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Part One

INCOME MEASUREMENT
AS AFFECTED BY
GOVERNMENT OPERATIONS

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Discussion

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Acknowledgment and thanks are due for the very helpful criticisms and suggestions made by the staff members of the National Income Unit during the preparation of this paper, particularly to Burton H. Klein, whose cooperation was invaluable. It will be obvious to members of the Conference that discussions of this problem in other Conference Volumes have been drawn upon liberally.

Income Measurement as Affected by Government Operations

JOHN LINDEMAN

THE ISSUES RAISED for the national income estimator by the activities of government have their basis in the fact that the vast bulk of government services is not sold in the market. In the private sector of the economy transactions are characterized, by and large, by a *quid pro quo* exchange; in the government sector this is seldom true. The financing of government on the one hand, and the nature of government activities and the distribution of benefits on the other, are determined according to different sets of principles. The result is that the incidence and amount of taxation and of benefit are identical, as a rule, only by accident.

The problems with which this paper deals all arise from this circumstance. Indeed, many of the following conclusions and recommendations depend on the acceptance of the proposition that neither in the aggregate nor in specific instances do taxes provide a measure of the value of government output. The consequences are serious indeed to the neat market-value rationale which is the foundation of national income concepts. It destroys, or any rate greatly modifies, the internal structure of that rationale. A solution does not lie simply in the determination of the value of the output of government itself. On the contrary, the two aspects of government activity—taxation and the distribution of benefits—impinge upon the private sector of the economy in such a way that market prices (which are the basic data) cannot always be relied upon to reflect accurately the values to be measured.

Two distinct sets of problems emerge: those connected with valuing the output and activity of private enterprise and those connected with valuing the output and activity of government units. Both arise from the non-exchange nature of government activity; otherwise, they have little in common. Consequently, the discussion of one set of problems can proceed on the assumption that the other set has been disposed of satisfactorily.

It must be recognized that there is no 'correct' measurement of national income, and hence of the government's contribution to it, independent of the purposes for which the measure is devised. In this paper we are concerned with the national income first as a measure of the volume of total output, and second as a measure of total economic activity. These are the purposes that have been

associated historically with the measurement of national income.

Our objective with respect to government is to devise a procedure comparable to that used in the private sector of the economy for these two purposes.

Summary

1) A distinction should be made between *earned national income* and the *value of the national product*. Earned national income is an aggregate of the returns to the labor and property factors participating in production, and thus is a measure of current productive activity in value terms. The value of the national product, on the other hand, is the sum of (1) the value of the final products of private enterprise that are also final products of the system (i.e., excluding intermediate consumption, by government, of the output of private enterprise) taken at their market prices, and (2) the value of the final products of government that are also final products of the system (i.e., excluding intermediate consumption, by private enterprise, of the output of government) taken at cost. It thus corresponds conceptually to the usual meaning of national income.¹ The differences in meaning between the two measures are independent of the operations of government. In a world without government, earned national income as we propose to measure it² would be identical numerically with the value of the national product, but this numerical identity would not alter the fact that in one use the measure refers to costs, and in the other use to the prices of finished goods.

However, since government activities are not conducted on an exchange basis there is a numerical disparity between these measures unless a special assumption or demonstration is made concerning an equivalence between the value of government services to business and payments of certain taxes. An assumption of this nature is involved in the present American estimates; it has tended to obscure an inherent difference in content by assuming a numerical equivalence. One recommendation of this paper is that this assumption should be dispensed with.

2) In order to bring out clearly the issues involved the problems of valuation are considered first for the private sector of the econ-

¹ A somewhat similar distinction has been made by J. R. Hicks; see 'The Valuation of the Social Income', *Economica*, May 1940.

² That this measurement is defective because of extra-governmental factors is well recognized. See below and Mr. Hicks' article.

omy (Sec. I), and second for the government sector (Sec. II). Consolidation of these valuations is then discussed in Section III.

It is argued that the sum of factor earnings in private enterprise as a component of earned national income (ignoring internal changes in capital accounts)³ is equal to the market value of goods sold, plus subsidies received from government, and minus payments of those taxes we call 'non-income business taxes'. The essential characteristic of these taxes is that they are collected not *from* but *through* business. As a statistical expedient it is suggested that they be approximated by all taxes formally paid by business enterprises except direct profits taxes.

For the government sector we are faced with the problem of valuing the earnings of government factors and the whole output of government. Wages can be taken as a measure of the earnings of government labor factors;⁴ for the property factors a return must be imputed in order to make the valuation of government comparable with that of private enterprise. The sum of government factor earnings and government purchases from private enterprise is taken to be the value of government output.

The private and government measures of factor earnings are consolidated by simply adding the components; the total thus derived is earned national income. However, consolidation of the product values into a non-duplicating total requires the elimination of private output intermediately consumed by government and of government output intermediately consumed by private enterprise. The practical impossibility of segregating free government services to business leads to the conclusion that the latter elimination cannot be satisfactorily made and that it would be better to leave some duplication in the product total rather than to resort to the present expedient of equating these services to business taxes by assumption. The double counting of certain government services inflates the measure of the value of the national product beyond its proper level.

Finally, in Section IV some comments are made concerning the significance and limitations of the suggested measurements.

Limitations of scope

1) Questions of differentiating between net and gross income are not touched upon, nor are internal changes in capital account con-

³ Such as force account construction and production for inventory.

⁴ Except the pay of the armed forces in wartime.

sidered. To avoid verbal complications we proceed throughout on the assumption that, for private enterprise, production and sale are concurrent.

2) Questions relating to the most appropriate breakdowns in which national income estimates should be presented are avoided also, except for the recommendation that government components be shown as separate categories at all times.

3) Related to the avoidance of questions of presentation is what at first may appear to be a major omission: the recording of money flows is not discussed. Not all the categories included in our estimates have corresponding money flows. For instance, the earnings of government factors are valued at wage payments, plus an imputed return on government property. There is no money flow corresponding to this imputed value. It is certainly desirable to show as much detail as possible concerning money flows of all types; but whether this is to be done by subdividing aggregates into money and non-money components, or by showing separate aggregates for money and non-money items is clearly a question of presentation, outside the scope of this paper.

4) Finally, except in passing, the question of deflation is ignored. We are concerned here with the current dollar valuation of government activity and output, and with the current dollar valuation of two aspects of aggregate national income as this valuation is affected by government operations.

I Earned Income and Value of Product in the Private Economy

Assume an economy in which all transactions are on a strict *quid pro quo* basis. There is no government; or if there is, it finances its activities and distributes its output in exactly the same manner as any other economic unit. In such an economy it is fairly simple to define and to measure earned income in a meaningful way.

An act of production consists usually of combining, adding to, or transforming certain goods (or services) so that another good is created. For the sake of simplicity let us take as an example the valuation of the productive activity within a single enterprise, enterprise X. We can refer, rather inexactly, to the goods and services added to, transformed, or combined by this enterprise as 'raw materials'; and to the good created as the 'output' of the enterprise.

Both the output of the enterprise and the raw materials are priced

in the market. We accept these market prices as the basis for determining the value of the productive activity of enterprise X. Under our assumptions we can take no better measure than the excess of the value of the output over the value of the raw materials.

Market value is valid for our purposes irrespective of the level of production. A given price for a certain group of raw materials in their 'raw' state must be interpreted as a measurement of the market valuation of the materials in that state; i.e., *before* being combined, added to, or transformed by enterprise X. A given price for X's output must be interpreted as the market valuation of these same raw materials in their new state; i.e., *after* being combined, added to, or transformed. Consequently, the valuation of X's activity is measured by the difference between the price of the output and the price of the raw materials embodied in that output.

This quantity can be called the income earned⁵ by an enterprise, or the earnings of all the factors—labor (broadly conceived so as to include management) and property—attached to an enterprise. Several characteristics of this measure are worth pointing out:

- 1) It is appropriate for the economic environment in which the enterprise happens to find itself. If this environment permits more or less temporary monopoly returns, then these returns are properly a part of the earned income. Similarly, any change in the environment might lead to a value higher or lower than the equilibrium value; but it is the actual recorded income, not the equilibrium earned income, that is appropriate in the market conditions prevailing.
- 2) It applies to an act of producing goods and services at all stages. There is no distinction between the production of consumers' goods, producers' goods, and intermediate goods. All that is required is that economic activity take place. The market then sets a value on that activity. Earned national income is the sum of these values for a given period and for all the enterprises within the economy.
- 3) Related to the above is this characteristic, which is dependent upon the assumptions of a pure exchange economy: Any output's price is a summation of a part of the valuation placed by the market

⁵ The use of this term implies no ethical judgment. As Gerhard Colm has put it, we are measuring the value of something that is socially desired whether or not it is socially desirable. We accept the market as the mechanism through which the magnitude and intensity of social desire, in the existing institutional environment, is expressed.

on the activities of each enterprise contributing to that output at any stage of production. For example, suppose that enterprise X buys 'raw materials' only from enterprises Y and Z, the raw materials being the 'output' of Y and Z. Then the price of a unit of X's output consists of the following items:

- a) the income earned by X per unit of output, plus
- b) the price of Y's output per unit of X's output, plus
- c) the price of Z's output per unit of X's output.

The price of Y's output embodied in X's output can be expressed similarly,⁶ and so can the price of Z's. Thus, the price of any output, and hence the prices of all, can be divided into components representing a part of the income earned by all enterprises that have contributed to that output.

