over time. As some commodities (e.g., buggies, certain types of attire) disappear, new ones (auto-

[4] Another device is to construct indexes of output. The problems are analogous to those for indexes of the general price level.

mobiles, radios, etc.) appear; and some are so subject to qualitative changes that, while called by the same name, the unit of 1921 is hardly the same as that of 1941 (e.g., certain types of industrial machinery). Thus, even for commodities, prices comparable for a substantial period exist solely for goods that undergo merely minor qualitative changes and that are in active market circulation throughout the period. Among services it is still more difficult to establish qualitative homogeneity; qualitative changes are rather likely, and shifts into and out of markets frequent.

A further difficulty arises even for those goods for which comparable prices exist for a period. All are in active circulation during the period but the relative quantities in which they are produced and appear on the market, needed as weights in combining the prices into a general index, are not constant. Which set of quantities is to be used? If those of year 1 are used, then the measure of price changes assumes as basic the goods-basket in year 1; similarly for years 2, 3, etc. Since one and only one set of quantities can be used in an index, the measure of changes in the price level is always based upon some past, present, or intermediate basket of goods whose validity is confined to the point of time to which it refers.

In sum, even if all possible price data are at hand and no effort is spared, the measurement of temporal changes in prices and hence the possibility of establishing comparability in 'heterotemporal' comparisons is qualified by the limitation of prices to a body of goods appearing on the market throughout the period and by the necessity of choosing a single set of quantities as weights. The difficulty is practical: the choice is between presenting national income estimates solely in terms of current, fluctuating market prices, and attempting a necessarily imperfect correction for movements common to all prices and thus ascribable to fluctuations in the value of money. When changes in the general price level are appreciable, it is obviously better to make even an imperfect adjustment than to leave national income totals affected by fluctuations that

express changes in neither the quantity of goods nor the substantively defined value per unit.

C VALUATION OF GOVERNMENTAL SERVICES

If governmental activities are treated as unproductive, as they have been by many national income investigators in the more distant past, no problem of valuation arises: by definition, the value of governmental services is zero. Such a treatment is manifestly invalid: governmental activities contribute too much to the satisfaction of needs and are too closely interwoven with the entire network of market relations for their role as economic and productive pursuits to be ignored.[5] But on what basis are they to be evaluated?

One basis, to treat value of governmental services as meas-

[5] It could hardly be denied that the services of the post office, judiciary, etc. represent productive activities and contribute to the satisfaction of the needs of society at large. Doubts, however, have often been expressed concerning the validity of including the services of police or armed forces in national income; and many estimators have explicitly excluded payments of interest on government debt created by wars, on the assumption that no productive services correspond to them and that they are, therefore, mere transfers.

One can easily see the reason for such treatment if an investigator adopts criteria of productivity in the light of which he can modify judgments expressed by an overt act of the body social. However, only the acceptance of criteria of productivity different from those applied by society at large would justify this treatment. Since the estimators or analysts who advocate it usually profess to accept the dictates of the market place, the exclusion of services of governmental agencies such as police or armed forces and of interest payments on government debt seems inconsistent. If the activities of the private police used by many large corporations are productive, why not those of municipal police? And if of domestic police, why not of international police, i.e., the armed forces of the nation? If capital invested in industrial plants is productive, why not capital sunk in the preservation of the country's economic system or in securing to it economic privileges that affect the welfare of all enterprises or inhabitants? The objection that private enterprises cease paying interest on capital when it ceases to be productive, that they retire the debt or cancel it through default is not valid; governmental agencies act in like manner, though with a greater lag. Indeed, there is considerable parallelism between governments and private corporations in their expenditures on policing, economic warfare, their financial structure, and their policies with respect to debt.

ured by payments to governments by enterprises and individuals, is similar to that applied to other goods entering national income. The implication is either that, as on the private markets of the economy, individuals and enterprises pay the amounts governmental services are specifically worth to each of them; or that while neither individuals nor enterprises determine singly and individually how much governmental services are worth to them, society at large, through its established agencies for the expression of public opinion, does determine the total value of governmental services and sets the payment for them accordingly.

This treatment is questionable. The market on which governments sell their services is, with a few important exceptions, one where the suppliers (i.e., governments) have the power to fix an obligatory payment (in the form of taxes, fees, assessments, etc.). On the markets where the prices of other goods are determined, on the contrary, the potential purchaser is free to buy or abstain from buying. Consequently, can the payments governments exact be regarded as prices measuring the economic value of their services to society at large? Are the prices comparable to prices set on private markets? The strongest doubt concerns the tax paid by a given individual or business firm. Does it measure accurately the value of the services rendered by government to this particular payer?

It has been suggested that instead of evaluating governmental services at payments made to governments it would be better to use the cost principle. The implication is that the conditions under which governments buy and use production factors such as labor and materials are more similar to those of private markets than those under which they sell services or determine the payment to be made.

The choice between the two principles is largely between two evils, for neither is adequate. Costs adjust themselves more slowly to changing economic conditions than payments; moreover, an enterprise may sustain a net gain or loss, either inadvertently or as a matter of policy. Both are disadvantages of the

cost principle as applied to governmental activities; in addition, since all other goods are evaluated, as far as possible, at current market prices, the application of the cost principle to governmental services introduces an element of incomparability among the components of national income. On the other hand, the payment-price approach to governmental services is arbitrary because of the enforcement power of governmental agencies and because the relations between governments and citizens are hardly characterized by the same spirit of calculation and economic rationality that prevails in private markets.

