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3 ECONOMIC CONSTRUCTS IN THE NATIONAL INCOME ACCOUNTS

For a national economic accounting system to be analytically useful, it must define and measure blocks of transactions that correspond to concepts with economic meaning. Economic constructs are such blocks of transactions. At the most aggregate level, economic constructs emerge as the major totals of the system, representing income and product. Within these aggregates, major components such as consumption, capital formation, and factor shares are useful constructs to show the structure and behavior of the aggregates. In the process of further decomposition and deconsolidation, the economic constructs provide the basis for alternative classification systems. There is thus a continuum between macroeconomic analysis and the related economic constructs at the most aggregative level and more microeconomic analysis and the related detailed classifications at the most disaggregated level.

The Scope of Income and Product

Marked changes in the concept of income and product have occurred as national income accounting has developed. National income was first conceived of as the total of the incomes of all the households in the nation, and as a consequence many of the early estimates were based upon estimates of the size distribution of income—the number of households in various income classes. Later, emphasis shifted to the measurement of income generated by various kinds of economic activity. At this juncture, estimates were made both by computing the income originating in each industry and by estimating the totals for the major types of payments to the factors of production such as wages, interest,

and profits. Then, with the shift in emphasis to the final use of output, a commodity flow approach to the estimation of production was adopted, and the product of the nation was viewed in terms of total final expenditures at market prices. At each stage in the development there has been considerable controversy over the scope of income and product coverage, and how the total should be measured and valued.

This process of change and development in the economic constructs still continues. Recently, Kendrick [23] has made a number of recommendations for restructuring the national income accounts so that they will be more useful in analyzing investment and growth. A number of his specific recommendations are familiar in the literature of national accounts, but he has provided a more comprehensive and systematic coverage of the problems and has set them into a quantitative context. Much of the following discussion is based on Kendrick's work.

Unpaid Family Activities

One category of major concern to Kendrick is that of unpaid services provided within the family. A large part of the productive effort of the household consists, of course, of the unpaid services of the housewife. It has long been recognized that the shift of housewives from the home into the labor force involves substitution of market-produced goods and services for home-produced goods and services, so that the resulting change in total output may be overstated. There is considerable merit in this position, but the problem of measurement is formidable and any measure which is used is likely to be ambiguous. For example, women who enter the labor force may continue to provide much of the necessary housekeeping service. They may perhaps spend more of their leisure time getting household tasks done and husbands and other members of the family may also undertake additional chores, thus trading their leisure for more income. The question immediately arises whether leisure itself is not an output of the system, but the problem of valuing it is again very difficult. Kendrick also questions the omission of other unpaid services performed by households. For instance, individuals contribute time to such voluntary organizations as hospitals, welfare agencies, and political organizations. Students working in school are educating themselves, and in some sense are perhaps as productive or more productive than they would be if they had entered the labor force. Kendrick suggests that all of this unpaid productive activity might be valued in terms of its opportunity cost.

There can be no doubt that the household is involved in uncompensated productive activity, and to some degree existing national income accounting recognizes this explicitly by introducing estimates for food produced and consumed on farms and for imputed rent of owner-occupied housing. In less developed countries, identifiable economic activities such as the making of clothing or other household handicrafts have also been recognized in the national accounts. There are in addition a wide range of activities that fluctuate between the market and the nonmarket sector. Private transportation provided directly by the household for its own use undoubtedly represents one of the major productive activities of the household in the US economy. The fact that men shave themselves and many women do their own hair rather than going to barbershops and beauty parlors is again evidence of productive activity in the household.

The question of productive activity taking place within the household unquestionably needs further study. Time budget studies of how people divide their total time among different activities (including eating, sleeping, and leisure) would be highly informative, and would provide a valuable set of data that could be directly related to the market transactions in the national economic accounts. However, it does not now seem feasible to include a comprehensive coverage of all productive activity taking place within the household in the accounts themselves.

The Services of Durables

As noted in the preceding chapter, the treatment of durables owned by households, government, and enterprises also raises problems. An imputation is made for the services of owner-occupied housing, and it may well be asked why such an imputation is made for housing but not for the services of other consumer durables such as the appliances in the house and private automobiles. It was suggested in discussing the structure of the national income accounts that households do engage in capital formation, and that such capital formation should include the purchase of consumer durables. But if the purchase of consumer durables is treated as capital formation, durables must also be considered to yield a flow of services over time. The value of these services could be imputed on the basis of the cost of renting equivalent services, or alternatively what it costs to own the durable goods (i.e., a capital charge equal to capital consumption plus imputed interest). The research on

household capital formation and financing by Thomas Juster [22] and other work going on in both the Department of Commerce and at the Federal Reserve Board [24] have indicated that it is quite feasible to make estimates of the contribution of the services of household durables to current productive activity, and it is therefore suggested that the scope of income and product measurement be expanded to include this element.