In over-all terms, this means that, under our assumptions, the sum of all factor earnings for the whole economy for a certain period is equal to the sum of the prices of all goods and services (without duplication) produced within the economy during that period. But there is not this equality in the real world unless some highly artificial meaning is attached to the terms 'income earned' and 'value of product'. One purpose of this paper is to suggest a method of measuring earned income so as to preserve its general meaning as set forth above, namely, the sum of factor costs as a measure of the (market determined) value of their productive activity.

Taxes and subsidies

It is obvious that the disposition of a particular income is irrelevant to the measurement of that income at the point of production. Suppose that the market value of X's output is 100, and that raw materials used in production are valued at 80. Then income earned by X is 20, regardless of the manner the 20 are subsequently disposed of.

Consequently, a relaxation of the present assumptions can be made without affecting the validity of the method of measurement. Suppose the government, which had previously conducted all its activities on an exchange basis, embarks upon an unemployment

⁶ When Y buys raw materials from y and z, the price of Y's output per unit of X's output consists of:

- a) the income earned by Y per unit of X's output, plus
- b) the price of y's output per unit of Y's output per unit of X's output, plus
- c) the price of z's output per unit of Y's output per unit of X's output.

relief program which it finances by a direct levy on incomes. The effect will be simply to change the distribution of the money claims arising from the production of income. Under these conditions, a deduction of taxes from any income share would result in an understatement of enterprise income earned (and consequently in an understatement of national income), for such taxes are as much a component of the value of earned income as any other outpayment from that income.

However, the transfer of income from private individuals or enterprises to the government is not always made by a direct levy on incomes. Let us set up here a special category of taxes and designate it as 'non-income business taxes', without at this point considering how one might determine which actual taxes fall in this category. These taxes have their incidence not upon the income shares arising from the creation of an output, but upon the price of the output itself. In effect, a business enterprise is pressed into service as a collection agent for the government; the transfer of income is made *through* the enterprise, which 'pays' the tax in a formal sense only. The actual payment is made by those who buy the output.

The imposition of such taxes introduces a new element into price. Under the original assumptions the price of a unit of output was divided only among the factors associated with the creation of that output. These taxes are, however, a share of the price against which no factor activity can be set. The sole governmental activity is an unemployment relief program, without factor activity. Clearly then, the first step in obtaining from market price data a value for the income earned by an enterprise (or the sum of the earnings of the factors attached to the enterprise) is to deduct from the price of output the amount of non-income taxes paid by the enterprise per unit of output.

Consider the reverse situation, in which, instead of introducing a new element into price, government operations remove an element of price that might otherwise be included. Assume that enterprise X, in the above example, had been buying a transportation service from enterprise Y. Assume further that our measurement of the value of government activity is such that no change should take place in the value assigned either to the transportation service or to the value of the activity of the factors producing that service simply because it is now offered free under government auspices whereas formerly it was marketed by a private enterprise.

If we ignore time lags, the price of X's output under these circumstances will decline by the full amount of the reduction in costs, or more precisely by an amount that will make factor earnings in the enterprise consistent with their market valuation at the scale of output permitted by the new cost conditions. The price thus will fall short of the sum of the earnings of the factors contributing to the output.

The same result would follow if the government, for example, bears the cost of the transportation service by providing enterprise X with a cash subsidy. The price of output will be less than factor earnings.

Ideally, then, earned income, as a sum of the costs of factors attached to an enterprise, can be obtained from market price data as follows:

- Price per unit of output of each enterprise, plus
- a) cash subsidies per unit of output, minus
 - b) non-income taxes per unit of output, minus
 - c) value of goods purchased from other private enterprises per unit of output.

Or, for all private enterprise, with the appropriate offsets against double counting, earned private income equals the market value of private output, plus subsidies and minus non-income business taxes.

The summation of income earned by all private enterprises, measured in this way, gives the total earnings of factors engaged in the private sector of the economy and thus is a market determined measure of the value of their productive activity, with subsidies and non-income business taxes being considered as government imposed modifications of the market.

As a practical matter the derivation of this measure requires knowledge of the incidence of all business taxes, so that taxes that act to reduce the money incomes of factors can be separated from those which have heretofore been called non-income business taxes.

In the absence of the required knowledge a reasonable expedient would be to treat all taxes paid by an enterprise as a condition of doing business, regardless of profitability, as non-income taxes, and to treat those taxes which are paid only in the event of profitable operation as direct taxes. This means, broadly, that income and excess profits taxes should be considered a part of the income earned by an enterprise, while all other taxes—excise, licenses, sales taxes, etc.—should not be. This expedient leaves something to be desired, since income taxes are undoubtedly in-

stitutionalized as costs to some extent, and excises and licenses are often borne either by the enterprise itself or are passed backward to factors. However, we can hope that these opposite tendencies cancel.

Adoption of this expedient would require a change in the current Department of Commerce method of treating payroll taxes. At present the part of these taxes that is deducted from wages is included in total wage payments (as a distributive share), and the part that is paid by employers is counted as a supplement to labor income. But for the employers' share to be included in our suggested total of earned income⁷ it would be necessary to make a clear-cut assumption that these taxes directly reduce labor income below what it would otherwise be without affecting the income of other factors; i.e., that they are, in effect, direct net income taxes. It may be that this assumption can be defended. However, in the absence of special treatment for each single category of taxes—as opposed to an assumption concerning the two broad categories of income and non-income taxes—it would seem better to leave the employers' share of payroll taxes out of our computation of factor earnings, while including the employees' share on the grounds that it is in actuality a direct tax.

Another problem of incidence is raised by property taxes. A portion of property taxes falls on economic rent and reduces the net return to property. Since in the case of other factors we measure returns before those taxes that act to reduce net income, it would be proper to measure the return to property before the part of the property taxes that is paid out of pure rent. But, on the basis of the knowledge and data now available, such a procedure is not practicable statistically.

Comparison with Department of Commerce estimates

The measure here suggested for earned private income corresponds very closely to the present Department of Commerce estimates of income originating in private enterprise. Corporation income and excess profits taxes (and, if statistically feasible, a part of property taxes) would be added to the present Commerce figures; payroll taxes paid by employers, at present carried in the estimates as a supplement to labor income, would be deducted. Thus the resultant measure would be the net recorded income of all factors before

⁷ It would, of course, be included in our total value of the national product, along with all other taxes that are paid in the first instance by business enterprise.

the payment of direct taxes. Within the limitations imposed by the nature of our data, the measure will provide us with a fairly reliable estimate of the factor costs which, under existing market conditions, measure the value of economic activity in private enterprise.

II Valuation of Government Activity and Output

The problem of valuation in the field of government is complicated by the fact that there is no market for government output. In the case of private output valuation is made by the market. In the case of government output an arbitrary valuation procedure has to be decided upon. It is suggested that we value government in such a way that our figures are comparable with those for private industry. We want the government component of our aggregates to approximate the measure we would obtain if there *did* happen to be a market for government output.

Let us for the moment set up a hypothetical situation. Suppose that all commodities sell at the sum of the factor costs involved in their production. In such a case we would not require market data in order to deduce the value of output. We could simply summate factor costs in a given sector of the economy, add in the value of goods originating in other sectors and embodied in the output, and the result would be the market value of that output. In the more complex situation actually facing us we can achieve the same synthetic market value if we know both the factor earnings as defined in the preceding section and the subsidy and tax items that make factor earnings plus intermediate consumption in the particular enterprise (or sector) under examination different from the market value of output.

This may sound like nonsense, since factor earnings are derived from, and are dependent on, the value of output in the first place. But it opens up a fruitful line of attack on the government problem. We do not have a market value for government output for the simple reason that government output is not sold in a market. But we can build up such a value by summing government factor costs and the value of the output of private enterprise embodied in government output.

The first problem, then, is to determine the returns of factors attached to government. We can logically and reasonably eliminate one type of return at once: pure enterprise return, corresponding to

profits (or losses) and monopoly returns in the private sector of the economy. The elimination of this return requires only that we adopt the reasonable assumption that a collective decision to employ resources in a certain manner is also a collective decision that the product of that employment is worth just what it costs. Of course, we may question the implication that the tastes of government authorities are the same as the tastes of society; but since we require a collective expression of preferences, we must accept the expression of the government authorities.

The factor costs that interest us, then, are those of labor and property attached to government. How shall we determine these costs? For the most part we can value labor factors at the current money costs incurred for their activity. This valuation is justified on the basis that most government labor comes to its employment through market forces, and hence the money wage cost is just as good a measure of the value of labor activity in government employment as it is in private employment.

But there is no money flow by which we can measure the contribution of the other government factor, property. Obviously, interest payments cannot be taken as the proper measure. Interest is a function of debt, not of the volume and nature of property. Income is created not by debt, but by factors capable of implementing the production of goods and services, although debt establishes a contractual relationship that requires the payment of a share in the claims against income.

Here we reach the first important statistical difficulty connected with estimating the value of government activity and output according to the model we have set up. If the apparently significant contribution of government property is to be included in the estimates, it must be done on an imputed basis. Morris Copeland feels that this can be done satisfactorily by applying a constant rate of return to the value of tangible assets owned by government if the government sets up a "business-like system of accounts".⁸

Mr. Copeland may be a bit optimistic. We do not have a business-like system of accounts, nor are we apt to get one in the near future. Furthermore, there is danger of circularity in an imputation of this type; we cannot always estimate the value of government property without first knowing the return. It may reasonably be argued that

⁸ *Studies in Income and Wealth*, Vol. One, Part I. Mr. Copeland's general position on this point is about the same as that taken here.

this particular estimate is inherently so uncertain that it would be better to omit it entirely; we could treat income from government property as we now treat housewives' services: simply citing it as a source of income outside the scope of our estimates.