Two considerations tip the balance in favor of the payment-price basis of evaluation. First, the difference between the results of the two bases would obviously be great chiefly for short periods, when governments may sustain large deficits or surpluses not offset by equivalent additions to or drafts upon tangible assets. But for short term changes the lag in costs and their insensitivity to changes in the market situation are especially conspicuous defects. Since the purpose of studying short term changes is to ascertain how the economic system responds to varying conditions, it seems preferable to use a valuation basis that is more sensitive to changing conditions.

Second, in estimating national income we need not be concerned whether a principle of valuation is efficient as applied to discrete units of goods and services passing through the market. We should judge its efficiency in measuring total national income and its significant components. For example, we should ask ourselves whether the payment-price is a valid basis when we consider the price paid by society at large for all governmental services,[6] not whether it is valid when applied to the prices (taxes) paid by Mr. Jones or Mr. Smith. When thus viewed in application to the whole complex of governmental services, the payment-price approach gives more reasonable results and has certain other advantages over the cost basis.

[6] Or more correctly, prices paid by ultimate consumers as a whole separately from those paid by all enterprises; see Section 4.

The piling up of deficits during depressions, which allows the market value of governmental services to fall below the cost value, is obviously in response to the changed market situation, and may be interpreted as reflecting a lower current valuation placed by society on governmental services. The case seems to be parallel to that of business corporations whose costs also tend to exceed returns during depressions, indicating that the valuation placed by society upon their products has declined compared with that implied in the past outlay. The difference is that whereas services of corporations are evaluated by the large body of consumers acting separately through private and free markets, the services of governments are evaluated by political agencies whose basic function is to express the consensus of opinion of the body social. But this difference does not seem to justify the adoption of the cost principle of valuation.

For these reasons, in our estimates governmental services are valued by the payment-price approach. But since the difference between the two approaches lies in an item estimated separately, viz., net savings of governmental agencies, anyone so inclined can substitute the cost approach.

4 Distinction between Net and Gross

We have defined national income as the *net* value of all goods produced by the nation during a given time unit. The emphasis on net and the need of distinguishing between gross and net values become clear from two observations. First, national income measures the results of economic activity cumulated over a finite period, rather than the state of the economic system at any one time. Second, the production of economic goods, both within separate enterprises and for the economic system as a whole, involves the use and consumption of already existing goods, products of time units preceding the one whose products are being measured or of this time unit itself. Since the full value of any good includes the value of other goods absorbed in its production, it would not do to count in national

income the full value of A as well as the value of B consumed in the process of producing A.

The distinction between gross and net is clearest in the case of a single enterprise. In performing its productive functions during a given period, an enterprise almost inevitably consumes products of past periods and of other enterprises. Its specific contribution to the value of goods made available during the current period for purposes of consumption and addition to stock is the value of its products *over and above* the value of products of past periods and of other enterprises consumed in the production process. Thus the *net* value of the enterprise's product is the full or *gross* value minus the value consumed by it, i.e., the cost of commodities and of services of other enterprises used up in the production process. The factors in a given enterprise that give rise to the excess of the gross value of product over the value of products consumed can be identified: they are labor, services of managerial and entrepreneurial personnel and of capital. The net value of product is thus the value of production specifically attributable to labor, capital, and entrepreneurial ability engaged in the enterprise.

This description can be extended to the national economy as a whole. The sum of the net values of products turned out by the enterprises that comprise the economic system is the net total that constitutes national income; and the sum of the full values of products of the various enterprises yields a gross national product total. The difference between national income and this gross national product is the value of products of enterprises consumed in the productive activity of all enterprises that comprise the national economy. In other words, net national product or national income is the value of product specifically attributable to labor, capital, and entrepreneurial ability.

Two types of difficulty arise in following this definition. The first concerns the meaning and scope of 'enterprise' and 'consumption'. The relation of net to gross varies with the defini-

tion of these terms because of differences in items deducted from gross to obtain net. Again the problem is one of inclusion and exclusion, similar to that encountered in Section 2 in the discussion of the concept of economic goods, except that here inclusion and exclusion apply to deduction items and have an opposite effect on national income. The second difficulty arises when the items subject to deduction have already been defined: it is not always feasible to estimate their value in a way consonant with the evaluation of total product.

A INTERMEDIATE AND ULTIMATE CONSUMPTION

The meaning of the term enterprise is far from unique and specific. An economic enterprise in general, including such non-profit organizations as governmental agencies, may be described as a unit set up for production processes that result in economic goods. What then prevents us from classifying each wage earner as a separate economic enterprise whose primary purpose is to render labor services at the highest possible price? If this were done, the net value of products turned out by a factory would have to exclude wages paid to wage earners, since such payments would represent the value of consumed products of other enterprises. Instead we would have to add the net value of products of the various enterprises called wage earners. This net value would equal not the full amount of wages received (the *gross* value of the product of these wage-earning enterprises), but wages minus the cost of products wage-earning enterprises buy from other enterprises and consume in the process of producing labor power (food, clothing, and other means of maintenance and reproduction). Consequently, this extension of the concept of enterprise would materially reduce both the net value of goods produced by the economic system and national income.

Similar reasoning can be applied to other elements now commonly included in national income. Each salary earner, entrepreneur, holder of a managerial and executive position can be conceived of as an independent enterprise; the com-

pensation for the products of each should be deducted from the gross value of products of the business or other unit in which each is employed, and from the total receipts of each should be subtracted the cost of maintaining and reproducing his capacity of rendering services of various types. Even for purely property income a case can be made for subtracting from total payments received the cost of maintaining a degree of abstinence and farsightedness indispensable for savings and investments. This extension of the concept of enterprise widens the scope of intermediate consumption, i.e., consumption of goods for the purpose of producing other goods, at the expense of ultimate consumption, i.e., consumption for carrying on life in its broadest aspects; and reduces the net national product or national income to that exceedingly minor magnitude that may be considered as *not* involved in the replacement of all goods, human capacity included, consumed in the process of economic production.

