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## Suitability of the Accounts for Short-Term Analysis

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ONE approach to appraising the usefulness of any statistical series is to set up abstract criteria of good data. It takes, however, only limited experience in statistical analysis to realize that no single set of statistical data can satisfy all standards of usefulness or meet all the needs of analysts working in the field. Statistics cannot, for example, be both up-to-the-minute and wholly accurate. Moreover, each problem, each new situation, presents its own special questions, which can be answered only in terms of data suitable to it. The most that can be asked of any set of data is that it have substantial validity with reference to all the ordinary problems of its users. Data of this kind may be termed *general purpose* or *basic* data. In practice, basic data constantly have to be supplemented with more timely or other special data that meet the specific needs of the occasion.

One of the first problems of current analysis is to "forecast" the present. It is necessary to foretell what the current situation will prove to be after data are available to define it effectively. The quarterly income and product data, when first issued, are themselves estimates of this provisional character: they attempt to predict what the final estimates will be after all possible information is in. But in current analysis, it is necessary to move ahead of the preliminary quarterly estimates. This has to be done, in general, by methods similar to those used by the National Income Division in moving the quarterly data ahead of the annual and the annual ahead of the periodic benchmarks. Monthly or weekly data related to various important income and product components are used to give provisional indications or clues as to what is happening, but there necessarily remain large elements of prediction in our first estimation of the current situation. In these circumstances, the quarterly income and product data assume the role of basic data, and they assume it very effectively. They are easily the best data available to the short-term analyst.

It is desirable, of course, that all data, whether basic or merely timely, should be as dependable as possible. They should consistently portray significant changes, from whatever causes these may derive. Ordinarily, data can have the requisite dependability only when they

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are obtained from logical sources by satisfactory reporting procedures.

I therefore have misgivings about the suggestions, frequently made in these papers, that the need for various kinds of data override the practical difficulties of getting them, and that the NID should drive ahead to provide the best estimates possible under the circumstances even though such estimates may not be well founded. In some papers, the need for the additional data is merely asserted or assumed rather than demonstrated. In other cases, the value of the data is made clear, but there remains the question of the valid range of activities of any reporting agency. I suppose it is a compliment to the NID that so many analysts should want data adjusted to relate directly to the present national income accounts. But I think we should recognize that there must be limits both to the functions of any single agency and to the statistics it produces.

It is for another reason however, that I think the kind of expansion of the present series sometimes proposed would be undesirable. In my judgment, items that cannot be measured in reasonably accurate degree had better be left out of the tabulations, though I would not rule out all exceptions. A case in point concerns capital consumption allowances. Everett E. Hagen and Edward C. Budd, for example, recommend abandonment of the present method of reporting from the books of business concerns in favor of making estimates on the basis of certain rather arbitrary assumptions about average service life for productive equipment. I have from time to time made and used estimates of a similar character, and my experience does not lend encouragement to the idea that such estimates should replace those now reported. I shall return to this question shortly.

One further remark, in order that I may avoid, in turn, the charge of inconsistency. I do not object to anyone's making any estimates he pleases and presenting them for what they are worth. Pioneering studies, like Simon Kuznets', could never be made without taking substantial liberties with available statistical material. I do object to such action, however, on the part of a reporting agency like the NID. I do not want any unnecessary "guesstimates" built into the data I have to use. I believe the NID should leave to the independent analysts, the special pleaders, and the others who may want particular items of information which the NID itself cannot justify, the task of providing and supporting their own estimates.