The treatment of durable goods owned by the government should parallel that of consumer and producer durables. The services of government-owned durables should be measured where possible by their equivalent rental value, or by the alternative of computing the costs of owning the durables. This treatment is necessary if comparability is to be maintained between the valuation of services in the general government sector and that in the enterprise sector. One of the major criticisms of many general government operations has been that their costs often do not include the total cost of the capital used, whereas the same operation carried out as an enterprise activity would include all costs. For example, a toll road operating on an enterprise basis would include both amortization and interest charges in the computation of the cost of providing services. The cost of providing public roads should similarly take into account not only the amortization of the capital cost of the road but also the fact that the roads represent a use of capital and thus involve an imputed interest cost.

Even in the case of business enterprises, problems arise in computing the cost of producer durables for national accounting purposes. Capital consumption allowances in the national accounts are largely based upon current business practices, which in turn reflect the tax laws. Such special tax regulations as accelerated depreciation, designed to encourage specific kinds of investment activity, distort the picture. So do price changes. Depreciation allowances are customarily based upon original cost and where prices rise significantly depreciation allowances based upon the lower prices of past periods may seriously understate the current value of capital consumption. In less developed economies, and even in some sectors of developed economies, businessmen may neglect to keep track of depreciation. In view of all these problems, the national income accountant is forced to estimate the value of the capital consumption actually occurring in the enterprise sector. The need for such estimation does not mean that the book value of the depreciation allowances charged for tax purposes is irrelevant; such data are an integral part of

the transaction network. But they cannot be used alone as the basis for measuring the actual amount of capital consumed during a given period.

Development Expenditures as Capital Formation

In most existing national income accounting systems, gross capital formation is composed of final expenditures on tangible, reproducible goods. Intangible services are considered part of capital formation only to the extent that they contribute to the value of the tangible goods; thus, the services rendered by architects in the design of a building and paid for in the form of architects' fees are reflected in the value assigned to the building, and transportation, delivery, and installation charges of equipment are included as part of the value of the equipment.

There is a striking parallel between this concept of capital formation and the concept of output in general that is used in the material product system of the Soviet Union and the Eastern European countries. Actually, the concept of capital in the MPS and the western national income accounting systems is identical, and this concept of capital formation is essentially Marxist. The MPS system is thus perfectly consistent, in that its concept of capital matches its concept of output. Western national income accounting has recognized that intangibles and services do constitute current productive activity, but this recognition has not been carried over into the concept of capital.

In the study of economic development, however, there has been a growing realization that development expenditures for such purposes as education and health are major factors in economic growth, and for a society they constitute valuable intangible assets. For national income accounts purposes, it would be useful to classify development expenditures as capital formation for three reasons. First, in evaluating alternative allocations of an economy's resources, expenditures for roads and expenditures for education should be considered in the same terms of reference. It is a serious error to consider roads as capital formation merely because they are tangible, and education as not capital merely because it is intangible; the economy's efforts toward future self-improvement should be measured in terms of the resources devoted to both tangible and intangible capital formation. Second, in estimating the consumption in which a government or an economy is indulging, it is misleading to consider that all of the resources that do not result in tangible capital goods must necessarily represent consumption in the

current period. In budgetary terms, the allocation between current use of resources and government capital formation intended to provide for future growth and development is significantly distorted if all intangible development expenditures are written off as current consumption. Third, there is a flow of services from the stock of intangible capital. Setting up the category of intangible capital leads to explicit recognition of this flow of services, and as a consequence both production originating in the government sector and total output will be increased.

It is particularly important to distinguish those expenditures that will have their primary impact on the growth and development of the economy in future periods for the government sector. In some countries, an appreciable part of the government budget is devoted to such purposes. To an increasing extent governments are aware of their obligation to make substantial improvements in the social and economic capital of their countries in intangible form, as well as the more tangible forms of roads, highways, parks, etc. It is somewhat questionable whether expenditures on national defense should be considered either intangible or tangible capital formation; by convention, military equipment is excluded from producer durables and it seems reasonable to write off military expenditures of an intangible nature as well.