No purely analytical or empirical consideration can invalidate this extension of the concept of enterprise: it is largely a terminological question. But were this extension made and national income given the narrow scope and meaning, it would no longer reflect prevailing notions of the distinction between economic activity and life in general; and we should become more concerned with estimating the type of gross national product that corresponds to what we now call national income. Essentially we are interested in the type of national income we estimate because it corresponds broadly to current social philosophy, evolved from the basic assumptions of the modern social structure. We do not look upon human beings as enterprises, as units for the production of other goods; consequently, we do not view the raising and education of the younger generation or the sustenance of the working population as intermediate consumption destined to produce or sustain so many machines for performing labor, management, entrepreneurial, or capital-saving functions. It is this idea of economic goods existing for men, rather than men for eco-

nomic goods, that gives point to the concept of ultimate consumption and special interest to national income as usually defined. In this definition intermediate consumption is confined to the consumption, in the production process carried on by business and public enterprises, as the term is usually understood, of commodities and of services of other enterprises.

It may be contended that the attribution of primacy to the ultimate consumer is an idealization and that the corresponding national income concept suffers from the incongruity of combining the *net* return from the use of capital with the total or *gross* return from the direct use of human services. We do not deny the incongruity; its corollary is that we estimate national income on the assumption that the capital of business and public enterprises is kept intact, but do not apply such a criterion to capital represented by human capacity. To repeat, the one justification for formulating the national income concept in this way is the general notion that it should measure the positive contribution of the economic system to the satisfaction of present and future needs of the nation as a body of ultimate consumers; and this notion of ultimate consumption is essentially derivable only from the view that goods exist for men, not men for goods. It is immaterial whether this view is realistic in the sense of being embodied in all the institutions of modern economic society; that it is not, many observers have declared. The point is that national income is an appraisal notion of this type and our task is to reveal its implications.

Other concepts of national income are of course not thereby barred; various types of gross and net national product may be as useful as 'national income' as we define it. It would be of great utility to measure the entire range of possible totals, beginning with the gross national product in which duplication is most extensive and ending with the narrowest net national product representing the broadest interpretation of the term 'enterprise'. If subtrahend and minuend are estimated sepa-

rately, as they naturally would be in a whole series of totals ranging from the 'grossest' to the 'nettest', we would have a most illuminating picture of the working of the economic system. Among our estimates, for the parts of the economy for which data are available, are estimates of the gross value of product. And if in measuring net national product, we define intermediate consumption as the consumption by business and public enterprises, as the term is usually understood, of commodities and of services of other enterprises, it is because with the data and time at our disposal, we, in common with other investigators, consider this particular concept best suited to the basic criterion of appraisal, viz., provision of goods for the satisfaction of ultimate consumers of the present and future.

Application of these concepts of enterprise and intermediate consumption shows that some intermediate consumption by enterprises takes the form of consumption by individuals. But, when we try to differentiate between ultimate consumption as the basis of life in its broadest aspects and consumption forced upon individuals by the performance of specific productive functions, and hence eligible for classification as intermediate consumption, we are faced with analytical difficulties arising from the close interrelation in individuals' lives of occupation and other factors and from the impossibility of disentangling the purely economic elements in the organic pattern of life. Both tax laws and common sense treat the traveling expenses of salesmen as business expenses and intermediate consumption; but what about the expenses of commuting, which the tax laws do not recognize as deductible? Should the cost of work clothing or the differential cost of clothing demanded by occupational status be considered a 'business' expense and deducted in establishing the net national product? What of the expenses of special types of education? of special medical care needed to offset the incidence of specific occupations?

For lack of data (which is, in turn, due partly to the analytical difficulties just mentioned), we deduct practically no occu-

pational expenses. Entrepreneurs constitute the sole important exception, but even for them only outlays reported under business expenses are deducted. Direct outlays on intermediate consumption, usually designated 'occupational expenses', are largest, both absolutely and relatively, for individuals engaged in rendering direct labor or other services; and are negligible for individuals in their capacity as savers and investors. Disregard of occupational expenses makes the service income items in national income 'gross' compared with the property income items in two respects: (1) the maintenance and reproduction of human capital is not allowed for; (2) even the outlays by service income earners incurred in specific connection with their productive functions are not deducted.

A much simpler problem of inclusion and exclusion hinges upon the meaning of 'consumption' when we speak of deducting intermediate consumption in deriving the net value product. By 'consumption' we typically mean a decline in the value of a good sustained in the process of utilization. This process of utilization associated with intermediate consumption is usually the process of production, of turning out the gross value product. But obviously, goods belonging to enterprises may lose value through events that cannot be interpreted as representing the process of production or of intermediate consumption: declines in value that may reflect sudden changes on the demand side or in the physical conditions of production, as well as changes in price levels, general or specific. Sudden shifts in consumers' tastes, fires, strikes, riots, wars, earthquakes and other acts of God may cause material declines in the value of goods ordinarily utilized by enterprises in the production process. Intermediate consumption includes only those declines that represent the ordinary and calculable hazards of active participation in the production process. Other changes, even though they have substantial effect on the economic welfare of individual enterprises, are not part of the continuous and organized process of production. And just as we exclude

from national income gains in capital value arising from such events, so we exclude from intermediate consumption any declines in value caused by them.