## THE GROSSNESS OF NATIONAL PRODUCT

An analysis may proceed in either net or gross terms, but as a rule, the short-cut, net approach tends to be superficial. For example, I

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once suggested replacement of net foreign investment by net balance on current account, with government grants and personal remittances treated as transfers. It still seems to me that this procedure has merit, since it affords a better orientation for analysis of the foreign sector. However, any sound analysis of that sector requires explicit consideration of two-way grants and remittances in relation to total exports and imports; and if the transfer items have to be considered in gross terms in any case, it makes little difference just how they are entered. Similarly, the government sector cannot be effectively analyzed in anything but gross terms. It is surprising how little can be said about a government deficit or its effects without reference to the larger totals and to the specific expenditures and receipts that go into their make-up. In these special instances, data are available to extend the analysis in detail. Efforts to achieve a similar broadening of the analytical base for the private economy lead to such devices as sources and uses, flow of funds, and input-output tables.

It is true that whenever a "gross" concept is adopted as a measure of total output, a certain amount of duplication is envisaged. Presumably such duplication is desirable for purposes of subsequent use of the data or at least for convenience in compiling them. To rule out all duplication may be to create problems rather than to solve them.

The question then becomes: How inclusive a total is necessary or convenient? The answer turns on the problems to be solved. If the welfare and comparative status of individuals is to be considered, it may be important to include capital gains and earnings from extralegal activities, like gambling. If comparisons with other economies are to be made, "do-it-yourself" and other nonmarket activities may have to be considered. In accounting for a highly industrialized economy like ours, from an over-all point of view, such unremunerated activities may well be ruled out, particularly if they are known to be comparatively limited in scope and their money value cannot be measured.

In defining gross national product, the basic criterion for the inclusion of a product was that it should be the result of socially productive efforts which command a market price. The problem of duplication was solved in the main by considering end products only. Parts, components, and intermediate services were included only to the extent that their values were embodied in goods that did not pass into the hands of final users but were retained as business inventories. (The special case of government services will be considered below.)

The result has been a measure with exceptional analytical values. Gross product is tied primarily to real activity and bears a direct relationship to alternative measures of economic activity, such as employ-

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ment and industrial production. Stated in value terms, it is related also to prices, wage rates, and other rates of remuneration for productive services or resources. Even more important, its composition in terms of end products directs attention to the primary bases for appraising changes in economic activity. End products provide a direct indication of what people are doing and why they are doing it, whereas materials and parts have meaning only in relation to the end products in which they are incorporated. Moreover, all end products are classified into a limited number of broad components, each of which is made up of relatively homogeneous elements from the standpoint of analysis. These broad components make it possible to analyze separately the economically distinct behavior of consumers, businessmen, and government.

The determining criterion of gross product—that is, its tie to productive activity or employment as embodied in end products has been adhered to with substantial consistency. Completeness requires the inclusion of inventory changes, but revaluation elements have to be excluded. The treatment of the latter item on the product side is clear; there is no productive effort that corresponds to the revaluation. Unfortunately, confusion still persists when this item is considered from the income side. A clearer explanation by the NID of how revaluation arises as a purely bookkeeping transaction at the end of the accounting period would be helpful.

The primary departure from the basic criterion for gross product lies in the inclusion of certain imputed items for which no money payment is actually made. The basis for including food produced and consumed on the farm is clear, since it results from the same kind of productive effort as the products sold and presumably could command the same price.

In the case of imputed rents, another consideration arises from the fact that cash rents are actually paid to landlords. To include paid rents only would introduce an element of variation whenever houses shifted between rental and owner-occupied status. The present treatment makes total rent a stable, gradually increasing trend factor appearing on both sides of the account. And in the short term, total rent is practically a constant. As such, it is easy to deal with. A constant never troubles the analyst, whereas an unknown element of variation creates difficulty. The present treatment of rents is therefore acceptable in practical application as well as in theory.

The arguments for including rental values on government property are nowhere near so persuasive. The government does not pay itself rent, incur insurance expense, or write off depreciation. Hence, there are no expenditures to take into account and no income payments on

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the other side of the account demanding reconciliation. To include rent on government property, the NID would have to accept the burden of making estimates on some arbitrary basis, and the result would be a series of bookkeeping entries of little or no practical value. If the government should adopt a capital budget, changes might be considered, but they seem wholly unnecessary at present.