Households may also make expenditures of a developmental nature. Kendrick, in fact, suggests that the rearing costs of children, the opportunity costs of students in the labor force, medical expenditures by households, and the mobility costs of families moving from one location to another all be considered intangible capital expenditures.¹ As regards society, Kendrick may be quite correct that many of these are development expenditures, but in relation to the individual household, it seems more reasonable to consider the cost of rearing children a consumption activity, from which families receive current benefits. The question of imputing opportunity costs for students has already been discussed; the general conclusion reached was that such an imputation, like the imputation for the opportunity cost of housewives' services, involved such complex problems and such a major departure from the current practice of reporting primarily market transactions that it should not be undertaken in the context of the national income accounting framework. Medical expenditures do have a future impact, but as in the case of rearing children much of the benefit may occur in the short

¹ See [23], p. 13.

run. Some types of preventive measures undertaken to promote future health, e.g., certain forms of dental care, inoculations, chest X-rays, etc., might well be amortized over time, however. Finally, mobility costs may in fact be either for current consumption or for future benefit, but it is difficult to distinguish those mobility costs which should be amortized over time and those which should be written off in the current period. Therefore, while in principle development expenditures for the household should be recognized, this category should probably be confined to direct outlays on education by households and certain limited classes of expenditures on health.

Enterprises also undertake development expenditures that are now written off as current expense. Thus, for example, businesses undertake research and development to improve products and to advance technology, and the cost of this research and development is written off as current expense. The cost of the training and education of employees is also generally considered current expense, though the benefit of such training and education to the firm and to the economy may continue in future periods as the employees contribute to economic activity. If the present contribution of past research and development and education and training expenditures equalled present outlays, there would of course be no significant distortion in the measurement of total economic activity. However, if these expenditures are increasing substantially there will be a systematic understatement of total economic activity, and also an understatement of profits resulting from current productive activity. It is also reasonable to assume that expenditures on research and development and education and training are sensitive to fluctuations in profits, so that failing to take them into account will distort reporting of cyclical fluctuations in economic activity.

If development expenditures of government, households, and enterprises are to be considered intangible capital formation, it will also be necessary to measure the flow of services yielded by this intangible capital over time. For some types of development expenditures such as education it is possible to consider that there is a given stock of education and training, physically embodied in the population and labor force. By appropriate demographic accounting techniques it would be possible to show how this stock of educated and trained personnel changes as newly trained individuals enter the labor force and older persons retire or die. For most intangible capital, however, the task is not so simple, and the

amortization of the original expenditure over time inevitably possesses a certain degree of arbitrariness. Nevertheless, amortization over even a short period of time would be a substantial improvement over writing these expenditures off as part of current cost. Study of the process of research and development, furthermore, does provide some guide as to the impact of research and development expenditures over time. Some development work is short-run, oriented toward products which are already in the process of production. Other research may be long-run, intended to achieve results only after a long period. As in the case of tangible capital goods, the total flow of services from intangible capital should include not only the amortization of the expenditures, valued in current price terms, but also the proper interest cost.

The question remains whether the flows of services provided by intangible capital constitute net additional flows of services in the economy, or whether they are already fully embodied in existing flows. In the case of development expenditures by enterprises, it is generally assumed that these expenditures contributed to the income earned by the enterprise in the present period, and are thus already included in the income originating in the enterprise. However, to the extent that the development expenditures are basic research, which society as a whole can use to good advantage, a social product over and above the private product may well exist. Basic research carried out under government contract or provided by enterprises as a public service may be of this nature. Such research, like that of the government and nonprofit institutions, probably should be considered to yield a net flow of services over and above the income flows generated.

It would also be possible to consider that the services of past intangible expenditures of government and households were fully reflected in the income of the economy. Thus, past educational expenditures yielding a flow of present services could be assumed to be fully reflected in the higher incomes of individuals in the present period. In this case, however, it seems more reasonable to make the assumption that although past education does affect the level and distribution of income in the present period it has other major social benefits that are not captured in the compensation that individuals receive for their services. It is very difficult, furthermore, given the time lags and technological change, to estimate precisely what contribution past education expenditures are now making to present income. For this reason, it would seem somewhat

more reasonable to consider that the flows of services of past intangible expenditures by both government and households do in fact constitute additional present income.

The Definition of Intermediate Goods and Services

The question of what constitutes an intermediate good or service in the economy has been at the heart of many national income accounting controversies. When the concept of the gross national product was first introduced, the question was raised whether the inclusion of all public expenditures on goods and services as final product did not result in double counting. If the government services are supplied to enterprises, it can be argued that such services are intermediate goods and services, which are fully reflected in the final output of the enterprises. But the problem of what is an intermediate good or service is not restricted to general government expenditure. A considerable portion of the expenditures of households could also be considered to be intermediate. An individual, for example, must commute to his job, and this expense can be considered an intermediate cost related to earning a living. Since clothes are bought to wear at work, and meals are purchased at work during the day, these too can be considered part of the cost of earning a living. This concept can be extended further. Many household expenditures are essentially of the nature of regrettable necessities, and are a part of the cost of living. Thus, an individual may live in a colder climate rather than in a warmer climate because of his job; the cost of heavier clothing and of heating his home might then be considered part of the cost of living in the colder climate. If the location of his job is such that he must live in a high rent community, the excess rent could be considered business expense. Even visits to his psychiatrist or vacations at luxurious resorts could be considered necessary expenses required so that he can continue to function at his job and earn income.

