

NOTES
SOME REFLECTIONS ON A UNIVERSAL SYSTEM
OF NATIONAL ACCOUNTING*

BY HANS WERNER HOLUB
University of Innsbruck, Austria

National accounting—including input–output–systems and national wealth accounts—is used to answer the following questions:

- (Q1) The measurement of total final demand and final production
- (Q2) The measurement of total effective demand
- (Q3) The measurement of total income and its distribution
- (Q4) The representation of the total financial structure
- (Q5) The representation of the total production structure
- (Q6) The measurement of the economic “success” of a sector
- (Q7) The measurement of the change in total welfare.

In recent years, the work of national and international statistical offices in the field of national accounting has been marked by efforts to make the existing accounting systems compatible. For the German-speaking countries, the construction of a global accounting system has been explicitly demanded.¹ This paper attempts to show that

- (1) the creation of a “universal” accounting system is not a suitable means of increasing the explanatory power of national accounting;
- (2) the currently used accounting system is overburdened when different questions are asked simultaneously; more precisely: it is able to depict market- or near market-activities, but it is unable to answer the other questions;
- (3) the questions listed above are not compatible with one another and therefore cannot be answered by a single universal system of accounts.

It is not a new assertion that national accounting is being used to answer different, clearly distinguishable questions of type (Q1)–(Q7) and that it is overloaded in doing so. The literature on national accounting contains numerous references to this fact.² Although Ohlsson has repeatedly expounded on the difficulties resulting from the above statement, reactions can so far be found neither in the literature nor in the official statements of the statistical offices. Ohlsson’s complaint made in the year 1953, “The role of the purpose has fallen into the background, however, as far as the details of the national accounting are concerned”³ is still valid today. Reflections on the compatibility of these questions as found in the literature on national accounting usually refer to the

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¹Bartels, 1968, p. 125.

²Ohlsson, 1953a; Ohlsson, 1953b.

³Ohlsson, 1953a, p. 1.

resulting net concepts, such as national income, welfare product, and market product. In my opinion, however, the determination of the compatibility of the accounting systems upon which these values are based is more important than the determination of the compatibility of the net concepts. Only thus can the full consequences of a decision for a specific type of question be demonstrated.

The concept of compatibility of accounting systems will be analyzed with the aid of the following basic consideration: two or more questions cannot be answered within one national accounting system if

- (a) answering these questions requires different scales of measurement, or
- (b) one or more variables must be given different values within the same scale of measurement.

If (a) or (b) is not the case, the questions under examination can be answered within a single accounting system, that is, the accounting systems pertaining to the different questions can be transformed into one another with appropriate equations.⁴

The consideration above offers only a general formal structure. For specific questions, this structure must be given concrete content. The situation is simple for (Q1) and (Q2). Total final demand (Q1) is based upon a concept of demand that contains intrasectoral flows of the sectors, such as internally produced equipment and inventory changes as part of gross investment, or, more explicitly, government services as final demand. The measurement of total effective demand (Q2), on the other hand, requires strict restrictions on the inter-sectoral flows. The net value calculated in (Q2) "Measurement of total effective demand" therefore differs considerably from the conventional national product. For better distinction, it may be defined as "market product." Despite these different net values, the conditions for the compatibility of the underlying accounting systems are fulfilled in a trivial sense: Questions (Q1) and (Q2) can be answered together in a combined accounting system. It can easily be shown that questions (Q3) and (Q4) are also compatible with questions (Q1) and (Q2) discussed above.

This brings us to question (Q5): "Representation of the total production structure." The question pertains to the disclosure of relationships based on production, that is, real processes, which accordingly must be covered by a real cyclical system measured in monetary units.

In a national accounting system, the terms "product" and "production" are limited to those economic activities that generate monetary income. The work of housewives and other non-market activities are not listed as production. In the context of (Q5) it must be asked whether such a concept of production is sufficient for real economic measurement of the production structure. In my opinion, the limited concept of production has become too narrow for modern

⁴The following quote shows the relevance of the problem under discussion: "The fundamentally significant question regarding the role that the purpose plays in national accounting is rather the following: is the same NA-system applicable for all the various purposes for which it is currently used, or must alternative systems be drawn up to fit these different purposes?" (Ohlsson, 1953a, p. 25).

economies, since it does not allow:

- consideration of the increasingly important substitution processes between commercial services and non-market-activities;
- comparison of economies on different levels of development with respect to services offered on the market;
- inclusion of those environmental inputs and outputs that are considered free at the moment;
- inclusion of free governmental real transfers in favor of the private sector.

If the balances of the production account must be in accordance with the income earned in the economy, the consideration of the processes mentioned above is not possible. If the conventional concept of production is to be replaced, this has to be done in the context of an alternative accounting system (see the general considerations above).

For such an adequate treatment of (Q5) the currently used final demand approach must be abandoned. Compensated and uncompensated inputs (real transfers) from the public sector to industry show up in the input matrix according to the actual amounts contributed to the production of the industry, whereas the compensated and uncompensated real transfers for private consumption remain final demand. Indirect taxes, which have always been considered alien in production structure calculations, can be eliminated entirely since income balance does not have to be considered. It is the advantage of this procedure that it shows the actual production requirements of an economy—and these are greater than those paid for in the market. It is of particular interest from the aspect of growth to measure the real burdens, including the supply of uncompensated real transfers, that also consume scarce resources.