The objection to disposing of the problem in this way is that the omission of government property return will leave an important gap in our statistics which will preclude a meaningful comparison of government and private output, either on the whole or for specific items. We include the entire area of private enterprise, but we would stop short in the field of government. Not only would the procedure be inconsistent, but also it would be misleading, as can clearly be seen if we should try to compare the value of, say, a privately built ship with the value of one produced in a government shipyard. If no account were taken of the value added by the navy yard capital equipment, then we would understate the value of the government ship or, depending on the point of view, overstate the cost of the private ship. On the whole, the return on government property seems an important enough category to warrant an attempt at imputation in spite of the practical limitations.

According to the present suggestions income earned in government would be measured by government wages plus the imputed return on government property. Adding the value of the output of private enterprise used by government, we get a figure for the value of government output comparable to the market price figure by which we value private output. The essential difference is that the government figure is derived by working backwards, but in the absence of a market mechanism this seems to be the best we can do. As previously noted, the use of this measure implies the acceptance of a collective valuation of government output according to the decisions of public authorities. There can be neither profits nor losses. Were a different value assigned to government output it would be necessary to conceive of an entrepreneurial aspect of government to absorb the difference between the assigned value and the factor and other costs incurred.

The chief alternative to costs (in some form) as a basis for valuation is that used by Simon Kuznets, who takes tax payments to represent the value of current government output, exclusive of government capital formation.⁹ Mr. Kuznets' treatment maintains a certain symmetry in his whole rationale of income measurement

⁹ See his discussion in *Studies in Income and Wealth*, Vol. Two, Part V.

and is based, of course, on an analogy between tax payments and prices. It overlooks the fact that fiscal policy today specifically dissociates taxes from considerations of the worth of government output. Borrowing is a conscious and deliberate policy designed to influence the level of employment. It is not in any realistic sense forced upon a government which is unable to 'sell' its product to its 'customers' at a 'profit'.

Furthermore, there is an implicit assumption in the tax payments valuation that the debt will not be repaid. Presumably, collective assent to an appropriation is also collective assent to taxation at some time. Mr. Kuznets apparently has not distinguished between willingness to pay and the convenience of paying later instead of now.

The rather unrealistic implications of the tax approach, combined with the consequent necessity of including a government savings category of doubtful analytic value, makes the cost approach preferable. But it cannot be too strongly emphasized that the choice must rest upon the analytic purpose in view rather than any clear-cut distinction between right and wrong.

It should be clear that we are using the word 'cost' so that it is not the same as 'expenditures'. Our purpose is to include in the value of government output (a) the value of all privately produced goods used by government and (b) an amount to represent the value of the contribution of government factors. Only when market transactions are involved can we use expenditures as a measure of these values. Most government expenditures and most of the value of government output involve such market transactions: when government buys the output of private enterprise and when it employs its regular labor force it bids in the market. In these cases 'costs' and 'expenditures' are practically equivalent.

But there are significant exceptions requiring special treatment. We cannot escape asking these questions: When government makes an expenditure does it acquire either part of private industry's output or the activity of a factor of production? Conversely, when government acquires either a certain part of the output of private industry or the activity of a certain factor, does it make an expenditure that measures the value of that acquisition? We have already seen that, in the case of valuing the contribution of government property, there was a negative answer to the second question.

Expenditures that do not result in adding to the value of govern-

relief, pensions, etc. All except subsidies are easily recognizable and present no particular problem. We are on firm ground when we treat direct relief, for instance, as simply a collective transfer analogous to private transfers involved when an employed member of a family group shares his earnings with needy relatives.

With subsidies, however, we have a peculiar problem. We have maintained that pure subsidies are a part of the factor return in the enterprise that receives them; however, since government acquires none of the enterprise's output in return, the subsidy cannot be counted as a part of the value of government output. That much seems clear.

However, subsidies are often concealed in intentional overpayments made for the precise purpose for which pure subsidies are granted. They make possible a type of activity that would be unprofitable in a free market. For instance, the development of commercial aviation was facilitated by the payment of an excessive price to air lines for carrying mail. But here the government acquired a service, a part of the output of private enterprise; it should be included in the value of government output. Must we determine how much of the payment was for a current service and how much was a pure subsidy? For perfect consistency we should. But the impossibility of separating the subsidy from the payment-for-output aspect of such expenditures requires that we be rather arbitrary and accept whatever the government pays for private output as the value of that output. Pure subsidies, for which the government receives no marketable goods or services, would be treated as transfers from the government's point of view.

The problem is particularly difficult in agriculture. Payments made under the agricultural programs are of two types, parity payments and soil conservation payments. There is no output corresponding to the first type. The second type is usually made only on condition that the farmer practice erosion-control and land-use methods definitely making a useful addition to agricultural capital. Both types represent factor earnings in agriculture. But for the second there is also a product that should be counted as output somewhere. It does not seem logical to count it in government, however. It appears to be properly a part of the output of agriculture which, although it is formally paid for by government, remains in the agricultural sector of the economy as capital formation.

Another special problem arises in connection with valuing the services of a draft army. Actual pay and subsistence

measure of the factor activity of the armed forces in peacetime, but when men are drafted from higher paid civilian employment and put into a calling which is, by social fiat, worth more than the calling they have left, we create an anomalous situation if we accept a measurement that will record a decline in the value of factor activity.

We have here an analogy to the problem of valuing the contribution of government property. The expenditure does not reflect accurately the value of the factor employment. An appropriate figure must be derived by imputation, preferably by assigning to the men in the draft army a factor earning equivalent to the weighted average earnings of comparable labor in private enterprise. This adjustment is required if we recognize that government is fully able to commandeer resources without making a *quid pro quo* payment, and without altering the productive value of these resources.¹⁰

To recapitulate: the government components of the two national aggregates would be as follows:

- a) Earned government income as a component of *earned national income* is measured as the sum of wage payments and an imputed return on government property;
- b) The value of government output as a part of the *value of the national product* is measured as the sum of earned government income and the value of private output used by government.

The Department of Commerce at present values government output at expenditures exclusive of transfers (direct relief, loans, benefits, etc.); 'income originating' in government is this figure less intermediate consumption of privately produced goods, or government wages plus interest payments.

III Consolidating the Measures For Private Enterprise and Government

Adding the value of earned private income as measured in Section I to the value of earned government income as measured in Section II, we obtain a total of earned national income. Subject to the limitations imposed by the statistical necessity of using broad expedients to measure certain items, namely, non-income business taxes, the

¹⁰ The problems of maintaining consistency in the measures of both factor costs and value of output in wartime are, of course, much more extensive than would be indicated by this mention of the draftee problem. They are treated by Raymond Goldsmith in Part Two.

imputed return on government property, and the adjustment of military pay in wartime, this total provides a non-duplicating measure of the value of the current productive activity of all the factors contributing to the national output.

Consolidation of the value-of-output measures is not so simple. We have taken market prices to be the proper measures of the value of private output, and costs to be the measure of the value of government output. These two figures, however, cannot simply be added to provide a total for the value of the national product, or the value of the final products of the whole system. It is necessary to eliminate (1) the intermediate consumption, by government, of private output, and (2) the intermediate consumption, by private enterprise, of government output. Then the value of the national product would be the sum of the market prices of the final products of the whole system emerging from private enterprise and the costs of the final products of the whole system emerging from government.

Intermediate consumption of private output by government can easily be eliminated. But the elimination of government services to business is obviously a very different task.

Mr. Kuznets assumes that the properly deductible value of intermediate government services is measured by the taxes paid by business enterprises: non-income business taxes as defined in this paper plus corporate profits taxes. No one recognizes better than he the rather arbitrary nature of the expedient he adopts.¹¹ His discussions of the subject emphasize clearly the inherent impossibility of separating government services to individuals and to society at large from government services to business, or, better, the impossibility of sub-classifying the *social* services government performs into services directly benefiting individuals and services that 'disappear' in private enterprise only to reappear as a part of the output of business. The observation that a definite answer "usually results from the application of some clear-cut position in social philosophy but one that does not necessarily have general validity" is especially relevant.

The problem being what it is, it seems to be a better expedient to include as a separate category in the aggregate value of the national product *all* government services that are financed gen-

¹¹ See *Studies in Income and Wealth*, Vol. One, Part V, and *National Income and Its Composition*, Vol. I, pp. 43 ff. Clearly, the same assumption underlies the Department of Commerce estimates, although it is not explicitly stated in any of its publications.

erally, and to treat the output of public service enterprises exactly as we treat the output of private enterprise.¹² Fortunately, at present, most government output which it is clearly desirable to allocate to businesses and to individuals (such as gas, light, water, postal, and transportation services) is routed through public service enterprises that charge *quid pro quo* fees resembling prices in many respects. For the balance, we can simply admit duplication. The extent of the duplication cannot be measured; its nature can best be decided by the individual user of the estimate.