B ESTIMATING INTERMEDIATE CONSUMPTION

Once the distinction between intermediate and ultimate consumption and the meaning of the latter term have been established, national income can be computed by subtracting the magnitude representing intermediate consumption from the full or gross value of goods produced. This derivation of the *net* value of the national product by subtraction is not avoided even if the net values are given directly in the data, for in that case the subtraction has been done by the agencies providing the data, and we would still have to test the procedure by which intermediate consumption and the full value of products have been estimated by them. Of the specific questions that may arise in estimating the value of intermediate consumption we discuss two: (a) the consumption of durable products and of materials; (b) the measurement of those governmental services that represent intermediate consumption.

a) When the process of intermediate consumption involves the complete physical disappearance of the good, or, more accurately, such substantial transformation that we cease to recognize the good, its full value measures the magnitude of the consumption. But when the physical transformation in the process of utilization takes long, there is no quantitative evidence of consumption for relatively short intervals. All fixed, durable capital goods are in this category; and one of the first difficulties encountered in estimating national income for an interval as short as a year is to get annual values of the intermediate consumption of such goods.

What fraction of the durable capital good is consumed during the given period? The signs that would indicate that this or that fraction of a machine's total useful life or capacity has been absorbed are few. There are few reliable data even on

total useful life and capacity.[7] Consequently, estimates by business enterprises of current consumption of durable capital are exceedingly crude, and many enterprises to which no immediate advantage would accrue from making them, do not. The investigator must accept these estimates, crude as they are, for he cannot hope to improve upon the practice of business units vitally concerned with a proper determination of the costs of their activity. But he must himself estimate durable capital consumption for the other parts of the business and public economy, even though entrepreneurs and public agencies themselves do not. To prevent distortion of the national income total and its distribution, estimates of intermediate consumption must be complete.

The fractions of durable capital goods consumed during a given period having been established and those for non-durable goods being known to equal 1, to what values should these fractions be applied in estimating intermediate consumption? Since it is to be deducted from the total value of products to yield the net, it should be as far as possible in terms of the yardstick used for the full value of completed products—the current market price, with whatever modifications needed to adjust for changes over time or to cover uncompleted production.

This conclusion is so obvious as to seem axiomatic. Yet it is not the practice followed by business enterprises and other producing agencies that estimate intermediate consumption. They usually calculate the consumption of durable capital as a fraction of the original cost of acquisition, except when it has been reappraised or revalued. Materials carried in inventories are usually charged at either original cost or market price, whichever is lower. For both groups of goods, substantial changes in price levels may bring about considerable disparities between the estimates of intermediate consumption ac-

[7] Indeed, it may be argued that any allowance of a fraction for a given year involves a forecast of the future, a forecast of the expected decline in capital value. Data for such forecasts are necessarily few.

tually made by business and other enterprises and the estimates that would be obtained by valuation based on current market prices. We attempt to adjust items in national income that reflect the prevalent practices of enterprises for the effect of departures from the principle of valuing all items at the prices they currently fetch on the market.

b) In estimating intermediate consumption it is assumed that outlays can be directly connected with the gross value of product originating, in that the former were incurred by the enterprise in order to obtain the latter. This assumption is manifestly valid for most outlays: a firm consumes durable capital equipment, raw materials, services of other enterprises, in order to produce gross and net income; and refrains from outlays that are not likely to increase gross, and consequently perhaps net, profit. But this is true solely of the intermediate consumption over which the enterprise has discretion, in the sense of opportunity to incur or refrain from the outlay.

Here, as in the valuation of governmental services, the exercise of governmental control over enterprises renders dubious assumptions readily accepted for private market activities. It may be argued that governments can and do levy taxes on enterprises greater than the value of their services to enterprises; and that consequently some income payments flow *via* governmental channels from enterprises to ultimate income recipients. If this is true, we cannot treat payments by enterprises to governments as a measure of intermediate consumption: they would be larger than intermediate consumption of governmental services and net national product would be undervalued if they were deducted. Obviously, the opposite may also be true: enterprises may pay governments less than the value of the services rendered them by governments; these payments may, therefore, understate the intermediate consumption of governmental services and net national product would be overvalued if they were deducted.

This argument implies that distinct groups of governmental services (e.g., those rendered enterprises as distinct from those

rendered ultimate consumers) should be valued on a basis other than the payments made for them. Such valuation is not incompatible with valuing total governmental services on the basis of payments. It may be argued that society at large determines the *total* value of governmental services by determining how much will be paid for them, but that the apportionment of services and payments among specific groups of recipients and payers need not follow the principle of identity of value rendered and payment exacted. Both administrative and social policy considerations may require that enterprises be subject to greater or smaller assessments than they would be on the basis of services received, no matter how valued.

If governmental services to enterprises are separated from those to ultimate consumers, then, even if *total* governmental services are assumed equal to payments by enterprises and individuals, intermediate consumption might still be unequal to payments by enterprises. It might be claimed that the cost (or any other aspect called x) of various services indicates their relative value (implying that any difference between total cost (or x) and total payment value may be apportioned among various items in constant proportion to cost (or x) incurred); and that on this basis, payments by enterprises to governments contain a hidden transfer to ultimate consumers, or fail to reveal a hidden draft upon ultimate consumers by enterprises. In practice, this would mean the segregation of governmental services to enterprises from those to ultimate consumers; and the determination of the value of the two groups by apportioning total value (i.e., total payments) according to costs or any other basis. If intermediate consumption so determined is less than payments by enterprises, national income is increased; if it is greater, national income is reduced.