Thus, for both the household and the government sectors the line between intermediate and final goods is difficult to draw, and as a result current national income accounting practice has been to consider that almost all expenditures by households and the general government are final expenditures. Although this procedure does result in a grosser concept of output that may not correctly reflect the increasing costs of maintaining the society, it does nevertheless have the advantage that *all* the expenditures of households and the government are shown in the

national accounts, so that the behavior of these sectors can be more easily analyzed.

The distinction between intermediate and final goods for the enterprise sector is of course basic to the concept of gross product originating in enterprises. In computing gross product for an establishment in the enterprise sector the costs of goods and services used in current production are deducted from the value of sales and change in inventories in order to arrive at a measure of value added. In developing the end use pattern of final output, national income accountants have used the commodity flow approach; this involves classifying each good or service produced in the economy either as an intermediate good or service used up in the process of production or as a final product used for consumption or capital formation by enterprises, households, or government. Any change in the definition of what is an intermediate or a final product would, of course, affect the measurement of total output. It has already been suggested that research and development expenditures and education and training costs of business be considered developmental expenditures by business, and thus a part of final goods and services. There are, however, additional current outlays by business which result in a flow of goods and services apart from those directly produced by the firm or industry in question. For example, in the United States an enterprise may, in order to advertise its product, support radio or television productions. Since advertising expenses are considered to be part of the current production costs of the enterprise, television and radio entertainment is classed as intermediate. In countries where the government pays for television and radio directly, however, these expenditures appear as public consumption and thus are counted as final goods. It does not seem reasonable that the particular form of support of the television industry should determine whether or not the output of this industry is an intermediate or final product. It is true that in the United States an individual in one sense pays for his television by listening to commercials, but this still does not alter the fact that the programs themselves in a very real sense constitute final output. Other mass media supported largely by advertising might also be considered to be final output. Thus, magazines and newspapers should be considered as final, rather than intermediate, products of the system. In those instances where advertising expenditures are undertaken purely for their own sake, e.g., billboards, direct mail, etc., they would of course not be final products.

Enterprises also write off as current expense goods and services

that are provided to their employees directly as consumption goods. In large companies employees may receive as fringe benefits such things as recreational facilities, the use of medical clinics, subsidized eating facilities, and the use of expense accounts. If these benefits are provided to employees individually, it would probably be preferable to consider them payments in kind, and to consider the consumption good or service part of the consumption of the household. But when the goods and services are given in a more general form to a wider group of employees or to the public at large and the individual has little control over their supply or use, it would be useful to consider them to be enterprise consumption in much the same way that services provided by the government to the general public are considered to be public consumption.

In summary, there are strong reasons for enlarging the scope and measurement of national income and product to take into account (1) the services of durable goods owned by households and the general government, (2) the services of intangible capital created by expenditures of the government, households, and enterprises, and (3) the contribution of those goods and services currently written off as current expenditures by the enterprise sector that in fact are direct contributions to final output.

The Aggregates of Income and Product

National income accounting not only depends upon the definition of economic activity and the sectoring of the economy; it depends also on the creation of economic constructs around which the system can be built and which can be broken down in a number of different ways to show the structure and behavior of the system. The determination of the scope of the national income and product measurements is highly germane to the content of the economic constructs. But explicit consideration of what constructs should be developed and how the different constructs should be related to each other is essential.

National Income and Product Measures

Three major considerations enter into the development of measures of national income and product. (1) How gross should the measurement of output be? (2) Should the coverage refer to the residents of the country or to the activities taking place within the geographic area of

the country? (3) Should output be measured in terms of market prices or in terms of the factor payments generated by economic activity? Each of these considerations gives rise to a different type of measurement, and as a result there are a considerable number of different national income and product measurements in current use.

Gross national and gross domestic product at market prices are the grossest measures of output now used. In countries where the residents receive a substantial flow of net income from abroad, the gross national product, which represents the total income and product of the residents of a nation, will be larger than the gross domestic product, which represents the income and product of the geographic area. On the other hand, in countries where residents of other nations share substantially in the ownership and operation of enterprises within the country there may be a net flow of income to other countries, and thus gross domestic product would be larger than gross national product. The US and the UN uses of these concepts differ somewhat. The US production account is built around the concept of gross national product at market prices, whereas the UN consolidated production account is built around gross domestic product at market prices. In the US system, gross domestic product is not shown explicitly anywhere, but the present UN system does show gross national product in its supporting tables. The new revision of the UN system also relies on gross domestic product at market prices as the aggregate measure of total output, and does not show gross national product.