Until such time as the government begins to offer services of a less generalized character than at present, while financing them without regard to specific benefit, this expedient probably does no particular violence to our estimates. At least it does not do as much violence as the present expedient of assuming a wholly arbitrary equivalence and referring to the derived figure as a net value aggregate, particularly when—as is the case with the Commerce Department estimates—the necessary assumption is nowhere made explicit.¹³

Disparity between earned income and value of product

Even if government services to business were measurable, there would still be a difference between the earned national income total and the value of the national product.

1) Earned national income has been defined as the sum of the private component (EPI) and the government component (EGI):

$$\text{ENI} = \text{EPI} + \text{EGI}$$

2) The unduplicated value of the national product is equal to (a) the value of private output at market prices (PO) less the value

¹² I do not mean that a functional distribution of government services should never be made. Indeed, for some purposes failure to make a minute allocation can be quite serious. For instance, a distribution of real income among income classes would be deficient if the income redistribution governments commonly effect by creating an inverse relationship between the incidence of taxation and the incidence of benefit were not taken into account. Public health services, parks, beaches, and schooling are more significant additions to the real income of the lower than of the higher income groups.

¹³ Since the first draft of this paper was written, there have been several objections to the rather extreme position I take. The usual objection is that I seem to have closed the door to any attempt to make an objective distribution of government services to individuals and to business enterprise. If there is any hope of doing this objectively, I should certainly like to see the allocation made; it would be desirable theoretically (although some doubt has been expressed on this score also). However, I must reiterate my skepticism as to both the possibility that the results would be satisfactory and the practical necessity of making such estimates.

of private output used by government (PO_g), plus (b) the value of government output at cost (GO) less the value of government output used by private enterprise (GO_p):

$$\text{VNP} = \text{PO} - \text{PO}_g + \text{GO} - \text{GO}_p$$

3) But the value of private output at market prices was defined (Sec. I) as equal to earned private income plus non-income business taxes (t) minus subsidies (s):

$$\text{PO} = \text{EPI} + (t - s)$$

and the value of government output was defined (Sec. II) as equal to the value of private output used by government plus the income earned by government factors:

$$\text{GO} = \text{PO}_g + \text{EGI}$$

4) Substituting these values in equation 2 we have

$$\text{VNP} = (\text{EPI} + t - s) - \text{PO}_g + (\text{PO}_g + \text{EGI}) - \text{GO}_p$$

or

$$\text{VNP} = \text{EPI} + \text{EGI} + (t - s) - \text{GO}_p$$

and since $\text{EPI} + \text{EGI}$ is the earned national income, it is equal to the value of the national product only if $t - s$ (non-income business taxes less subsidies) is equivalent to GO_p (the value of government services used by private enterprise). This is essentially the assumption which is at present made by both Mr. Kuznets and the Department of Commerce. Of course, other definitions would yield other relationships.¹⁴ Indeed, the quantities can easily be defined so that they are equal, but only by highly artificial means such as substituting the sum of factor costs of production for market prices as the 'real' value of output in the private sector of the economy, or by referring to the quantity $[(t - s) - \text{GO}_p]$ as a special type of factor. It is hard to see that anything significant would be gained by such a procedure. On the other hand, the definitions suggested here, or some like them, make a useful distinction between two different, though related, aspects of income measurement.

IV Meaning and Limitations of the Measures

We have proposed the measurement of two aspects of economic activity. The first, earned national income, is a money measure of factor activity; the second, the value of the national product, is a money

¹⁴ However, the general nature of the relationship shown here is not dependent upon this particular method of measuring government factor returns.

measure of the output resulting from that activity. It is because of the operations of government that the aggregates of these two aspects of the economic process are different. We cannot escape the feeling that the broad assumption heretofore used concerning the equivalence of government services to business and taxes paid by business has tended to obscure the essential difference between these two meanings of income measures. The numerical equivalence created by the assumption has made it appear that we have shown different distributions of the same measurement, whereas actually we have been measuring two different things which happen, because of a convenient hypothesis, to come to the same total.¹⁵

Consider the Commerce Department's distribution of income by industrial source, or Mr. Kuznets' similar but more detailed distribution. This distribution shows, for each industry group, a figure very much like the figure suggested in this paper for the sum of the factor earnings in each group.

Actually it shows the sum of the distributive shares flowing to the factors engaged in each industry, with profits being taken after income taxes.

Now suppose that there are no 'government services to business', but that the tax structure remains the same. The necessity for making the presently used broad assumption would not arise, and all business taxes would be included in the national income as it is now conceived. But where would these taxes be shown in an industrial distribution? Would they be included in each industry group as part of the 'income originating' in that group, or would they be shown at the bottom of the tables as a reconciliation?

This is an important question. The sum of wages and profits has a different meaning than the sum of wages, profits, and indirect taxes. (Consider the difference in the cigarette industry!) If the taxes are added to the 'income originating' in each tax-paying industry group, then 'income originating' would clearly refer to some-

¹⁵ Cf. Hicks' article (p. 122): "How did we come to embrace this delusion? . . . If competition were perfect and if state activities were so designed as not to disturb the optimum organization of production, marginal utilities and prices and marginal costs would all be proportional so that the same valuation which gave us the social income as a measure of economic welfare [our value of the national product] would also give us the social income as a measure of productivity [our earned national income]. . . . It is the departure of the system from the optimum, whether as a result of indirect taxation or as a result of imperfect competition, which upsets the equivalence and makes the measurement of economic welfare a different thing from the measurement of productivity."

thing like 'selling price added'; if, however, the taxes were shown as a reconciliation—i.e., as an extra item in an otherwise homogeneous classification—then 'income originating' would refer to something like our suggested measure of factor costs.

The present estimates have been used with both meanings. Mr. Kuznets, for example, states: "Net income originating in various industries may be interpreted as the contribution of each to the common pool of goods we call national income; or it may be considered a measure of the cost to society of the activities carried on by each. Both interpretations are applicable to income originating in any single industry. . . ." ¹⁶

The purpose of the earned national income measure suggested in this paper is to provide estimates subject to the second interpretation alone. Measures of the value of factor activity are not only useful and desirable, but also are absolutely essential for certain applications of income statistics. Whenever the emphasis is on productive processes, it is factor activity that is relevant. If we want to make inter-industry comparisons of factor activity, we must use earned national income and its components as data. Certainly an appraisal of war potential must be made with reference to factors, and the valuation of the factors must be made in terms of cost.¹⁷

On the other hand, an analysis of the volume and composition of the end-products of the system requires a valuation in terms of actual market prices. This particular concept of national income, frequently used as an approximation of economic welfare, is so well established that it requires no further discussion here. The whole analysis of final products flow must run in terms of market prices.

In making our recommendations concerning the measurement of the value of government activity and output, we were guided by the desire to devise valuations comparable to those used in the private sector of the economy. The problems being what they are, it would not be surprising that our 'solution' may be considered

¹⁶ *National Income and Its Composition*, p. 72.

¹⁷ Clearly, since only the part of "the departure from the optimum" that is due to government operation has been removed in the measure we suggest, it is still imperfect by strict theoretical standards. The remaining imperfections arise because our economic system itself does not even begin to approach the competitive ideal. In some cases these defects may constitute a serious bar to the effective use of the statistics. However, the practical impossibility of removing the effects of most market imperfections should not stop us from making whatever corrections we can and qualifying the results by saying that they are no more significant than the very imperfect market mechanism permits them to be.

somewhat less than wholly satisfactory. But we do believe that if our recommendations are followed, the government and private components of the estimates will be a great deal more comparable than they are at present.

Nonetheless, since perfect comparability is impossible, we feel that the government and private components should be shown separately in the presentation of national income estimates. Indeed, except for the special use of year-to-year comparisons of aggregates in index number form, the components of each estimate are more meaningful than the totals. (The theoretical and practical defects of index numbers are so formidable that the defects of our government measures cannot be considered any more significant than many other necessary qualifications in this connection. This is particularly true of the duplication involved.)

In an industrial distribution of factor returns the government component would be shown separately in any case. Our suggestion refers principally to a type-of-final-output distribution of the product aggregate. We suggest, as a minimum, three distinct categories for final output: privately produced consumers' goods, private capital formation, and government output. While we can, if necessary, establish sub-categories of government output corresponding to the conventional categories of consumption and capital formation¹⁸ the analytic value of our figures would be seriously depreciated if we integrated these categories with their counterparts in the private sector of the economy.

The fact is that the forces governing the volume and nature of the consumption of privately produced goods and the private formation of capital are entirely different from those governing the production of government output. One of the most important uses of income statistics today is in the study of determinants of output in these three classifications.

¹⁸ These categories must be set up if we want to distinguish between net and gross output of government.

Discussion

CLARK WARBURTON

Differences between government operations and other parts of the economy

Mr. Lindeman opens his discussion of national income measurements as affected by government operations by the statement: "The issues raised for the national income estimator by the activities of government have their basis in the fact that the vast bulk of government services is not sold in the market." Although in a way true, this opening sentence is misleading because it places a wrong emphasis on the difference between the operations of government and those of other sectors of the economy. In several other sectors, economic goods are not sold in the market, and for them resort must be had to some method of evaluation other than market price; e.g., food produced and consumed without sale in the market, occupancy value of owner-occupied houses, force account additions to business buildings and equipment, services of endowed institutions, and services of religious and other social organizations supported by voluntary contributions. The goods flowing from these sectors of the economy may be evaluated and brought into the estimates of national income either by: (1) imputing to them a unit price taken from market quotations for similar goods sold in the economy; or (2) estimating the cost of providing such goods. To most government services the former method is inapplicable as it is also to the services of endowed institutions and religious organizations.