The problems of evaluation and definition connected with this proposal are certainly formidable. In addition, the procedures described in the literature, i.e. the splitting of public services into intermediate goods and final demand goods, occur under welfare-theoretical aspects and are therefore of limited use to our present reflections. (Examples are the “tax payment approach” and the different varieties of the “specific approach”.) On the other hand German research exists which offers suitable approaches for the desired splitting.⁵

We proceed with (Q6), the measurement of the economic “success” of a sector. First it is necessary to define what is meant by the economic success of a sector—as opposed to the welfare changes mentioned in (Q7)—and it must be stated why we introduce this concept in the first place.

The entrepreneurial sector usually shows its “success” as profit. Generalizing this concept of success, the following conditions may be stated:

- (I) a simple real number can be used;
- (II) there is a closed cyclical system in which the measure of success is a net balance of a sector;
- (III) there are intrasectoral flows within the sector whose value is determined internally by this sector;

⁵Komarnicki and Neuhaus, 1972.

- (IV) there is a sectoral wealth stock which is changed positively or negatively by the success balance of the current period.

For the success balance “profit” all 4 conditions are applicable; for instance depreciation appears under (III) and entrepreneurial private capital under (IV).

More interesting is the conclusion that the other sectors do not have such success balances, which leads to the—slightly exaggerated—interpretation of national accounting as national entrepreneurial accounting. This has been perceived as a shortcoming, as verified by some recent reform proposals. In fact, it is a tempting prospect to come up with a similarly clear measure of success for the household sector, for instance.

In recent years a series of reform proposals based on standard national accounting have been developed that attempt to calculate a “welfare product” by correcting existing positions and adding new ones.⁶ The most consistent proposal of this sort was presented by Nordhaus and Tobin. These two authors aim at measuring annual real *per capita* final consumption of households. For this purpose a number of national accounting positions are reclassified as consumption, investment, and intermediaries; fictitious utilization of durable consumer goods and public capital is estimated, leisure-time and non-market activity is introduced, social costs of urban living are considered, and finally an expanded concept of depreciation is installed, that is supposed to secure the capital base of future growth in consumption.

Despite interesting partial results, Nordhaus and Tobin did not succeed in measuring the “success” of a sector in the sense of (Q6). The Nordhaus–Tobin proposal lacks a closed cyclical system as well as a sectoral stock variable. Although the authors explicitly place the household sector in the center of their calculations and although there are some positions that can be interpreted as intrasectorial positions,⁷ these elements are not integrated into a cyclical concept.

Because of the lack of conditions (II) and (IV) the proposal is not only arbitrary, it is also still connected with a national accounting scheme oriented towards the production sector. Of course it is naturally difficult to introduce counter-bookings to the non-market positions (leisure-time, disamenities of life). This means, however, that one must be satisfied with a mere system of subtraction and addition. Nordhaus and Tobin do not present a measure of success of the household sector as defined above. Furthermore, it can be concluded that a calculation of success in the sense of (Q6) in the production and the household sector within *one* system of accounts is not possible. Tobin–Nordhaus, therefore, better had not tried to correct the existing national accounting scheme, but rather developed an alternative scheme.

There remains (Q7) which leads to the more general problem of the representation of welfare changes through economic accounting systems in the sense of SNA. The literature shows general agreement that prevalent national accounting is unsuited for reflections on welfare in the sense of question (Q7). Since the Nordhaus–Tobin proposal is closely related to conventional SNA, this statement

⁶The best known proposals of this sort come from: Sametz, 1968; Nordhaus and Tobin, 1972; UN ECOSOC, 1977; Economic Council of Japan, 1974.

⁷See for example their “private instrumental expenditures” (Nordhaus and Tobin, 1972, p. 10).

holds for their suggestion for improvement, too. Rising final consumption in their sense is as little an indicator of rising welfare as a rising national product. This is true even though Nordhaus and Tobin certainly do take a few steps in the direction of a measure of welfare, such as the imputation of investment to the period of utilization or the inclusion of leisure time.

We can now summarize: The proposals for improvement in the style of Nordhaus and Tobin answer neither question (Q6) nor question (Q7). This negative result raises the question if it is at all possible to answer question (Q7) in the context of national accounting. This author is sceptical. For welfare calculations it is neither necessary to establish a closed cyclical system or any cycle at all, nor must a single unit of measurement be used and thereby a single value balance be established (such as in the measurement of demand). The requirement of representing the different facts relevant to welfare in their adequate units of measurement necessarily leads to a system of social indicators which is incompatible with all other listed questions. The difficulties in establishing such a system of social indicators lie, contrary to the questions dealt with so far, not so much in the collection of data as their interpretation. The leeway in the compilation of data indicated above allows, on one hand, a fact to be "approached" through a number of indicators. On the other hand there is no inclusion in a cyclical context, and therefore no relation to other items via their entry on the active or the passive side of the account.

At this point we wish to cut short the discussion of the questions listed at the outset. The measurement of total final demand and total production (Q1), the measurement of total effective demand (Q2), the measurement of total income and the description of its distribution (Q3), the representation of the total financial structure (Q4), and the measurement of the success of the entrepreneurial sector (Q6) lead to different net definitions since GNP or national product do not adequately reflect all of the questions. The underlying accounting systems are, however, compatible in the sense that a common system is possible. The description of the production structure (Q5), which is incompatible with these questions, should rigorously be removed from stabilization-oriented national accounting and be introduced as a separate account. A measure of success for the household sector according to (Q6) requires a separate accounting system and should not be developed through changes of some items of the existing accounts that reflect the "success" of the entrepreneurial sector. The measurement of total welfare (Q7) finally, should be completely separated from questions (Q1)–(Q6), with which it is incompatible, and should be replaced by a system of social indicators, despite the difficulties discussed.

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