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Introduction

1.1 Approaches to the measurement of national product

This book aims to provide an alternate foundation for the measurement of the production of nations. The framework developed here is applied to the U.S. economy for the postwar period. The patterns that result are significantly different from those derived within conventional systems of national accounts.

National accounts give systematic empirical form to the structure, patterns, and performance of an economy (Young and Tice 1985). In the modern world, they provide the objective basis for judging the level and progress of the wealth of nations and for identifying the causes of success and failure.

Conventional systems of national accounts include the United Nations System of National Accounts, the United States National Income and Product Accounts, and various forms of input-output accounts. It is our contention that these types of accounts seriously distort the levels and trends of the national product, the surplus product, productivity, and other major aggregate economic variables. Because measurement and analysis are inextricably intertwined, our understanding of intertemporal and international economic development is correspondingly affected.

Criticisms of official national accounts are not new. Debates about their purpose and structure have gone on from the very start (Eisner 1988, p. 1611). In recent times, there has been a renewed flurry of questions about their adequacy. Such criticisms come from a variety of quarters, ranging from official agencies such as the United Nations to a variety of prestigious economists. In Section 2 we address the issues involved.

The measurement of national product lies at the core of all systems of national accounts (Carson and Honsa 1990, pp. 28–9). In this regard, it is

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interesting to note that most critics of official accounts accept the basic definitions of production embodied in the official accounts, and seek instead to extend and improve their coverage. Issues of coverage are evidently important. But the definition of production is clearly prior, and this is precisely where we differ from orthodox economists. Thus, while our own criticism is part of the general chorus, it is quite different in character from most of the others, and has different implications.

The basic problem arises from the fact that conventional accounts classify many activities as “production,” when in fact they should be classified as forms of social consumption. For example, the military, the police, and private guards protect property and social structure. Civil servants and lawyers administer rules and laws. Traders in commodities and paper circulate wealth or titles to it. It is our contention that such activities are actually forms of social consumption, not production.

Consider the basic difference between production and consumption. Production activity uses up wealth to create new wealth (i.e., to achieve a production outcome). Personal consumption uses up wealth to maintain and reproduce the individual (a nonproduction outcome). In like manner, military, police, administrative, and trading activities use up wealth in the pursuit of protection, distribution, and administration (also nonproduction outcomes). The issue is not one of necessity, because all these activities are necessary, in some form or the other, for social reproduction (Beckerman 1968, pp. 27–8). Rather, the issue concerns the nature of the outcome; protection, distribution, and administration are really forms of social consumption, not production.

At the heart of this discussion is a distinction between *outcome* and *output*. Not all outcomes are outputs. This is evidently the case with personal consumption, whose outcome is the maintenance of the individual, not the production of new wealth. It is our contention that the same reasoning applies to the other social activities listed.

It should be emphasized that the distinction being made is between production and nonproduction activities, *not* between goods and services. We shall see that a substantial portion of service activities (transportation, lodging, entertainment, repairs, etc.) will be classified under production, whereas others (wholesale/retail, financial services, legal services, advertising, military, civil service, etc.) will be classified as nonproduction activities. The real distinction is between outcomes and output. All activity results in outcomes. Some outcomes are also outputs, directly adding to social wealth. But others preserve or circulate this wealth, or help maintain and administer the social structure in which it is embedded. One way to formalize these distinctions is to imagine a list (a vector) of properties associated with every commodity. Some of these characteristics, to use

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Lancaster's (1968, pp. 113–18) terminology, would be relevant to the commodity as an object of social use, while others would be relevant to it as an object of ownership. Production would enhance one set, distribution another, and so forth. Needless to say, this extension of Lancaster's "characteristics" approach is different from the conventional neoclassical one.

Our general approach is rooted in the classical tradition, parts of which can be found in Smith, Ricardo, Malthus, Mill, Marx, Sismondi, Baudrillard, and Chalmers, among others (Studenski 1958, p. 20). Although its presentation was incomplete and occasionally inconsistent, it was nonetheless part of "the mainstream of economic thought for almost a century" (Kendrick 1968, p. 20). Only when neoclassical economics rose to the fore was the classical distinction between production and nonproduction activities displaced by the notion that *all* socially necessary activities, other than personal consumption, resulted in a product (Bach 1966, p. 45). With this change, lawyers, private guards, and traders of all sorts came to be counted as adding to national wealth. So too did armies, police, and civil servants.