The chief difficulties encountered by national income estimators in handling governmental operations are due to characteristics of governmental operations other than the absence of sales in the market: (1) the difficulty of separating final products from intermediate products, and (2) the methods governments use in obtaining income to meet the cost of the services they provide.

Segregation of final from intermediate products of government

With Mr. Lindeman's position that, in theory, services furnished by government that are final products should be segregated from intermediate products, and only the former included in estimates of national income, there is no disagreement. However, a question may be raised about Mr. Lindeman's argument that such a separa-

tion is, in practice, impossible. Mr. Lindeman rests his case not on the lack of adequate records for proper cost allocation, but on the arbitrariness of any line of demarcation even though adequate records were available. In stating his position on this point he refers to Kuznets' comments on the same problem, and sums up the situation as follows:

"His [Kuznets] discussions of the subject emphasize clearly the inherent impossibility of separating government services to individuals and to society at large from government services to business, or better, the impossibility of sub-classifying the *social services* government performs into services directly benefiting individuals and services that 'disappear' in private enterprise only to reappear as a part of the output of business. The observation that a definite answer 'usually results from the application of some clear-cut position in social philosophy but one that does not necessarily have general validity' is especially relevant."

This statement sounds plausible. Nevertheless, I cannot see that a deliberate line of demarcation between final and intermediate products of government, based on careful consideration of their character, is a whit more arbitrary than (a) the line of demarcation, known to be incorrect because of the governmental policy of indirect taxation, drawn by Kuznets on the basis of taxes collected directly from individuals versus taxes paid by business enterprises; or (b) the inclusion of all governmental services that are financed generally, as Lindeman proposes. Both lines of demarcation rest on "some position . . . in social philosophy . . . that does not necessarily have general validity". Lindeman's proposal, it is clear, rests on the assumption that, on the whole, governmental activities are those of an agent of consumers rather than of business concerns.

Nor is a deliberate line of demarcation between final and intermediate products of government, based on careful consideration of their character, more arbitrary than the line all national income estimators customarily draw in the output of the nongovernmental sector of the economy. Surely the classification of medical services provided by a business concern in one industrial center among intermediate products, and the classification of the same services in another industrial center (where medical service is paid for by individuals) among final products, is as arbitrary as a separation of some kinds of governmental services from other kinds. In the nongovernmental sector the social or business arrangements in force automatically provide a line of demarcation we are willing to accept

so long as we refuse to observe closely where that line is placed by those arrangements.¹

I believe that a committee of economists drawn from various government departments could review government expenditures, even in the present unsatisfactory state of government accounting, and draw a line between final and intermediate products that would be a closer analogy to the line drawn in practice for the nongovernmental sector of the economy than is done by Kuznets' practice or by Lindeman's proposal.² However, I agree with Mr. Lindeman's implicit assumption that, on the whole, governmental activities are those of an agent of consumers, and that inclusion of all governmental activities is better than a line of demarcation based on direct taxation.

The cost approach to the valuation of final products of government

In recommending the cost approach to the valuation of final products of government as preferable to Kuznets' tax approach, Mr. Lindeman is in agreement with numerous other economists who have given careful attention to this problem.³ Most of them have come to the conclusion that the method used by national income estimators in evaluating the services of endowed institutions, religious organizations, and other nonprofit associations is more suitable for evaluating the services of government than the method of evaluating governmental services developed by Kuznets on the basis of an analogy between government and profit-making business enterprise.

In the preparation of national income estimates the services of endowed institutions, religious organizations, and other nonprofit associations are evaluated at cost. This cost is met in part by transfers of individual income to the institutions and in part by income of the institutions from property. Thus, in a balanced statement of national income summing the value of final products on one

¹ For previous recognition and discussion of the "twilight zone" between intermediate and final products in the nongovernmental sector of the economy, see *Studies in Income and Wealth*, Vol. Three, pp. 381 and 396.

² The National Income Unit of the Department of Commerce might, with good reason, feel hesitant about assuming such a responsibility, since this would amount to one segment of the government making an administrative decision regarding the character of each activity of the whole government.

³ This problem is discussed in *Studies in Income and Wealth*, Volume One (papers by Gerhard Colm and Clark Warburton and comments thereon), and Volume Two (paper by G. C. Means, Lauchlin Currie, and R. R. Nathan and comments thereon).

side and summing income payments or income shares on the other side, the cost of the 'free' services of endowed and other nonprofit-making institutions on the value of products side is matched on the income payments side in part by a portion of the income paid to individuals and in part by rents, interest, and dividends received by institutions from their endowments.

The evaluation of the 'free' services of government at cost on the value of products side of the balanced statement of national income is also matched in part by a portion of the income received by individuals, the portion paid to the government in direct taxes. If the government collects royalties or other income from property, these amounts will also be included on the income payments side. The remainder of the cost of providing 'free' services (omitting the problem of government deficits from the discussion) is met from the proceeds of indirect taxes, but where do such taxes appear in a summation of income payments?

Indirect taxes

The simplest method of handling indirect taxes is to include them in income payments or income shares. Another method is to treat that part of the value (cost) of final products met by indirect taxes as a deduction from the aggregate value of final products of business concerns sold in the market, similar to lump sum valuation adjustments deducted from the aggregate value of fixed assets in a business firm's statement of assets and liabilities. Either method provides a balanced statement conforming to the requirements of double entry bookkeeping. A third method, which has the most substantial support in price theory and which also meets the bookkeeping test, but which meets the greatest obstacles in practice because of inadequate data, is to divide indirect taxation on the basis of its incidence.

Mr. Lindeman wavers between the first and second method, recommending the first for some purposes and the second for others. His arguments in favor of this dual solution rest in part on assumptions concerning the character of taxation and in part on the purposes of national income estimates.

Relative importance of various types of taxes

Mr. Lindeman's recommendations depend upon the theoretical separation of government tax revenues into five parts, and upon assumptions regarding the relative magnitude of certain of those parts. The five types of taxation are:

Direct taxes paid by:

Individuals

Business concerns: i.e., taxes paid out of profits

Indirect taxes, i.e., taxes paid by business concerns, other than those paid out of profits, which are used by the government in providing final products:

Which reduce the income shares of individuals

Which raise the prices of the output of the concerns taxed

Business benefit taxes, i.e., taxes used in providing services to business concerns as such.

The indirect taxes that raise the prices of output are the taxes Lindeman designates 'non-income business taxes' and this term will be retained throughout these comments. The term 'indirect taxes' is used when those which reduce the income shares of individuals are also covered by the discussion.

Mr. Lindeman makes two fundamental assumptions regarding the relative magnitude of these types of tax: (1) that indirect taxes are larger than business benefit taxes; and (2) that the indirect taxes that raise the prices of output of business concerns are larger than those which reduce the income shares of individuals.

The first assumption follows from the decision to treat all governmental services as final products; in fact, that decision carries with it the decision to treat business benefit taxes as nonexistent. Obviously, if it is considered impossible to separate the value of business benefits from final products of government, and business benefits are therefore to be treated as zero in national income estimates, then business benefit taxes must also be treated as zero.

Once the first assumption is made, the second assumption is that taxes collected from business concerns (other than those paid from profits) affect prices more than income shares. This assumption may be correct, but I do not think it should be made before the incidence of taxation has been studied. Certain characteristics of our economy are such that a considerable, though admittedly unknown, proportion of indirect taxes affect income shares rather than prices of output. A very large portion of indirect taxes consists of property taxes, and since most property taxes are locally imposed, the relation between them and the value of output of the business enterprises that pay the tax varies greatly from place to place. However, most of the output is sold in national markets. Consequently, we would expect a considerable portion of property taxes to rest on income

shares rather than on prices. In the case of excise or selective sales taxes, which account for another very large portion of indirect taxes, if there is imperfect competition among producers of the items taxed or more competition in the sale of the product than in the hiring of labor (that is, better mobility of output than of labor), and the demand for the articles is elastic, a considerable portion of the tax is likely to be shifted to income shares. That these conditions are prevalent is known.

There is, therefore, a large degree of doubt about the validity of Mr. Lindeman's statement: "In the absence of the required knowledge a reasonable expedient would be to treat all taxes paid by an enterprise as a condition of doing business, regardless of profitability, as non-income taxes." It is, in fact, quite possible that taxes, other than income and excess profits taxes, paid by business concerns (treating farmers and home-owners as business concerns with respect to farm operations and home ownership) have more influence on income shares than on prices paid by consumers. If this is the case, the aggregate Mr. Lindeman terms 'value of the national product' is a closer approach, using his own line of reasoning, than the aggregate he terms 'earned national income' for the purposes for which he recommends the latter aggregate.

Subsidies

Subsidies, like indirect taxes, may be treated as a positive item on one side or as a negative item on the other side of a balanced national income statement. Choice of method of treating subsidies is independent of choice of method of treating indirect taxes.

If indirect taxes are excluded from the sum of income shares on the ground that they (on the whole) raise prices to consumers, then subsidies can be treated as either: (a) negative indirect taxes on the ground that they reduce prices to consumers and provide income to producers in lieu of income resulting from competitive prices; or (b) income to certain persons in addition to that resulting from competitive prices, and therefore, like pensions, transferred from some other persons via governmental action.