Gross domestic product at factor cost, which is defined as gross domestic product at market prices minus indirect taxes net of subsidies, does not appear in the standard accounts of either the US or UN systems, but it is shown as the aggregate of gross product originating by industry in the supporting tables of the old UN system. In the new UN system, gross product originating by economic activity is shown both at market prices and at factor income, which is the same as factor cost.

The new UN system introduces a new net concept, disposable income for the nation. This is equal to gross national product at market prices minus the consumption of fixed capital. In other words, it is the net national product at market prices. This concept, which is shown as the total of the consolidated income account for the nation, replaces the concept of national income and the equivalent concept of net national product at factor cost that is used as the basis of the national income account in the old UN system.

In the US system, national income (net national product at factor cost) is presented as a subtotal in the national income and product account, and is used in supplementary tables as the total of income originating by industry and by sector and legal form of organization.

In summary, the new UN system has adopted gross domestic measures in its production accounts, and net national concepts for its income and outlay accounts. The valuation of the income and product aggregates is at market prices, and in fact the traditional concept of national income does not appear in the system. Furthermore, the emphasis on domestic product also means that the familiar concept of gross national product does not appear explicitly.

There has been a growing tendency in national income accounting to use gross rather than net measures of income and product. In part, the reason for this is that the grosser concepts provide an opportunity to include more data about the operation and functioning of the economy, and economists have in large measure given up the income and product aggregates as measures of economic welfare. If the scope of income and product measurements is to be further extended in the directions suggested above, the statistical difference between the gross and net concepts would be substantially increased. The capital consumption and amortization charges of the tangible and intangible capital of households, governments, and business enterprises would be very much larger than at present. The net measurements of income and product would increase only by the amount of the net imputed services arising from the inclusion of the additional tangible and intangible stock of capital. As regards the income and product system as a whole, the net concepts altered as proposed may be more meaningful measures of current income and output than the gross measures, so that the net measures may take on increased importance.

Personal Income Concepts

Personal income is the total income received by the household sector, including not only income originating from economic activity but also transfer payments. The US and the old UN systems have similar concepts of personal income. The treatment of social security contributions is not spelled out in detail in the UN system. In the US system social security contributions are split into two parts: that paid by the employer, and that paid by the employee. In computing the

income received by employees, the US considers the employers' contribution a tax payment by employers to the government directly, and excludes it from personal income. In the new UN system total social insurance contributions are treated as a part of employee compensation, and are classified as a receipt of income and a tax payment by households. There is considerable logic to this treatment, since from the producer's viewpoint social insurance contributions are part of what he must pay to hire labor, and thus part of his total wage bill. In terms of actual payments, the employer not only pays the employer's share of the social security tax but also pays the employees' share and even withholds part of the employees' income tax and pays it directly to the government. From the household's viewpoint, take-home pay or even disposable income might be a more reasonable measure of income. As economic constructs, both personal income and disposable income are useful measures, and should be explicitly included in the national income accounting system.

Both the US and the old UN systems of national income accounts include the income and expenditure of nonprofit institutions in the household sector and thus in personal income. In the new UN system, however, nonprofit institutions are transferred into a separate nonprofit sector and are not included in personal income. On the other hand, if the scope of national income and product accounts is expanded in the manner suggested above, personal income would be increased substantially by the gross flow of services of the stock of consumer durables and development expenditures. The concept of gross personal income thus created would, in terms of grossness, correspond to the concept of gross national product for the nation. Such a new economic construct would be useful, since it would show the difference between the total flow of goods and services at the disposal of the individual and the net flow originating from economic activity and transfers in the current period.

Major Components of Income and Product

Besides aggregates, the national income and product account contains a number of major components. On the product side of the account, the two major components that are generally shown are consumption and capital formation. On the income side of the account there are

three major components: factor payments, indirect taxes, and capital consumption. Factor payments include the compensation of employees, interest paid, proprietor and rental income, and corporate profits. Indirect taxes reflect the difference between factor payments and total income generated in terms of market prices. Capital consumption shows the difference between net and gross income and product.

Consumption

If the scope of national income and product is to be extended in the manner which has been suggested, the definition of consumption would change substantially. The flow of services resulting from the stock of past capital expenditures (both durable goods and development expenditures) for both households and governments would be included, but at the same time household and government current outlays on durable goods and development expenditures would be excluded. In countries where there is substantial economic growth, present outlays by households and government for durables and development expenditures generally exceed the flow of services derived from past expenditures, and as a result consumption under the new definition would tend to be substantially reduced.