In his monumental work on the history of national accounts, Studenski has labeled the above transition as the switch from the "restricted production" definition of the classicals to the "comprehensive production" definition of the neoclassicals (Studenski 1958, p. 12).¹ But from our point of view, this change is really a retreat from the "comprehensive consumption" approach of the classicals (who treat many activities as forms of social consumption, not production) to the "restricted consumption" definitions of the neoclassicals (who restrict the definition of social consumption to personal consumption alone). Under the neoclassical definition, an activity is considered a production activity if it is deemed socially necessary. This in turn rests on the conclusion that (at least some) people would be willing to pay for it directly (Bach 1966, p. 45). It follows that, within neoclassical economics, *all potentially marketable activities are considered to be production activities*.² The ideological convenience of a

¹ Studenski's treatment of the classical and Marxian traditions is quite superficial. He is so attached to the neoclassical "utility based" concepts of production that he is unable to see the fundamental issue at stake in the distinction between production and nonproduction activities: namely, the difference between total production and total (private and social) consumption (Studenski 1958, pp. 18–22, 24–5).

² According to the Bureau of Economic Analysis (BEA), "the basic criterion used for distinguishing an activity as economic production is whether it is reflected in the sales and purchase transactions of a market economy" (cited in Eisner 1988, p. 1612). Eisner (pp. 1616–17) proposes to extend this definition of production to encompass all activities that contribute to economic welfare. Of course, within

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definition of production which treats all market activities as productive is obvious.

In spite of its other breaks with neoclassical theory, Keynesian economics did little to change the neoclassical conventions. As a result they are now embodied in all official national accounts of the Western world (although not without challenge, as we shall see).³

Although the neoclassical concept of production has dominated the official accounts of the Western world in the twentieth century, until recently quite another concept ruled in (what used to be called) the socialist world: that of the National Material Product. At the heart of this latter approach is the idea that production consists of physical goods alone. From this point of view, the value of the total product consists of what is essentially the final cost of the total physical product: that is, the price charged by the producer plus the costs of repair, transportation, and distribution (UN 1991, p. xxii). The originators of this concept claim to derive it from Marx, but this physicalist notion of the total product is actually rooted in Smith. It is quite explicitly rejected by Marx, as even Studenski concedes (Studenski 1958, p. 22).

The undifferentiated production categories of the neoclassicals and the overly restricted production concept of the modern physicalists form the two poles of official accounting systems (UN 1990, p. vi). But between this Scylla and Charybdis lies another path, one which it is our purpose to develop and apply.

Independent from theoretical and academic discourse is the language and understanding of practical experience. In this regard, it is quite striking that even though the very concept of nonproduction market activities has been abolished from the theoretical lexicon of orthodox economics, the notion continues to thrive in practical discourse. The Prime Minister of Japan was recently quoted as arguing that American resources were “squandered” on financial and trading activities in the 1980s (Sanger 1992). *Fortune* magazine reports that “representatives of the manufacturing sector indict the legal and financial sectors as highly *unproductive*” (Farnham 1989, pp. 16, 65; cited by Chernomas 1991, p. 1; emphasis added). Business economists Summers and Summers (1989, p. 270) report that

neoclassical economics, the fundamental test of this status is that someone would be willing to pay for the activity – i.e., that the activity is marketable (Bach 1966, p. 45). Hence only those nonmarket activities that are judged to fail this potential marketability test, such as perhaps some portion of government activity, could be deemed unnecessary and hence by definition unproductive. Official accounts do not make such distinctions.

³ Extended accounts that fall within the orthodox economics tradition are discussed in Section 1.3. Those falling within the tradition of Marxian economics are discussed in Chapter 6.

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“the most frequent complaint about current trends in financial markets is that so much talented human capital is devoted to trading paper assets *rather than to actually creating wealth*” (cited in Chernomas 1991, p. 2; emphasis added).

In like vein, Thurow (1980, p. 88) has argued that while “security guards protect old goods, [they] *do not produce new goods since they add nothing to output*” (emphasis added), and that military activities are “a form of public consumption” which “use up a lot of human and economic resources” (Thurow 1992, p. 20). The *New York Times* has expressed the same sentiment, noting that “[s]ecurity people – or guard labor, as some economists call them – are proliferating . . . [in] a nation trying to protect itself from crime and violence.” It goes on to quote Harvard University economist Richard Freeman to the effect that if “you go to a sneaker outlet in a not-so-poor neighborhood in Boston, there will be three private guards. . . . We are employing many people who *are essentially not producing anything*” (Uchitelle 1989, emphasis added).