If indirect taxes are included in the sum of income shares as part of the value of the product of industry drawn by government as an agent of the population, then subsidies may be treated as either: (a) negative income of government, so that the amount tabulated as income derived by government as the agent of the population is the amount of indirect taxes minus subsidies; or (b) income of the

recipients drawn from government, just like the salaries of direct government employees.

In strict theory, choice between the two methods, at least in the case of a national income estimate designed to serve the purposes of Mr. Lindeman's 'earned national income', depends upon the incidence of subsidies, and this problem is as complex as that of the incidence of taxation. The assumption implicit in Mr. Lindeman's treatment, that the incidence of subsidies is such that as a whole they have an effect upon prices or income shares opposite to that of indirect taxes as a whole, needs further examination.

The uniqueness of indirect taxation

The foregoing discussion of the treatment of indirect taxes and subsidies has been based on Mr. Lindeman's premise that national income should be so estimated, for certain purposes at least, as to approach as closely as possible income shares and values of final products produced by competitive forces. Mr. Lindeman regards the effect of indirect taxation as different from that of other forces having an influence on market prices:

"The imposition of such taxes [non-income business taxes used to finance an unemployment relief program] introduces a new element into price . . . These taxes are . . . a share of the price against which no factor activity can be set."

This 'new' element in price, against which no factor activity, in the traditional sense, can be set is not as unique as Mr. Lindeman implies. An essentially similar element in price occurs whenever the social arrangements under which some goods are produced, distributed to users, and evaluated interfere with the social arrangements in other sectors of the economy for the evaluation of other goods. Such interference by one sector of the economy with the evaluation of the output of another sector is not limited to interference by government with the prices of the output of business concerns. Changes in the character of the market or in the procedures of business enterprises may also change the values of the output of other business concerns without changing the 'productivity' of the factors attached to the latter enterprises. The effects of a decision of a group of people in a community or nation, through their representatives, to purchase certain final products, such as education or military protection, and the collateral decision to obtain the income to meet the cost by interfering with the prices and values of other products of the economic system, are similar to

the effects of many decisions made by individuals throughout the economic system. Consideration should be given to the extent and character of such interferences in order to avoid a hasty decision to treat nongovernmental interferences in one way and similar interferences resulting from governmental action in another.

In imposing indirect taxes having their incidence on prices of final products, the government is acting as a monopolist. It is as logical and realistic to call the government a factor attached to the enterprise (in that the government may withhold permission to conduct the enterprise if its demand is not met) as it is to call the owner of a necessary ingredient, resource, or process a factor attached to the enterprise because the owner may withhold permission to conduct the enterprise if his demand is not met. In both cases an income is drawn from the enterprise by virtue of economic power lying outside the competitive sphere.⁴ To say that the imposition of indirect taxes introduces, in the social arrangements under which economic goods are produced, an element radically different from those prevalent in the nongovernmental sector of the economy is far less accurate than to say that such taxes introduce an element similar in substance to a practice indulged in by business men when they have the opportunity.

In view of the multitude of interferences, nongovernmental as well as governmental, with the competitive prices of final products and with the competitive prices for labor and use of property that constitute income shares, it is at least open to question whether an attempt should be made to adjust for certain aspects of governmental interference (those which raise the prices of final products) without attempting to adjust for other aspects of governmental interference (those which reduce income shares received by individuals) or for nongovernmental interference. Mr. Lindeman recognizes the difficulties of attempting to adjust for governmental interferences with the price of final products in the preparation of national income estimates in current dollars, used for certain purposes—those for which he recommends the aggregate he terms the ‘value of the national product’. But for other purposes—those for which he recommends the aggregate he terms ‘earned national in-

⁴ The similarity between indirect taxes and profits due to imperfect competition is mentioned by J. R. Hicks, in an article upon which Lindeman leans heavily for many of his arguments (‘The Valuation of the Social Income’, *Economica*, May 1940, pp. 105-24). The similarity between indirect taxation and monopolistic influence is also discussed by Colin Clark in *National Income and Outlay* (London, 1937), pp. 11-2.

come’—he advocates this adjustment, on the assumption that the effects of governmental interference, through indirect taxes, with the prices of final products can be approximated by total indirect taxation.

The concept of ‘earned national income’

Mr. Lindeman’s treatment of what he calls ‘earned national income’ is subject to criticism from various points of view: terminology, the meaning of the term as a total and with respect to its components.

Mr. Lindeman points out that no ethical judgment is implied in ‘earned income’. However, regardless of ethical judgment, ‘earnings’ and ‘earned income’ commonly connote a certain part of income. Usage varies considerably as to what part, but the contrast between it and the other part of income exists in the language of the man in the street, in business accounting, and in income tax legislation. It is a badly chosen term to designate what Mr. Lindeman wishes to include in the sum it purports to describe.

Mr. Lindeman uses several phrases to describe the character of the total he designates ‘earned national income’:

An aggregate of the returns to the labor and property factors participating in production;

A measure of current productive activity in value terms;

Sum of factor earnings;

The sum of factor costs as a measure of the (market determined) value of their productive activity;

A money measure of factor activity.

This variety of explanatory phrases reflects, I think, a real confusion concerning the meaning of the aggregate they purport to describe. Some of the descriptions are inaccurate or misleading. The most inaccurate is that it is a measure of the value of current productive activity. The sum Mr. Lindeman designates ‘earned national income’ is not such a measure for two reasons. One is that the sum includes the present use-value of past (not current) productive activity. The current output, or product, resulting from the entire economic process is in part a direct result of past economic activity. The value of current economic activity can be much more closely approached by the sum of wages, salaries, and other payments for personal services, including the part of entrepreneurial profits that may reasonably be allocated to labor income. The other reason, and this applies also to the other definitions in terms of activity, is that

an unknown, but undoubtedly substantial, share of the value included in the sum is a value that results from deliberate inactivity.

In defining 'earned national income' as the sum of factor costs as a measure of the (market determined) value of their productive activity, there is confusion between the market determined value of production factors as such and the market determined value of the final product emerging from the combination of production factors. The sum of income shares derived from the economic system equals the latter rather than the former because whenever the market determined value of the product differs from the market value of production factors, the residual, plus or minus, is assigned, in the accounting process, to certain persons who have a legal claim to it. This residual is so assigned because it is income to those persons, not because it represents part of the 'market-determined value' or 'productivity' of a production factor.

In pure competitive theory, to be sure, such residuals between the market determined value of the product and the market determined value of production factors are assumed to approach zero in the long run. However, in fact there are three important influences—indirect taxation, monopolistic influence, and imperfect competition other than monopolistic tactics—that produce a difference between the market value of final products and the competitive value of production factors. All three elements in the value of final products must be eliminated to obtain an aggregate that is a reasonable approach to Mr. Lindeman's desire to provide a "method of measuring income . . . to preserve its general meaning as . . . the sum of factor costs as a measure of the (market determined) value of their productive activity". Of the three elements, Lindeman eliminates only the first, though Mr. Hicks recognizes the inherent similarity, in economic theory, between indirect taxation and imperfect competition.

Mr. Lindeman argues that in practice it is possible to deduct indirect taxes (as represented by all taxes paid by business concerns except income and profits taxes), but not to make deductions for monopolistic influence or other aspects of imperfect competition. He recognizes that the results are no more significant than the imperfect market mechanism permits them to be. However, he indicates his belief that estimates of the value of the national product adjusted for indirect taxation, and components thereof, are usable—in fact, good enough so that they are "absolutely essential"—for comparisons of economic activity by factors and industries, and also

for measuring the war potential of the economic system. The usefulness of 'earned national income' and its components for these purposes, it seems to me, is exceedingly slight. Imperfect competition is so rampant in modern economy that the components of the aggregate Mr. Lindeman designates 'earned national income' are worthless for an analysis of factor costs along the lines of competitive price theory. We should recognize that it is impossible to divide the value of final products into factor costs, except by adding to the traditional factors of production two specific factors of interference (indirect taxation and monopolistic influence) and a residual reflecting other factors of interference with competitive price adjustments. The parts of the value of final products resulting from the factors of interference may, perhaps, be called 'factor costs'—whether they are market determined or set by governmental order—but these costs cannot properly be described as 'value of productive activity'.

If it is impossible to adjust national income estimates for these important elements in the value of final products attributable to factors of interference rather than to the true factors of production, Mr. Lindeman should not claim that what he calls 'earned national income' represents the value of productive activity, or that its components represent the value of the activity of the traditional factors of production.

The least inaccurate of the explanatory phrases Mr. Lindeman uses to describe the meaning of 'earned national income' is the first: an aggregate of the returns to the labor and property factors participating in production. Even this is not wholly unobjectionable. A more accurate description would be: an aggregate of the income derived by labor and property-owners from the productive process, by type of income.

Contrast between 'earned national income' and 'value of the national product'

The foregoing comments on the character of the sum Mr. Lindeman inappropriately calls 'earned national income' and improperly says represents the value of productive activity lead to a consideration of his contrast between it and the sum he calls the 'value of the national product'. In discussing the difference between these two aggregates, Mr. Lindeman insists that they measure two different things that happen (except for the influence of indirect taxation) to come to the same total, that 'earned national income' is in

terms of costs and the 'value of the national product' in terms of the prices of finished goods.