However, this treatment implies that we can separate governmental services to enterprises and to ultimate consumers. For some governmental activities such as information service to business concerns, on the one hand, and provision of public

parks, on the other, we can, but for most essential governmental activities the line of demarcation between services to enterprises and to ultimate consumers is faint. For example, it would be exceedingly difficult to apportion between enterprises and individuals the services of the army and navy, the legislature, the public utility divisions of governments (streets, roads, etc.), activities designed to meet the needs of the community at large. And even many governmental services that seem at first to be directly of benefit to either enterprises or individuals cannot easily be classified under one or the other head. Relief payments are presumably services to individuals, but they also help to preserve the labor supply, a service to enterprises. Research into quality standards is presumably of direct utility to enterprises, but it also benefits ultimate consumers.

The difficulties of differentiating between services to individuals and to enterprises make any apportionment of governmental activities arbitrary. Any estimate of intermediate consumption of governmental services would in turn be arbitrary. Under the circumstances it seemed best to adopt the most easily obtainable: taxes and other payments by enterprises to governments. Manifestly a compromise, it may distort total national income and the proportion of industrial components. But it seemed the most expedient in view of the inadequacy of data on governmental outlays and the analytical difficulty of separating governmental services to enterprises and to individuals.[8]

[8] Since the total value of all governmental services is measured by payments to governments by individuals and business enterprises, and since the value of governmental services to business enterprises is measured by payments of the latter to governments, the value of governmental services to individuals is measured by payments by individuals to governments. This equivalence is assumed for the broad groups *in toto;* not, of course, for payments by and services to any specific individual or business enterprise.

Thus our national income total includes all payments by enterprises to individuals. In estimating income flow to individuals, taxes paid by them, being payments for services rendered, are not subtracted any more than are payments for bread or medical services.

5 *The Meaning of 'Produced'*

The meaning of 'produced' and 'production' has been discussed at several points. We could not define the concepts of productivity and intermediate consumption properly without defining production. For example, we had to exclude changes in capital value whenever they seemed to be caused by factors outside the regular processes we associate with production—extracting, transforming, transporting, and distributing commodities and rendering services. But we have not yet discussed the validity of defining national income as the value of goods *produced,* rather than as the value of these goods at some stage in their circulation in the economic system. Nor have we established the time at which goods may be considered to be 'produced'.

A 'PRODUCED', 'PAID OUT', 'SPENT', 'CONSUMED'

Is it the value of goods *produced* that leads to the most valid appraisal of the positive contents of economic activity? Since the final aim is to satisfy the wants of ultimate consumers, we might perhaps more properly center attention on ultimate consumption. Instead of defining national income as the value of goods produced, we should perhaps define it as the value of goods consumed by ultimate consumers.

Between the completion of production and ultimate consumption two intervening stages can be distinguished. The first is that of disbursements by producing enterprises to ultimate consumers, largely in compensation for productive services rendered by them or their capital. Most of the total money value of goods produced during a year is distributed in payments to ultimate consumers, and these payments constitute the principal, although not the only, means of purchase at their disposal. The second stage is that at which ultimate consumers spend the money. For any given period the total of such expenditures on the purchase of finished goods is not necessarily equal to the payments received from the producing

establishments or to the value of products actually consumed by ultimate consumers.[9]

We may describe national income as the net value of goods produced, or as total payments by producing enterprises to individuals largely in return for the productive services of the latter or of their property, or as total outlay by ultimate consumers on finished goods, or as the total value of goods consumed by the nation's ultimate consumers. For any reasonably short period, no two of the four totals will be the same; and between some pairs of totals the differences are substantial for any period. While the choice is largely terminological, the way in which national income is defined affects the total and its variability over time.

Several choices are possible. First, national income may be used as a generic term to designate all or any of the four totals, the totals being differentiated by a qualifying adjective. We may speak of 'national income produced', 'national income paid out', 'national income spent', and 'national income consumed'. While this usage has the advantage of stressing the essential multiplicity of possible totals corresponding to the variety of uses to which they may be put, it has obvious disadvantages. It tends to create confusion, for in seeking to appraise the results of economic activity there is a natural and justifiable tendency to look for a single total of general acceptability and validity. Moreover, it is awkward to speak of national income 'paid out' or 'spent': the term 'income' indicates an inflow; expenditures or payments, an outflow.

It is therefore preferable to confine 'national income' to one total, the net value of goods produced. The first and foremost reason is that it is a more comprehensive concept than any of the other three: what enterprises produce is the only source from which, in the long and often in the short run, ultimate consumers derive the means of payment they spend or save. In our economic system the net value of goods pro-

[9] These four stages are analytical, not chronological. At any given time goods are being produced, disbursements made, incomes spent, and goods consumed.

duced is usually, though not in every year, greater than payments to individuals; and still greater than consumers' outlay for goods or ultimate consumption. The practical advantage of designating the statistically larger total as national income is that it increases the probability that the other totals, which are components, will be estimated. In addition, it is the meaning of the term most consonant with usage in both economic literature and everyday discourse.

Nevertheless, the utility of the other totals and the advantage of estimating them are obvious. Aggregate payments to individuals, consumers' expenditures or outlay, and the total value of products actually consumed by individuals and households are all essential in interpreting national income as the measure of goods made available for ultimate consumption, present or future. As far as we can, we estimate not only the net value of goods produced but also aggregate payments to individuals and consumers' outlay; and only the absence of reliable continuous series prevents us from measuring the total value of goods consumed by individuals and households.

B THE TIMING OF PRODUCTION

For any period for which income is estimated, some production processes are incomplete and goods are maturing whose production was initiated during a preceding period. When may a good be considered to be 'produced'? In our decision, due weight must be given to the necessity of establishing net values primarily on the basis of current market prices.