The growth of the military and the bureaucracy is endemic in the post-war world, in developed and developing countries alike. Within many parts of the capitalist world in the 1970s and 1980s, the same was true of financial and trading activities. At present in the American economy, guard labor is one of the most rapidly growing forms of employment. Within an orthodox national accounts framework, all such activities are viewed as resulting in additional output. But within a classical framework, because these same activities are viewed as forms of social consumption, their relative growth is seen as serving to absorb an increased portion of the national product and hence lower the share available for investment and accumulation. The difference between the two approaches has an impact not only on the measures of national production, but also on the very understanding of the observed patterns of growth and stagnation. In a world full of burgeoning militaries, bureaucracies, and sales forces, such matters can assume great significance at the most practical level.

As noted previously, conventional national accounts have been criticized from a variety of viewpoints in recent years. We share many of the expressed concerns about the desirability of extending and improving the coverage of such accounts. But our primary concern is with the very definition of production itself, since this lies at the heart of all systems of accounts. In the next two sections, we will briefly trace the history of national accounts and outline the basic structure of various alternative systems of accounts currently under discussion. Section 4 will summarize the essential differences between our approach and those which fall within the tradition of orthodox economics.

1.2 Official national accounts

Modern systems of national accounts are actually a set of inter-related accounts that attempt to cover different aspects of the workings of market economies. The most fundamental of these are the production accounts (national-income-and-product and input-output accounts), which attempt to measure the creation and use of new national wealth. These in turn may be supplemented by ones that track financial flows in the economy (capital and flow-of-funds accounts) or ones that link production and financial flows to the corresponding stocks (national balance sheets).

At the heart of any set of national accounts lies some common definition of production activities. To construct production accounts, one must first distinguish between production and nonproduction activities, and hence between their corresponding actual or imputed transaction flows.⁴ All transactions not associated with production activities are excluded from the measure of national product. Because orthodox economics defines production activities very broadly, its definition of nonproduction activities is correspondingly narrow – limited to transfer payments (such as social security, unemployment payments, etc.) and any nonmarket activities deemed to be socially unnecessary.

Given the actual and imputed transactions that are deemed to correspond to some definition of production activities, the next step is to choose a particular measure of production. At the most general level is the *total product*, which is the sum of all output produced in a given year. This is the basic measure used in input-output accounts. It can in turn be decomposed into two elementary components: the portion which is the equivalent of the inputs used (materials and capital depreciation) in producing the total product; and the remainder, which is the *net product*. It is this latter component which is the focus of national-income-and-product accounts.

Since for every receipt there corresponds a payment by someone, there are two sets of actual or imputed money flows associated with any given measure of national product: production-related receipts of the producers, which are used to measure the money value of output; and associated (nontransfer) payments representing purchases of the product by its various users.⁵ These are the basic elements of a double-entry production

⁴ Because national accounts are built around transactions, it is necessary to impute a money value transaction to any production activity (e.g., production in the home or payments in kind) which is not mediated by actual money flows (Beckerman 1968, p. 9).

⁵ Since the object is to measure production, not merely sales, the money revenues of a unit are supplemented by adding to it the excess of production over sales

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account. Further detail can then be added by subdividing the output side into different types of producing sectors and by subdividing the use side into different types of users. Individual accounts can then be constructed for business, household, government, and foreign sectors.

Conventional production accounts come in two basic forms: *national-income-and-product accounts* (NIPA) and *input-output* (IO) accounts. Since the former are only concerned with the final use of the product,⁶ they focus solely on the net product.⁷ This is split into personal consumption, government purchases, private investment, and net exports on the use side; and wages, profits, and taxes on the revenue side. Input-output accounts go one step further, in that they keep track of the whole product.⁸ By including the portions of the product used as inputs by various industries, they are able to illuminate the structure of interindustrial production relations in addition to capturing the main aggregates of NIPA. It is because of their greater coverage that we use them as our theoretical foil in the development of our own accounting framework.

Both NIPA and IO accounts focus solely on production-related flows. As such, they leave out two important aspects of the overall economic picture: transactions that are not directly related to production; and stocks of real and financial wealth.

Financial accounts attempt to correct for the first limitation by expanding the coverage of financial flows beyond those directly tied to production.

(this item can be negative, of course). To balance the accounts, the same amount is treated as a (positive or negative) payment by the unit to itself, for “unintended inventory investment.” This is typically merged into gross investment expenditures.