In truth, the components of the two totals are different. The components of 'earned national income' are factor costs (in the traditional competitive sense) plus other payments that become income to the individuals who receive them. They are income shares. The components of the 'value of the national product', on the other hand, are the market values of end-products or final output, including appropriate equivalents in the case of certain products not actually sold in the market.

Moreover, the two totals do not just happen to be equal. They are necessarily equal, except for errors of estimate and inconsistency in methods of evaluation, for a very simple reason: the sum of factor costs and other income shares includes a residual item, plus or minus, defined as the difference between the sum of all other income shares and the value of output. As totals the two concepts become identical, like the assets and liabilities (including capital account) of a business firm, and for the same reason, namely, that one component of one total is a residual derived by subtracting the sum of the other items from the other total. The national income estimator, to be sure, does not in practice perform the subtraction, just as the bookkeeper does not do so in drawing up a balance sheet from the books of the business concern. In the national income estimation it has been performed by business concerns in computing their profits, just as in the preparation of a business firm's balance sheet it has been performed in keeping the books.

As a total figure, therefore, 'earned national income' is the value of the final output or national product. The difference between it and the total Mr. Lindeman designates the value of the national product results from inconsistency in the method of evaluation. Mr. Lindeman fails to obtain the same figure in estimating national income by the two methods simply because he omits, in his summation of income shares, an important element of income. This missing item is the part of the proceeds of sales of final products that is paid to the government, as an agent of the population, instead of being paid to individuals in their capacities as employees, stockholders, etc. The taxes Mr. Lindeman describes as 'non-income business taxes' are indirect personal income, that is, income routed through the government and received in kind. They may also be regarded as a kind of property return paid to the government because the government, by virtue of its economic power and pre-

rogatives, has placed itself in the position of a holder of a prior lien on the value of the product.

This discussion of Mr. Lindeman's concepts from the viewpoint of terminology, double entry bookkeeping, and consistency in method of evaluation does not, of course, touch the heart of his arguments. If the two totals balance, there may be good and sufficient reasons for adjusting them, not on one side, but on both sides of the balanced statement, for certain uses to be made of the aggregates; and this adjustment may be assumed to equal indirect taxation.

Appropriate aggregates for various purposes

Mr. Lindeman recognizes that "there is no 'correct' measurement of national income, and hence of the government's contribution to it, independent of the purposes for which the measure is devised". He says he is concerned with national income as a measure of both total economic activity and total output, and that his objective with respect to government is to devise a procedure comparable with the valuations in the private sector of the economy for these two purposes. Toward the end of his paper he states: "Measures of the value of factor activity are not only useful and desirable but also are absolutely essential for certain applications of income statistics. Whenever the emphasis is on productive processes, it is factor activity that is relevant. If we want to make inter-industry comparisons of factor activity, we must use earned national income and its components as data. Certainly an appraisal of war potential must be made with reference to factors, and the valuation of the factors must be made in terms of cost."

As general theoretical statements, these sentences sound very good, but when the components of Mr. Lindeman's 'earned national income' are applied to a particular case, their absolute essentiality turns into absolute worthlessness. Take the case of 'inter-industry comparisons of factor activity', in dealing with productive processes or in appraising the war potential, of the aluminum industry. Does Mr. Lindeman really think that the relation of wages to profits in the aluminum industry or the relation of profits in the aluminum industry to those in the machine tool industry has any significance in these connections?

The fact is that modern economy differs so greatly from a fully competitive economy that the components of 'earned national income' are of very little, if any, use in analyses of factor activity or

productive processes. They are useful measures of income shares, that is, for such purposes as comparing the income derived by labor and property owners in various industries, or analyzing the division of the total national product among types of income. For these purposes income turned over to the government and used to provide 'free' services should be recognized, and the difference between 'earned national income' and 'value of the national product' disappears.

Valuation of income from government property

Mr. Lindeman points out that for certain comparisons of the components of the national product, an imputed income from government property should be included, and concludes: "On the whole, the return on government property seems an important enough category to warrant an attempt at imputation despite the practical limitations." However, this recommendation is not accompanied by any suggestion of how to impute the value of the use of government property.

Is the use of government property not more analogous to that of consumers' durable goods than to that of business property, especially when governmental activities are considered final products of the economy together with consumers' durable goods? In the case of consumers' durable goods inclusion of imputed rent on owner-occupied dwellings is necessary in order to provide a reasonable degree of comparability with actual rent payments, and a reasonable degree of comparability of incomes of home owners with those of tenants. However, no allowance is usually made for the use-value of other consumers' durable goods, including such large items as automobiles and refrigerators, and these goods enter into the calculations as direct purchases of consumers' goods without going through capital accounts. An analogous procedure would be to include the rental value of government buildings (presumably on the basis of rents paid by the government), and perhaps also of such structures as shipyards. But armaments, including aircraft and naval ships, would be treated like consumer purchases of automobiles.

Classification of final products

Mr. Lindeman suggests three categories of final output: privately produced consumers' goods, private capital formation, and government output. This is not a satisfactory solution of the problem of

fitting governmental activities into the customary division of final products between consumers' goods and capital formation, especially acute in wartime. Any solution proposed should reflect the decisive deflection of the economic system from consumers' goods, as ordinarily defined, and also from capital formation designed to enlarge the capacity to produce consumers' goods. This change in the orientation of the economy is not adequately reflected by complete separation of the value of final products of government from those of the nongovernmental section of the economy because some important governmental products, such as education and educational buildings, are likely to be curtailed along with other consumers' goods.

I therefore suggest that the traditional twofold classification of final products into consumers' goods and capital formation should be expanded into a threefold classification, the additional category to include the cost of governmental activities usually thought of as the basic functions of government, namely legislative bodies, courts, general administrative departments, defense, and war. These are the types of government activity most difficult to treat as services to either individuals or business. Under this proposal, some final products of government would be classified as consumers' goods and some with nongovernmental capital formation, but the major portion of government activities, in terms of cost under present conditions, would be placed in the new category.⁵ The application of this threefold classification of the final products of the economy should be carried back through World War I.

Such a classification of final products by type would be separate from a classification by industry. In classification by industry the products of government are, of course, segregated from the products of the nongovernmental sector of the economy.

M. A. COPELAND

Mr. Lindeman is addressing himself to improvements in income estimates in an area in which established methods of measurement, though admittedly unsatisfactory, had been tolerated before the war partly because the difficulties then involved were relatively small and partly because of conceptual disagreements. The war effort has greatly increased the magnitude of the items in this area

⁵ This suggestion is given in more detail in my comments on Mr. Goldsmith's paper.

for which estimates have been unsatisfactory and revised methods have become imperative.

As a remedy Lindeman proposes two concepts and hence two estimates which he would substitute for the single concept 'national income'. Two aspects of his proposal should command general agreement.

1) In both his proposed measures Lindeman would use an imputed income estimate based on a valuation of government tangible property instead of using government cash interest payments. The difficulty with the cash interest computation was recognized during and immediately after World War I, and then neglected by most income estimators. Current changes in government debts have again made the difficulty with the cash interest computations a matter of current importance.

Although Lindeman and I agree on proposing an imputed measure for government property income, Lindeman misstates the reasoning that originally led me to make such a proposal¹ when he implies that I am optimistic that the government will set up a "business-like system of accounts . . . in the near future". I am not optimistic about that. I would only urge that (a) the problems involved in an estimate of imputed income on government property are similar to those involved in estimating imputed income for owner-occupied houses and (b) an imputed income estimate can be made with sufficient accuracy to be an improvement over the established type of cash interest payment estimate.² It would be difficult to quarrel with either proposition.

2) Another and even more serious defect in our pre-1940 procedures of income measurement has been disclosed by attempts to measure the war and nonwar constituents of the net value product separately. These attempts indicate a substantial understatement in the measurement of the increase in total national income following 1939. Lindeman's proposal of two income concepts provides a correction for this error in measurement of recent year-to-year movements of total national income.

The two concepts Lindeman proposes correspond in a sense to two generally recognized methods of estimating national income, both of which use accounting data covering the operations of busi-

¹ *Journal of Political Economy*, Feb. 1932, pp. 29 ff.

² "The possibility of making accurate estimates of a theoretically untenable item is not an argument for substituting it for a tenable item that can be estimated only roughly" (*Studies in Income and Wealth*, Vol. One, p. 29).

nesses, governments, and other enterprises. These two methods have sometimes been referred to as the debit or distributive-shares method of estimating the net value product and the credit or revenues method. If consistently defined and evaluated, the debit concept and the credit concept will necessarily be theoretically equal, and the differences between the two estimates will necessarily reflect errors in measurement.

In effect Lindeman would take the debit estimate as his concept of 'earned national income' and would define his 'value of the national product' as the credit estimate plus business taxes. In other words, 'earned national income' is a new name for an old concept, and 'value of the national product' is a new concept created by summing two existing concepts: (a) the net value product of the economy and (b) business taxes. Lindeman's 'value of the national product', if computed by adding business taxes to a net value product estimate made on the old pattern (and substituting an imputed property income estimate for government interest payments), will give a year-to-year movement that is more nearly accurate than that of 'earned national income'.

Lindeman's argument for his two concepts constitutes a theoretical justification for moving further in a direction sometimes referred to as providing 'different meanings of the term national income for different purposes'. But if there is a special purpose served by an income series that displays reasonable year-to-year movements but operates on too high a level (that is, what Lindeman calls the 'value of the national product' the level of which is too high by an amount measured roughly by business taxes) Lindeman does not state this purpose. Nor does he state the purpose to be served by a series that, while avoiding the double counting of government charges for services to business, shows a year-to-year movement known to understate the recent growth of national income. What would seem to be needed, both theoretically and practically, is a single measure of national income that has a year-to-year movement similar to Lindeman's 'value of the national product' and a level like that of his 'earned national income'.