The second major change in the definition of consumption is the introduction of enterprise consumption. To the extent that enterprise consumption consists of consumption by nonprofit institutions, it would merely result in a reclassification of some consumption from the household sector to the enterprise sector. However, if the suggestions made above concerning the inclusion of consumption services provided by business such as television, radio, and other mass media and fringe benefits for employees are adopted, a net increase in the consumption taking place in the economy as a whole would result.

In the US national accounts system, consumption for the economy as a whole is not shown. Personal consumption expenditure is shown, but for the government only total outlays on goods and services are presented with no division between current consumption and capital formation. Both the old and the new UN systems do explicitly recognize final consumption expenditures of households, nonprofit institutions, and the general government, but of course this definition includes as part of final consumption total current outlays on durable goods and develop-

ment expenditures, and excludes the services provided by the stock of past expenditures. No recognition of enterprise consumption is made in either the US or UN systems.

Capital Formation

The extension of the concept of capital formation to include consumer durables and the development expenditures of households, governments, and enterprises will result in a substantially larger concept of capital formation than is customary in current national income accounting systems. Such an extension is necessary, however, if we are to gain an appreciation of the total amount of resources being devoted to the creation of the economic and social capital for future growth and development. This is important for economic and social policy, since in periods of emergency what appear to be reductions in current consumption by households and government, or what appear to be reductions in current costs by enterprises, may in fact merely be reductions in the purchases of consumer durables by households and in the outlays on development by government and enterprises. Such reductions would have repercussions in future periods since a smaller stock of consumer durables and intangible economic and social capital would be available for future growth and development.

The concept of capital formation in the US national income accounts is quite restricted. It is confined to private expenditures on structures, durable equipment, and inventories. No capital formation is recognized for either households or the general government. Both the old and new UN systems recognize capital formation of the general government, including structures, equipment, and inventory change, in a manner similar to enterprises. As in the US system, no capital formation is recognized for households; owner-occupied houses are considered a form of business enterprise. Neither the US nor UN systems take into account development expenditures by any sector, thus, as already suggested, adopting what is essentially a material product concept which defines capital in terms of tangibility rather than in terms of function.²

² Kendrick is engaged in developing time series beginning in 1929 for non-business capital outlays, developmental expenditures for all sectors, imputed rentals on nonbusiness capital stocks, and business consumption and investment charged to current expense, in addition to the imputed value of unpaid labor services referred to earlier.

Factor Payments

The term "factor" is much abused in national income accounting. It originated in the theory of value, where it was used to indicate the existence of "factors of production" such as labor and capital. Early in the development of national income accounting it was recognized that when indirect taxes are levied on a product the market value of output includes not only payments to the factors of production but also the payments of indirect taxes. In order to differentiate between the market price valuations including indirect taxes and the resource cost of producing a given item, the term "factor cost" was introduced. If the economic system were purely competitive and all resources were completely mobile the concept of factor cost would have some validity, since it would represent resource use. But if the economy is not purely competitive the payments to the factors of production will not represent resource use, but will merely indicate the income payments which are generated by market forces. Thus, for example, if in a specific industry there exists a high level of demand together with monopoly, the factors used in that industry (both capital and labor) may receive payments that are large relative to the factor payments made for the same amount of resources used in other industries. The payments to the factors of production as they appear in the national income accounts, therefore, cannot be used as valid measures of resource utilization. In this sense, the term "factor cost" is a misnomer, and the more recent term "factor income" is a welcome change. In economic terms, "factor payment" might be more appropriate than either.

The analysis of types of income payments and the relative income shares of the factors of production, however, does not necessarily rest on the assumptions underlying "factor cost." National income accounting should be able to provide measurements to show how the factors of production share in the income generated by the economic system. Unfortunately, in many situations the returns to labor, capital, and entrepreneurial activity are combined in a single transaction flow. In enterprises such as farming or retailing, for example, the determination of factor shares on the basis of transactions information alone is not possible. The farmer or small shopkeeper, after paying all of his expenses, receives a residual net income that compensates him not only for his labor but also for the contribution of his capital, his entrepreneurial

skill, risk-taking, or any other elements that might give rise to income. Customarily, official national income accountants have been hesitant to involve themselves in further analysis of this type of flow. But the accounts do provide the basis for making the imputations required to separate the various types of return.