The primary challenge to the present data, however, arises not from the criticisms or suggestions concerning these items but from the two major sources of actual or alleged duplication in the gross national product—the consumption of capital in the productive process and the inclusion of government intermediate services.

In their discussion of the former, Hagen and Budd conclude that “net national product is conceptually to be preferred to gross as a measure of total output”: This follows a paragraph discussing the conditions under which GNP might substitute for NNP as a measure of *net* output. If there is any basis for preferring NNP as a measure of *gross* output, it is not clear. I think it is unfortunate to imply that GNP was ever intended as a measure of net output. The effect is to detract from a measure that stands on its own feet in favor of one that has to be derived from it by the deduction of some uncertain estimates of capital consumed.

The reason for including gross capital formation in GNP is clear. The production of capital goods requires the expenditure of productive effort whether the goods produced are in fact used for replacement or for expansion. The significant changes in activity are the result of changes in gross output, particularly in gross capital formation, and not in capital consumption allowances or in the residual after the latter are deducted from gross production. The large, volatile segment of employment in the capital goods industry must be considered in its entirety, regardless of how little of its output may be considered net additions to capital. The way to progress would seem to lie, not in any shift to net figures, but in building more inclusive gross estimates along the lines of the input-output tables.

This insistence on the validity of analysis in gross terms is not intended to impute any lack of value to estimates of capital stock. On the contrary, all my own research leads to the conclusion that such estimates represent one of the most valuable tools of analysis. Capital stock has meaning, however, primarily in real terms. The primary need, therefore, is for deflated capital consumption data rather than estimates of net capital formation in current dollars. Taking the differences between deflated estimates of capital formation and capital consumption appears to give a meaningful indication of the change in the capital

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stock, considered in relation to such real measures as production and employment.

The deflators for capital formation and capital consumption are of necessity quite different in character, and applying the deflator for the one to reflate the other gives a measure most difficult to interpret. For example, when the difference between the two deflated estimates is reflatd by the price index for new capital formation, the result is not a measure of the change in capital stock valued at current prices, because in the latter the pre-existing stock would also have to be reflatd. Moreover, no such measure would give the same result as revaluating the real capital still in existence at current prices, if, indeed, there are current prices for all of the items to be revalued. What useful purpose any such estimates in current dollars could serve is not at all apparent. We enter here into a morass of figure juggling from which logical conclusions could seldom, if ever, emerge.

Furthermore, the case against the empirical estimates of capital consumption based on business reports is far from convincing. The present data do in fact bear a consistent relation to GNP and to corporate profits, given the link of estimated book values of capital stock derived from current values of capital formation and capital consumption allowances. The correlation of capital consumption allowances with GNP and capital stock is so high that hardly anything more could be asked of such a statistical series.

Clearly, the level of operations it at least partially taken account of in the present estimates of capital consumption. The steel industry knows that the lining of a blast furnace wears out more quickly when it is operating at forced draft than when it is standing idle. Nevertheless, the idea that depreciation goes on even when operations are at low ebb also has a good deal of validity. Hence, since the stock of durable capital remains relatively stable during a depression, it is not at all absurd, as Hagen and Budd state, that depreciation charges should become a higher percentage of total output when activity is depressed. This shift is part of the characteristic fluctuations of a capital-using economy.

It is entirely possible that the relationship of capital consumption allowances to GNP and capital stock will be disturbed for a while by the recent changes in tax law. Even so, it may be easier to reform this unappreciated child of accounting practice and tax law than to create a new brainchild to take its place. When the evidence of shifting is actually at hand, it may be possible to deal with the deviation satisfactorily.

The desirability of placing greater emphasis on a *net* measure of

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output cannot be established in terms of analytical needs. My own experience, in fact, definitely indicates the contrary. The suggestions advanced by Morris Cohen and Martin R. Gainsbrugh, also point to the desirability of gross measures. It seems unnecessary to push this argument further. Both gross and net figures are desirable, each for the purposes to which it is adapted.