By way of recapitulation, I suggest that there are two points on which there should be general agreement: (1) despite deficiencies in existing data, income estimates can be improved by substituting an imputed property income estimate for the estimate of cash interest payments on government debt, and (2) methods of measure-

ment should be revised to correct the understatement of the income increase since 1939.

The theoretical justification Lindeman offers for his proposal of two income concepts greatly oversimplifies the actuality of our economy in two important respects. In each he follows the traditional paths of neo-classical economic theory: (1) He conceives our economy as consisting of two spheres that differ in kind rather than in degree—on the one hand business enterprises and on the other government. (2) He assumes that in one sphere, business, it is easy, in general, to identify a *quid pro quo*, while in the other, government, such identification is, in general, impossible.

Let us consider the second point first. Lindeman's disinclination to treat business taxes in the same way as the cost of goods and services purchased by one private enterprise from another derives from the sharp distinction he draws between government and business. Because he assumes that a *quid pro quo* can be identified in each private business transaction, he feels that the allocation of business charges as between (a) ultimate consumers and (b) customers that are producing enterprises may be accepted at face value for purposes of computing an unduplicated total of net value products. On the other hand he holds that the corresponding allocation in the case of charges for government operations cannot be given any credence whatsoever for this purpose.

In making this sharp contrast he seems to have in mind a small scale business enterprise producing only one homogeneous product rather than a large scale highly integrated corporation. Consideration of the latter type of enterprise raises questions concerning the allocation of charges by business enterprises as between (a) ultimate consumers and (b) customers that are themselves producing enterprises. Can we be sure of the *quid pro quo* basis for allocating indirect costs as between charges to enterprises and to consumers in the allocation of charges as between freight and passenger traffic on the railroads? between domestic and commercial rates for telephones? between domestic and commercial rates for electric power? and the allocation of charges for commercial banking services as between individuals and business enterprises?

Lindeman seems to hold that the greater difficulties in identifying a *quid pro quo* in the case of government services than in the case of business products and services are responsible for the fact that on the whole, business financial records are better than government financial records. Hence, his disinclination to try to eliminate the

admitted double counting involved in the series 'Value of the National Product' by estimating what better government records might have shown, if available. If his position were entirely correct in this respect, we should expect to find that accounting records of small scale enterprises are on the whole better than those of large scale enterprises. Actually the contrary is the case.

It is proposed that an attempt be made to estimate what government records might show if they were better. In proposing this I do not wish to suggest that we should force government into a business mold; nor do I suggest that the task of estimating proposed is easy. I merely urge that the ground of Lindeman's pessimism is not firm, and that we should be optimistic enough not to give up the task until we have tried. I am convinced that a genuine effort of this sort promises worth while results.

Not only are the two spheres of our economy just considered less sharply distinguished than Lindeman suggests, but also we must reckon with other types of entity, with farms which are to some extent self-sufficient and with churches and other nonprofit institutions. If two spheres call for two concepts of national income and there are actually more than two spheres, where does this line of argument stop? ³ If the difficulty of allocating the charges for government service as between business enterprises and consumers is, as Lindeman alleges, ground for having two concepts of income instead of one, shall we not in theory at least need to double our income concepts again, because of the difficulty of distinguishing between the cost of farm products the farmer eats and the cost of farm products fed to his livestock? Or shall we continue to ignore this difficulty in practice as of small consequence?

The moral I suggest we draw from these considerations is this: "The need for different meanings of the term national income for different purposes" has sometimes been an excuse for tolerating a general confusion of terminology.

No one will question the propriety of a multiplicity of special purpose indexes or other estimates of income employed in the many special purpose studies. But neither this propriety nor technical statistical difficulties can justify an agency such as the National Bureau of Economic Research or the Bureau of Foreign and Domestic Commerce in maintaining two, three, or four standard time

³ If difficulty of allocation justifies a duality of concepts, the field of government surely justifies another conceptual doubling because of the difficulty of distinguishing government payrolls from relief payments.

series, which are certain to be confused with one another and each of which is certain widely to be thought of as an estimate of *the national income*.

REPLY BY THE AUTHOR

There is no disagreement in principle between Mr. Warburton and myself on at least one point. We are agreed that it would be desirable to devise a satisfactory method of eliminating the intermediate output of government in order to remove the duplication in the value of the national product total which comes from treating all government output as final. Where we disagree is over the question whether a satisfactory and generally acceptable method of defining and measuring the intermediate output of government can be devised. Mr. Warburton's proposal that the problem might be put up to a committee of economists in no way reduces my skepticism. While undoubtedly immediate agreement could be reached with respect to extreme items, I am still convinced that the very wide 'twilight zone' would present a formidable obstacle. At any rate, while we are waiting for the committee to be set up and reach a decision, I think it would be better *immediately* to do away with the present assumption concerning the equality between business taxes and the value of governmental services to business, and to admit that our total includes some undetermined duplication.

For most of Mr. Warburton's other points I am inclined to refer the reader to my paper for rebuttal. They are anticipated and answered to my satisfaction there. I have only one further comment.

Aside from the question of duplication, it is proposed in my paper that we strike a total for the value of the national product by summing (1) the value of the final output of government taken at cost, and (2) the value of the final output of private enterprise at the prices it actually sold for in the market. I assume that Mr. Warburton does not quarrel with this method.

If we divide this total into the shares received by members of the community we have, in addition to the income shares that accrue to individuals and business enterprises, a residual item, indirect taxes. The method of disposing of this residual item is at the center of the controversy.

Suggesting three ways of treating indirect taxes, Mr. Warburton says I waver between the first and the second:

a) To count them as one of the income shares;

b) To treat them as a deduction from the aggregate sales value of final products of business concerns; or

c) To divide indirect taxation on the basis of its incidence.

Actually, I 'waver' between the first and the third methods in principle. However, with respect to earned national income I suggest that (because of the statistical impossibility of separating the taxes according to incidence) we should assume that the conventional categories of indirect taxes have their incidence on prices, and we should hope that the error involved in the assumption is substantially canceled by the ability of many business organizations to institutionalize their 'income' taxes as costs.

Mr. Warburton's comment that this third method has the most substantial support in price theory indicates that he also would like to divide indirect taxes according to incidence whenever a distributive share breakdown is shown. Now, Mr. Warburton disagrees with me concerning the probable preponderance of the incidence of indirect taxes. I am willing to leave the question open, merely reiterating my belief that the appraisal of incidence suggested in my paper is not too far from the truth. The question of incidence is not, after all, the point at issue; but the decision to recognize it is. For that reason Mr. Warburton's concern with incidence, and his desire to correct the reported income shares in order to account for it, is of the utmost interest.

Let us go back for a moment to the value of the national product. Its components are economic goods and services reduced to the common denominator of market price (or, in the case of government, an acceptable substitute for market price). They constitute a homogeneous group; their economic content is identical with that of the aggregate. If, however, we strike a balance on the income side by summing the shares in the price *as reported*, we have components that, while useful in many ways, are not altogether meaningful as payments for the factors of production of competitive price theory. Mr. Warburton and I both recognize this; that is why we see the theoretical desirability of correcting the reported shares and also the total value of the national product for the incidence of indirect taxes (among other things), if the reported shares are to be thought of or used as measures of the value of factor activity. Once this correction is made, a residual consisting of the indirect taxes that have the effect of raising the price of output rather than of reducing the income shares still remains.

The difference between us is very clear. If national income esti-

mates are used to approximate the value of factor activity, I would throw out this residual as an element so patently unique that it cannot sensibly be included with the income shares. Mr. Warburton does not consider it so unique, and suggests that it may be kept in and called a monopoly return to government. I cannot see that much can be gained from this procedure. If it is desired to relate shares in the price of output to factor activity, I still think it can be done better by the method I suggest than by stretching the idea of monopoly to cover government.

Of course, another procedure can be followed: we can abandon the attempt to relate income shares and 'value added' to factor activity, and simply report the shares in the price of output without any correction. This would eliminate the necessity of rationalizing the inclusion of indirect taxes. It would also eliminate the question of incidence, which arises only if we are not satisfied with the reported shares as a measure of the return accruing to factors of production. I think this should be Mr. Warburton's position; furthermore, I think it is a reasonable and defensible position. But it does not answer the need for national income statistics that can be used in an analysis of (for example) the economic activity of the various industry groups.

Part Two

MEASURING THE ECONOMIC IMPACT OF ARMAMENT EXPENDITURES

R. W. GOLDSMITH

WAR PRODUCTION BOARD

Discussion

CLARK WARBURTON

FEDERAL DEPOSIT INSURANCE CORPORATION

MORRIS A. COPELAND

WAR PRODUCTION BOARD

CHARLES L. MERWIN

WAR PRODUCTION BOARD

The first draft of this paper was prepared early in 1942. It was revised in September utilizing comments made at the meeting of the Conference as well as suggestions received from friends who were good enough to struggle through various forms of the manuscript. Pressure of other duties unfortunately has prevented me from taking as much advantage of these suggestions and of some of the recent literature on the subject as I should have liked. A few changes in the statistical material were made in March 1943.