Two basic methods of computing the labor contribution of proprietors are readily available. First, it could be assumed that proprietors in a given industry receive the same compensation per hour as do other employees of similar skill in the same industry. In the case of a farmer, for example, the compensation could be figured at the average that a farm manager or farm laborer would receive for an operation of equivalent size. Similarly, the imputed wage of a retail shopkeeper would be that of managers or clerks in equivalent-sized stores. This method of imputation essentially considers that the farmer or shopkeeper could earn a specific income if employed as a combined manager and laborer in the same industry, and that this opportunity cost can be used to value his labor contribution. A second method would compute the labor return as the residual remaining after payment of the other factors of production. Thus the farmer or shopkeeper could be considered to earn the amount left over after allowance was made for the return to capital in the enterprise. The use of a residual return for the imputation for either labor or capital implicitly assumes that the total contribution of these two factors is equal to the total income generated by production. It is quite possible, however, that the value of the labor and capital contribution in an enterprise will exceed the income generated, so that the enterprise should show a loss. Similarly, if the income generated exceeds the value of labor and capital resources used, the enterprise should reflect profit over and above the contributions of the factors. For this reason, it would seem preferable to impute the value of factor contributions in terms of opportunity cost. In countries where a large percentage of the labor force is self-employed it may be that the assumptions underlying the imputation would dominate the result to such an extent that the analysis of labor's share would not be meaningful. But in highly developed industrial economies where wage and salary payments predominate, the imputation of labor compensation for the self-employed has the advantage that it prevents the change in the relative compensation of the labor force over time from being dominated by the changing proportions of self-employed in the total labor force. It will still be useful, however, to distinguish between

compensation of employees which is actually paid and that which is imputed for the self-employed.

With respect to the use of capital, a somewhat similar problem of imputation exists. If all capital were borrowed, the return on capital could be considered to be the interest paid for its use. However, many enterprises supply much of their own capital; the return on their equity is generally considered to be the residual left over after all other costs (including depreciation) are paid. Interpretation of profit rates among industries with different financial structures thus is quite difficult. For example, public utilities customarily borrow heavily to finance capital expenditures, and thus their equity represents a small part of the total capital they use. In contrast, large manufacturing firms obtain most of their capital by plowing back earnings, and their equity represents a large part of their total capital. The utility firms may have relatively low rates of total return on capital, but quite high rates on equity. Conversely, the manufacturing plants may have very high total rates of return, but their rates of return on equity may well be less than in industries where the funds used are largely borrowed.

Stigler solves the problem of comparing the rates of return on capital in different industries by adding together interest payments and profits, so that the rate of return on capital used by an industry will not be affected by the financial structure of the industry [25]. Implicit in such a computation, however, is the already discussed assumption that the total income originating in an enterprise can be divided between the factor payment to labor and the factor payment to capital. Furthermore, considering the total of interest payments and profits as a factor payment to capital provides a somewhat distorted view of the contribution of capital. Merely because capital is employed in a highly profitable industry, it does not necessarily follow that the contribution of capital is high. Monopoly, for example, may be highly profitable and provide a return to the enterprise over and above the contribution of either capital or labor. Profit may also arise from entrepreneurial skill or exploitation of labor, which results in underpayment of these factors of production. There would be considerable advantage in providing for a concept of net profit separate from factor payments to labor and capital. It would then not be possible to measure the factor payment to capital as a residual, and it would be necessary to provide a basis for imputation of the services of capital.

In developing an imputation for the services of capital in enterprises

the same principle could be applied to capital as was suggested for the labor of self-employed proprietors. The gross contribution of capital could be valued at its opportunity cost, which in a competitive system would also be equal to its rental cost. Alternatively, an estimate of the contribution of capital (i.e., the capital charge) could be based on capital consumption (valued at replacement cost) together with a proper imputed interest charge. This basis of imputation is of course the same as that already discussed in connection with the flow of services from the stock of tangible and intangible capital in households and the general government. The detailed explanation of the actual imputations for the use of capital in both establishments and firms is presented in Chapter 6.

If the shares of capital and labor are thus computed, they may add up to more or less than the total of the income originating in the sector or enterprise. In fact, the concept of net profit is defined as the difference between the computed shares of labor and capital and the income originating in the enterprise or industry. Where net profits are high, this suggests that actual and imputed payments to labor and capital used in the industry do not absorb the total income generated in that industry. The explanation for this is not necessarily to be found in any single cause. It may be that labor is underpaid, a monopoly may exist, or there may be entrepreneurial returns not captured by the management. Furthermore, where net profit is zero it does not necessarily mean that the industry is competitive and is using its resources fully. It is quite possible for wage payments in the industry, for example, to siphon off what is essentially income due to monopoly elements, or for other stochastic elements to offset one another.

The question of what interest rate is to be imputed and whether different interest rates should be used in different sectors of the economy immediately arises. If the interest imputation is made on the basis of opportunity cost and the payment for risk and uncertainty relegated to the residual net profit, there are strong reasons for using a single interest rate throughout the economy. Furthermore, if the purpose of the imputation is to reflect the actual use of capital, the use of different interest rates in different firms or sectors makes it difficult to determine whether the capital return represents a payment for the use of capital goods or reflects a risk premium related to uncertainty.