One of two lines of treatment may be followed in dealing with uncompleted production or results of production processes initiated in preceding periods. The first is to consider a good as produced only when it actually appears on the market and there fetches the current price that reveals its economic value. All the prior processes of physical transformation are treated as preparatory to 'production', not as in themselves constituting production. National income would then exclude

all uncompleted production, i.e., the output of commodities and services that had not yet reached the market.

This treatment has the advantage that the principle of valuation based on current market prices can be consistently applied, except to goods retained by producers for their own consumption. However, the disadvantages more than counterbalance this advantage. The production process, which for many goods takes place over a considerable period, is telescoped into a single point of time—when the goods appear on the market. The procedure neglects substantial additions to or drafts upon stock completed or in process during a given year as well as the large differences that may exist between the value of such uncompleted production or production for stock and the value of production brought over from preceding years. Finally, as long as we do not confine national income to consumers' outlay or ultimate consumption but include also investment and savings, it would obviously be highly inconsistent to use a narrow concept of production in which sale on the market is the distinctive mark of completion.

The other line of treatment has already been suggested: to admit the results of production processes before the products appear on the market; to measure uncompleted production on the best basis feasible, that of costs incurred; and to exclude from any given year's value production that was going on during a preceding year but was not yet completed, and was taken into account then. Although this treatment necessarily increases the area in which a principle other than current market price is applied, it seems better to record net production during a given interval, even though its parts are somewhat incommensurable, than to neglect a part of a given year's production and include parts of production of preceding years.

Whether this treatment can be applied in statistical practice depends largely on when producing enterprises themselves recognize that production is completed. If their accounts are kept on an accrual basis and record an increase in the value of

stock as further work is done and costs are incurred on uncompleted production, we can include uncompleted production at cost. If the enterprises themselves do not acknowledge the existence of production until the good appears on the market, an estimate of all production, whether or not the good is on the market, is virtually impossible. The practices of business enterprises differ. The accrual basis is usual when the production process is relatively long and there is distinct physical evidence of transformation in the goods as a result of the production process (e.g., construction); the cash market basis, when the process is relatively short and there is little physical evidence of accrual of value (e.g., trade). National income estimates represent a mixture of the two treatments, a point to be kept in mind especially in interpreting estimates as indicators of short term changes in the value of the net product of economic activity.

The treatment adopted for timing the production of goods should be applied also to the timing of intermediate consumption in ascertaining the *net* values involved. Since goods that are completed within the year are evaluated at prices current when they appear on the market, their gross or full value should be reduced by intermediate consumption evaluated at the prices of goods consumed current at the time the final product appears on the market. And since uncompleted production is evaluated at cost, the associated intermediate consumption should also be evaluated at cost. The combination of the current market price and cost methods of valuation and the mixture of the two treatments in the timing of production should affect in equal degree the gross value of both goods produced and intermediate consumption sustained in producing them.

6 National Economy as Object of Measurement

The adjective 'national' used to characterize income estimates for various countries is not quite accurate. A nation may be defined as a group endowed with a common history, language, and cultural heritage, and a consciousness of kind, but not

necessarily possessed of a country with a sovereign government. All so-called national income estimates refer, however, not to the total income of national groups but to the total income of countries, each constituting a sovereign state. Some of these state units comprise more than one nation (e.g., pre-1918 Austria-Hungary); others represent only part of a national group (e.g., Great Britain). The corresponding estimates of income should perhaps rather be designated as 'statewide'. But the present terminology is too deeply intrenched to be susceptible to easy change.

The definition raises immediately the larger question of the utility and validity of striking off income totals for economic activities circumscribed by the boundaries of a sovereign state. Why choose state units at all? Since they do not always constitute self-contained economic systems, the unit chosen is not necessarily a natural one, i.e., one that would be defined by a student delimiting an economic region. A great deal of arbitrariness and historical accident, and a marked absence of historical continuity, may characterize the territorial composition of any given sovereign state. True, every sovereign state attempts to inculcate a feeling of unity and continuity in its citizens. But should economic science further such attempts by accepting these doctrines at their face value, couching all its discourse in terms of statewide economies, and making its basic estimates in terms of national totals, i.e., totals for the relatively artificial boundaries of states? Why should we segregate a particular group of individuals and enterprises, subsumed under the state, for the purpose of adding the net product of their activity and of their property; and especially why should we accept the judgments of this particular group of people concerning productivity and economic value?

It may well be contended that our *national* totals suffer from two limitations. First, they are artificial because they combine products and activities of groups that lack cohesion and homogeneity. One could argue that it might be more effective to study income totals by occupational-industrial groups, no mat-

ter in what country they reside. We would then be dealing with world farm income, world industry income, etc. Second, national totals include products that may be considered goods from the standpoint of each state unit separately but not from the standpoint of the world as a whole. It might be argued justifiably that such products as poison gas, tanks, and other armaments would be excluded from any estimates made from a viewpoint other than that of a single state unit.

While neither limitation can be denied, the effect of both can be overcome, at least partly. The effect of the first can be reduced by dividing the national totals into regional or other components and by supplementing totals for a given country with totals for other countries. The second can be partly overcome by segregating the net results of activities that, while appearing productive from the viewpoint of the given nation, are decidedly unproductive from the viewpoint of the world as a whole. Both these refinements and extensions of measurement are difficult, and we attempted neither. But the need for them should be recognized as the one way in which the undesirable limitations and implications of *national* income estimates can be removed.