### THE STATUS OF GOVERNMENT SERVICES

Turning now to the other source of alleged duplication, the so-called intermediate services of government, it is at once apparent that we are dealing with a moot question. The advocates of change cite a long record of authority in support of their position. Never before have I seen the case argued more persuasively than by Raymond T. Bowman and Richard A. Easterlin. It is ably supported by Hagen and Budd, though their decision seems to have been made before consideration of the fourth alternative, which seems to stand as an effective argument on the other side.

The proposed division of government services between intermediate and final product has, at first glance, a great deal of appeal. It seems to offer a reasonable set of estimates, consistent in treatment of government and private product, and also affords a basis for compromise in a controversy going back almost two decades. If we view the problem in the abstract, from the standpoint of the concepts of neoclassical economics, we can readily agree with the innovation. However, when we consider implications of the proposal in terms of practical analysis, we find ourselves veering away from such a course. The change would complicate the problems of analysis and contribute nothing to the usefulness of the results.

On a problem of this kind, we ought to talk quantities in order to reach meaningful conclusions. There is perhaps a little sleight-of-hand in the Bowman and Easterlin models, which imply that maybe all and probably more than half of government services belong in the intermediate business category. The fact is that most such services are of the "mixed" type, and the "pure" type subject to exclusion is so rare that it is hard even to find any good illustrations. The one specific example cited by Bowman and Easterlin "measures to prevent the spread of disease among livestock," is not so clear-cut as it seems: this item, along with other agricultural research and extension work, is not so much an aid to current production as to future production; and protecting the future food supply is not so different from direct measures to protect the health of the people.

What the proposal finally comes to, therefore, is that the bulk of



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government services, which serve consumers and business alike, should be distributed between final and intermediate categories on some arbitrary basis. For this purpose the procedures of cost accounting are fully as arbitrary as any others that might be adopted. The analyst of government programs and budgets would then be faced with a new set of adjustments, in addition to the present complicated set necessary to get from total government spending to purchases of goods and services. The adjusted result would be a total in which certain kinds of expenditures were written out of the picture to the extent of arbitrary, and in the short run at least, fixed percentages.

Such an adjusted total would break the tie between government expenditure and government employment. What portion of the military services, the police forces, and the fire departments should be excluded from government employment as protectors of business properties and operations? What portion of the teachers should be regarded as training workers for business rather than creating an educated people? On the employment side, any such division looks rather ridiculous. But the analyst has a definite stake in expenditures that match employment. Many government programs can be analyzed better in terms of employment than in any other way.

The argument that data should be "invariant to institutional changes" is put forward in both of the papers dealing with this subject. This argument appears to me to be almost wholly artificial. The illustrations used are either unrealistic or so trivial as hardly to merit serious consideration. Similar charges could be used against any set of working definitions. It is always possible to dream up changes in institutions that would make for some minor inconsistency in any practical statistics that might be compiled.

Institutions do not change overnight in such a way as to make an important difference. Over long periods, important changes do occur. We know, for example, that a certain amount of distortion is involved in the shift from the household to the market economy. It affects all our long-term comparisons and computations of growth rates, but no one contends that it invalidates our data.

I think a better rule for statistical validity than invariance to institutional changes would be that no item should be regarded as part of another item unless its movements are substantially controlled by that other item and consistently move with it. To deduct government services of stable or increasing magnitude from declining expenditures for industrial products, on the basis that they were included in the prices of those products, seems to me wholly inappropriate. Government services are a separate sphere of activity having no direct tie to the private

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output to which they may contribute. Their level is determined independently of any related, privately produced goods or services. If there are any government programs that conform in movement to related categories of private production, I am not aware of them.

Analysis of government activities requires reference to different sources of information and different techniques from those applicable in the private sectors of the economy. The argument for a partial merger of private output and government services—however neat or elegant it may be considered in theory—fails because the two behave differently and must be analyzed separately.