Neither the US nor the UN systems of national income accounts provide for such direct measurement of factor payments. Proprietors' income is not divided between the compensation of the self-employed,

the contribution of capital, and net profit. Corporate profits include the return to capital provided by enterprises together with the other residual profits earned. As they stand, the flows are not particularly meaningful, since shifts in the relative importance of the self-employed and changes in the financial structure of the economy do occur. The imputations that have been suggested for both the compensation of the self-employed and the contribution of capital would represent a step toward providing more useful and informative analytic constructs for the study of the differences among sectors and industries in the economy and their changes over time.

Indirect Taxes

The concept of indirect taxes has been one of the least satisfactory economic constructs in national income accounting. Generally speaking, the term "indirect taxes" serves as a catchall for all taxes that are paid by producers, with the exception of the corporate profits tax—the corporate profits tax is considered to be a direct tax on profits paid by producers.

The description of the nature and scope of indirect taxes provided in the new UN system indicates the extreme heterogeneity of the concept:

Common examples of the nature and scope of indirect taxes are import, export and excise duties, sales taxes, entertainment duties, betting taxes, business licences and transaction (e.g., stamp) duties, and real estate taxes. Real estate and land taxes are classed as indirect taxes except in those cases where they may be considered as merely an administrative procedure for the assessment and collection of income taxes. Also included among indirect taxes are levies on value added, the employment of labour and the use of fixed assets; duties in respect of the motor and other vehicles of industries and the services of general government and private non-profit institutions; and fees for driving tests and licences, passports, airport use, court and similar services paid by producers.³

From the standpoint of economic analysis, serious objection may be raised to the inclusion of many of these taxes as indirect taxes. Insofar as some taxes are in fact licenses and fees that represent payments for services provided by the government, they should be treated as purchases by businesses or households, and not as indirect taxes. In this connection

³ See [3], p. 271.

it is interesting to note that one of the major differences in the measurement of private consumption expenditures under the US and UN systems is the difference in treatment of motor vehicle licenses and fees paid by households. In the US system these taxes are considered part of direct tax payments, and in the UN system they are regarded as indirect taxes. Still another alternative is to consider that motor vehicle taxes and licenses are fees that are paid for the operation of motor vehicle bureaus, and as such constitute a purchase of services by those desiring licenses. There is, of course, a real question whether the motor vehicle bureau provides any service to the individual other than giving him legal permission, or whether it provides the public good of general motor vehicle regulation. However, there are fees classified as indirect taxes that unquestionably do represent services provided to the user. Such fees as airport taxes and court fees are of this nature. By excluding these fees from indirect taxes they become intermediate goods and services for producers, thus causing the income and product originating in the firm to be smaller by this amount. For households, since the fees represent final consumption expenditures by households and sales of goods and services by the government, a greater portion of the total output of the government would be considered to be of an enterprise nature, and as a consequence the consumption goods provided by the general government would be smaller.

Taxes on the employment of labor also raise problems. The revised UN system is careful to include social security taxes in the compensation of employees and in direct taxes paid by households. As already noted, in the US system the employers' share of the social security contribution is treated as an indirect tax and the employees' share is treated as a direct tax, although both are paid by the employer directly to the government. It also seems somewhat inconsistent that the UN should recommend, on the one hand that social security taxes be considered direct, but that other taxes on the employment of labor or the use of fixed assets be considered indirect. From an analytic viewpoint there seems little difference between a social security tax on wages and an employment tax on wages.

Finally, real estate and land taxes raise similar issues. A government wishing to tax economic rent will levy taxes on property, and in fact will be taking a portion of the share that is paid to this factor of production. If all real estate and property taxes fell on pure economic rent, there would be general agreement that such a tax is a direct tax

on a particular factor share. However, a dilemma arises when the long-run incidence of taxes is considered. To the extent that property is reproducible, a tax on property in the long run would be the same as a sales tax on a currently produced item, and thus could be properly classed as an indirect tax. It is on the basis of such reasoning that the general view to date has been that property taxes can be considered indirect. The time has come, however, for a more serious analysis of this problem. A systematic study should be made to ascertain for various kinds of property classes the extent to which property taxes constitute an appropriation of economic rent by the tax system and the extent to which they represent a tax on reproducible capital. In this connection it should be borne in mind that a great deal of property even of the reproducible type has an extremely long life, and that although structures do not yield pure rent they do yield quasi-rent that can be directly affected by property taxes.

Capital Consumption

The concept of capital consumption has already been discussed in connection with the difference between the gross and net income and product. As has been indicated, the determination in economic terms of the amount of capital consumption that takes place over time presents substantial problems. The expansion of the concept of capital formation to include consumer durables and intangible capital for all sectors makes this problem more difficult. As in the case of indirect taxes, improvement in the measurement of this economic construct will require further investigation.