On the other hand, it cannot be denied that state organization influences economic activity, canalizing it in certain directions; that the authority of the state often lends considerable independence and autonomy to the economic life within its borders; and that states impress upon their inhabitants a consciousness of kind that stimulates a desire to appraise the results of economic activity within their boundaries. It is of the essence of the state that it sets itself up as the sovereign authority, and hence the authority to guide and manage economic destinies; and since national income estimates, as well as other quantities in economic measurement, are indispensable guides to such policy, they should be for units corresponding to the areas within which state power can be exercised. Income totals are for national units because so much of our economic and social activity and of our thinking runs in these terms.

But granted that statewide estimates of income are of considerable utility, more specific questions arise in determining the precise scope of national income as the net product of a statewide economic system. The territorial principle of location of productive agencies or the political principle of state allegiance of individuals or institutions owning them may be applied. National income could be defined as the net value of products of productive agencies located within the territorial boundaries of a country, or as the net value of productive agencies owned by the citizens of that country, or in terms of some intermediate concept.

The variety of possible choices may be illustrated by the accompanying classification of productive agencies by their location, and the location and political allegiance of their owners. The strictly political definition would include I-1 and II-1, i.e., all agencies owned by the subjects of the given state. A somewhat more realistic but still political definition, determined by the possibility of reaching the income during any given year for purposes of taxation, would comprise (I-1) + (I-2) + (II-1a) + (II-2a); or the same total without I-2b. The strictly territorial concept would include all items under I, but none under II. Finally, if one conceives of the nation as a group of people residing within a given country, national income is (I-1a) + (I-2a) + (II-1a) + (II-2a).

I PRODUCTIVE AGENCIES LOCATED WITHIN THE BOUNDARIES OF A STATE
- 1 Owned by subjects of given state residing
  - a within
  - b outside
- 2 Owned by aliens residing
  - a within
  - b outside

II PRODUCTIVE AGENCIES LOCATED OUTSIDE THE BOUNDARIES OF A STATE
- 1 Owned by subjects of given state residing
  - a within
  - b outside
- 2 Owned by aliens residing
  - a within
  - b outside

The variety of choice is due largely to ambiguity concerning the limits of sovereign powers with respect to economic activity. Moreover, with the changing tenor of international relations and fluctuations in the level of international honesty

and goodwill, these limits shift from time to time. For those decades in which international economic obligations were still respected by most nations, it was valid to exclude from the national income for a given country the yield of productive agencies located within its boundaries but owned by non-resident aliens; and to include the yield of productive agencies located outside the country but owned by its residents. In recent years, when many states bar almost completely any outward flow of funds and make it impossible to maintain payments on international obligations, a definition based on a more strictly territorial principle is perhaps the only valid one.

Intended to reflect the kind of international relations that prevailed during most of the nineteenth and into the twentieth century, our estimates follow a combination of the territorial and political principles. They include the products of productive agencies located within the country and owned by its residents, (I-1a) + (I-2a); and those of productive agencies located outside the country but owned by its residents, (II-1a) + (II-2a). We define a nation as the group of individuals domiciled within the country's territorial boundaries, and estimate national income in terms of this group.

We cannot always estimate accurately the national income total suggested, since most data, especially in this country, are for productive agencies located within the country's boundaries but do not show ownership. Also, as already indicated, changes in the rules of international intercourse will invalidate within a short time any basis chosen for the determination of scope. Therefore, so far as possible, we present our estimates in such a way as to segregate those elements which account for the differences among some of the several variants of 'nation' and 'national' total.

7 *Summary*

In attempting to define national income as the net value of all goods produced by the nation, we had in turn to define

'economic goods', 'economic value', 'net' and 'gross' value, 'production', and 'nation'. We noted the criteria or assumptions that could be used to answer some of the fundamental questions raised by these terms and indicated how these answers lead to the inclusion or exclusion of certain items, to the selection of the basis of measurement, and to the drawing of temporal and spatial limits of the totals. Here we summarize first our conclusions, then give the broader assumptions and their implications.

Limiting national income to results of economic and productive pursuits forced us to exclude many satisfaction-yielding activities, primarily those conducted within the family, that may be considered part of life in general rather than economic activity proper. Included are results of pursuits whose products appear on markets. The only non-monetary items included are goods retained by producers for their own consumption, payments in kind by enterprises to ultimate consumers, and imputed income on owner-occupied houses. Results of some activities carried on for monetary returns are excluded as unproductive: gains in the value of assets not due to the production process; and receipts from gambling and pursuits definitely prohibited by society as harmful. Finally, pure transfers (contributions, relief payments, etc.) are excluded as duplications.

Goods that appear on the market are valued at market prices; goods that do not actually appear on the market (retained by producers for their own consumption, imputed rent, etc.) at the prices of their marketed counterparts; and governmental services at the total payments made for them by individuals and enterprises respectively. Uncompleted goods are valued at cost. Market prices are of course a far from perfect measure of how well goods satisfy society's needs. But they are the sole practicable basis if the estimator is to follow the consensus of social opinion. The one adjustment of market prices intended and made is for temporal changes in the general level of prices or in the value of the monetary unit.

In accordance with common usage, 'enterprise' was defined to comprise private and public producing units (including governments) and to exclude individuals, except in their capacity as entrepreneurs. Net value produced in a country was defined and measured as the difference between the full or gross value of all products and the value of commodities and of services of enterprises consumed in the production process (intermediate consumption). No occupational expenses of individuals could be deducted except the expenses entrepreneurs entered under their production costs. Intermediate consumption of governmental services is measured by payments to governments by business enterprises. All intermediate consumption is valued, as far as possible, on the basis of market prices current at the time the final product (from whose gross value intermediate consumption is deducted) is completed.