It seems to me that Hagen creates a wrong impression in stating that the analytical model for national income estimation is the same as that underlying the static theory of value and distribution. No doubt the origins of the present system go back to such theory, but as it stands, it is a compromise along Keynesian lines, an attempt to extend the classical model into the field of analyzing dynamic changes through periods in which technological progress occurs and partial unemployment prevails. Nowhere is this seen more clearly than in the treatment of the government accounts. The need for data to facilitate analysis of employment changes and policies weighed heavily in the original decision; and since then, the government has continually assumed greater responsibility for maintaining employment. If a shift must again be made, let it again be away from theoretical preconceptions toward the needs of practical analysis.

### THE RELATION OF GROSS PRODUCT TO INCOME

Thus far, the discussion has been confined almost exclusively to the expenditures side of the accounts. The point made was that a gross measure of output, far from being a handicap, has distinct analytical advantages. Sound analysis must also consider the income side and reconcile the results obtained with the product data. An over-all analysis cannot be considered complete until it has incorporated changes arising on the income side and has achieved balance and consistency between the expenditures and the income accounts.

These national income accounts provide two good measures of over-all activity in the economy—national income and gross national product—both of which presumably summarize the same money flows from somewhat different points of view. These measures are not only sound as indicators of change, they are readily understandable in absolute terms. The analyst who works with them can proceed from one to the other and back again by means of a number of relatively simple adjustment items. The circular check on the analysis, proceeding from

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gross expenditures to national income, to personal income, to consumer expenditures, and thus back to gross product again, provides one of the best assurances against error in the analysis. It forces consideration of the relationships embodied in the accounts and prevents unwitting violation of those relationships.

Most of the adjustment items that have to be considered in this process are fairly well behaved. They are either relatively stable in character or move in a fairly dependable relationship to the larger aggregates. The primary exception is the statistical discrepancy. This item is rather erratic and must be handled with judgment. Were the cause of it known, it could be eliminated; but since this is not the case, it must be dealt with like any other item in the circular analysis. It must be carried along, and modified, just as if it were a real factor in the economic picture and not merely an unexplained difference between two sets of comprehensive statistics that cannot be entirely reconciled.

By reason of its very nature, there is no basis for treating the statistical discrepancy as anything more definitive than it really is. Any attempt to allocate it to the various aggregates, as in the Canadian accounts, is unwarranted. Any assumption that certain items do not contribute to it—like capital consumption allowances and indirect taxes in the Bowman and Easterlin models—is untenable. I think we are making the frankest and most informative presentation of it just as it is: a single, unadorned acknowledgment of realities.

But the role of the statistical discrepancy is not wholly negative. It provides a means of reconciling short-term differences in movement that cannot readily be accounted for. It is a receptacle for erratic variations and systematic bias that cannot be assigned to other series. By eliminating the need for arbitrary adjustments in other items—adjustments that could not be justified in the light of available current indexes—it serves on occasion to keep the analyst from being led astray. I feel strongly that we should let it play this role to the fullest by making the best possible estimates of the other items on the basis of available information, letting the statistical discrepancy go where it will.

## CONCLUSION

The national income and product data, as presently constituted, are in my opinion the best set of analytical data yet devised. In this conference, we have opened a field day for suggestions and criticisms. Some of the points made seem to me to reveal various degrees of misunderstanding, and from others, as indicated above, I dissent. Revisions

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of such widely used and well-accepted statistics should be approached cautiously. Most of what is desirable can, in my judgment, be done without modifying the basic concepts or present structure of the accounts.

Although this brief review of the papers concentrates heavily on points of disagreement, I do not wish to be considered in the position of being against all change. It would clearly be improper to say that what we have is good enough for all time. On many points of detail I am in full agreement with the comments made. There should be no holding back on advantageous revisions, and where supplementary data or additional detail can be provided, they should be made available as soon as possible.