Production was confined to the regular processes of extraction, transformation, transportation, and distribution of commodities and rendering services. Mere changes in capital value due to changes in monetary conditions or to extraordinary events that cannot be anticipated or regarded as calculable hazards of productive activity were not considered part of production, and hence were not included under gross value or intermediate consumption. 'National income' was confined to the most comprehensive total, that of net value *produced,* and production was estimated, as far as possible, for all phases of the continuous flow from raw materials to finished products. Hence national income for any year includes goods not as yet on the market (uncompleted production, estimated at cost) as well as goods, parts of which were produced in the preceding period (value for current year to include only the production that took place during that year).

In setting spatial boundaries to national income, we included the income of residents of this country, from both their personal activity and their property, whether located here or abroad. Property income originating in enterprises located here but owned abroad is excluded.

Many of our decisions are not binding upon the user of our estimates, i.e., with the details presented he can derive estimates corresponding to somewhat different definitions. We give estimates of aggregate payments to individuals and of consumers' outlay as well as of national income. Governmental services can be evaluated on a cost or a payment-price basis. Income originating in enterprises located within the boundaries of this country, excluding income transfers abroad or receipts from abroad, can be estimated. But other controversial items are estimated on only one basis since any other would be impossible or too costly of time in the present state of data. We give no continuous estimates of excluded items (housewives' services, etc.) or alternative estimates of intermediate consumption, allowing for expenses of labor. No basis of valuation other than market prices is used.

While the procedures summarized above are due to a mixture of theoretical considerations and practical limitations, we stress the basic analytical assumptions that underlie them and the bearing of these assumptions upon the interpretation of our estimates. In defining national income the fundamental distinctions between: (a) economic and other activities, (b) productive and unproductive activities, and (c) regular processes of production and extraneous factors imply fundamental notions concerning the meaning of economic productivity—notions that represent a social philosophy. These notions may seem axiomatic, but they are essentially assumptions, not observations; and they are not in the nature of scientific statements subject to test.

In formulating these notions we attempted in general to hold consistently to two theses. The first is that needs of ultimate consumers provide the touchstone by which the results of economic activity are to be judged; that 'productive' designates the positive contents of economic activity viewed in terms of the satisfaction of recognized needs of ultimate consumers, present and future. Accordingly we assumed that goods are for men and that the members of the body social cannot be

treated as tools for the production of other goods; and consequently recognized wide areas in which ultimate consumption occurs, in which activities that are not productive are compensated by monetary gains, and in which activities that are not economic produce satisfaction.

The second thesis is that in judging relevance to needs, the overt expression of social judgment, the standards followed by society in its economic institutions are to be accepted as a guide. For this reason we excluded only such activities as are considered harmful or not productive by society, and adopted the market price basis of valuation. This decision does not mean that we, as investigators, could find a clear-cut and detailed consensus of opinion in the light of which specific questions could be answered. It means merely that in the broad decisions of inclusion, exclusion, and valuation, the generally accepted notions of society as expressed in its social institutions were followed.

Other positions could be taken with respect to both theses. The definition of 'economic' and 'productive' could be broadened to include all activities yielding satisfaction to any one individual, or narrowed in accordance with some more restrictive criteria of productivity that prevailed among the early economists of the Physiocratic and Classical Schools. It might be possible, though difficult, to set up criteria of the needs of society distinct from the criteria based on the market place, and revalue all products of economic activity accordingly. Both concept and estimates would differ substantially from ours. Any validity that may be claimed for our concept and estimate depends upon acceptance of the assumptions underlying the definition. And as already admitted, such validity is only historical, in the sense that it attempts to reflect the prevailing viewpoint on the contents of economic activity.

What is the utility of such national income estimates? Grounded as they are upon arbitrary notions of productivity and of the difference between economic and non-economic that

cannot be applied consistently, can they serve economic analysis? Are they suitable for any other purposes?

First, precisely because the estimates are based upon fundamental criteria that are widely accepted, they fulfill what we conceive as their basic purpose: to appraise the workings of the economic system. Much, if not most discussion, planning, and social strife are in the interest of making economic activity yield the largest positive contribution in terms of the criteria our national income concept uses, viz., to satisfy the needs of ultimate consumers at present and in the immediate future. The social utility of expressing quantitatively the current successes attained by these efforts is beyond question.

Second, if national income constitutes an appraisal of the results of economic activity, is it not useful in economic analysis? One basic aim of economics is to study the factors that make for changes in the net product of economic activity and analyze the ways in which it is distributed, consumed, and reproduced. An estimate of national income for a substantial period and based upon a consistent application of one and the same set of criteria can be of high utility.

Stated differently, the criteria on which a national income estimate as an appraisal notion is based are in fair consonance not only with the prevailing social attitude but also with the criteria that economics finds useful in the selective recording of the objects it studies. The estimates serve directly as guide posts in both scientific and everyday treatment of economic problems. And although we cannot always adhere strictly to our principles, approximations are better than no guides.

But for both scientific and lay analysis global estimates, single totals without subdivisions, are not sufficient, even if they cover substantial periods or several countries. As indicated repeatedly, the controversial issues of definition call for estimates in several variants corresponding to different solutions, variants that are components of the most comprehensive total. In addition, other subdivisions and classifications are needed to interpret changes in totals or differences among estimates

for different countries. We must know in what branches of the productive system national income originates; how its monetary equivalents are distributed; and what the apportionment is between savings and ultimate consumption of various types. A national income total is like an amalgam of metals in unknown quantities that must be analyzed before meaningful statements can be made concerning its composition or changes in it.

Now that we have explored the outside boundaries of the national income total in terms of the concept, we turn to its internal composition.