- ⁶ Because the goal of NIPA is to measure the *net* product, they must exclude the portion of total product which is the equivalent of inputs used up in the year’s production. To do otherwise would be double counting. But if the goal is to measure the total product, as is the case with input-output accounts, then obviously it would be undercounting to ignore input use. There is nothing sacrosanct about the net product as a measure.
- ⁷ The proper measure of net product within conventional accounts is net national product (NNP). But since depreciation measures are frequently unreliable, production accounts commonly leave depreciation (capital consumption) in the measure of net product (in value added on the revenue side, and in investment on the use side). This gross-of-depreciation measure of net product is called gross national product (GNP) if it refers to the net production of the nationals of a country (including those who live abroad), and is called gross domestic product (GDP) if it refers to net production within a nation.
- ⁸ It is useful to note that the total product is a more general and useful measure than the net product. Two nations with the same net product per unit labor can have different input requirements. Focusing on the net product alone would then be quite misleading when considering national productivity, employment and resource use, etc.

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Capital finance accounts such as those associated with the United Nations System of National Accounts (described hereunder) focus on the sources and uses of funds for capital transactions (transactions which affect stocks of financial and real assets). Flow-of-funds (FOF) accounts, which are associated with the U.S. NIPA, track the sources and uses of funds for both capital transactions and current transactions (production-related flows as well as transfer payments) (Ruggles 1987, p. 380). They show the financial interrelationships among economic units, and can be viewed “as a direct extension of [NIPA] . . . into the financial markets” (Ruggles and Ruggles 1982, p. 10).

National balance sheets address the second limitation of production accounts by linking flows to changes in stocks.⁹ This allows one to build a comprehensive picture of national wealth encompassing nonreproducible assets (land, natural resources), reproducible assets (business fixed capital and inventory stocks, stocks of consumer durables, stocks of monetary metals), and net external claims on foreign tangible and financial assets (Goldsmith 1968, p. 52).

To be fully useful, the production, financial, and balance sheet accounts should be integrated into one another. Although this has not yet been done for official U.S. accounts, it has been more or less accomplished in the United Nations System of National Accounts (UN/SNA). For this reason, and for the sake of comparability with other nations (almost all of whom use the UN/SNA), the United States is expected to change over to the UN/SNA by the mid-1990s (Carson and Honsa 1990, p. 20).

The UN/SNA are more comprehensive than the U.S. accounts, because they constitute an integrated system that uses consistent definitions and classifications to link together NIP and IO national production accounts, financial accounts, and balance sheets. There are also some notable differences between the classification systems of the two sets of accounts. The UN/SNA focuses on gross domestic product (GDP), not gross national product (GNP). GDP measures net production within a nation while GNP measures net production by nationals of a country (including those who live abroad), and the differences can be significant for some countries. The UN/SNA also distinguishes between government consumption and investment (the latter being the change in nonmilitary government equipment and structures). Under discussion are issues concerning the treatment of research-and-development expenditures and of natural resources and the environment (see the remarks on Eisner and Repetto in Section 1.3). Revisions of the UN/SNA are currently under way, but substantial changes are not expected (Carson and Honsa 1990, pp. 21–30).

⁹ For instance, positive net investment adds to the stock of fixed capital, and positive household savings adds to the stock of household financial assets.

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1.3 Extended national accounts for the United States

Although the various official U.S. accounts are not integrated, much work has been done by individual researchers on linking production flows with balance-sheet stocks, and on expanding the coverage of production accounts themselves to encompass both nonmarket and nonlegal activities. In addition, there has been considerable discussion of a more adequate treatment of natural resources and environmental issues.

Ruggles and Ruggles (1982, pp. 1, 17) attempt to extend U.S. NIPA by improving their treatment of various individual items and by linking stocks and flows. In the former domain, they split both household and government expenditures into current and capital components (capital expenditures being defined as the net acquisition of durable equipment and structures), list imputed values in separate accounts, and attempt to allocate transactions in a more accurate way (e.g., owner-occupied housing expenses are allocated to the household sector rather than to unincorporated business enterprises).¹⁰ But their main concern is to integrate stock and flow accounts in such a way as to link up with already existing capital stock estimates of the Bureau of Economic Analysis (BEA), which are now broadened to include stocks of household and government durables, and the financial flow-of-funds accounts of the Federal Reserve Board. They end up with larger measures of NNP (net national product) and GNP, because they add in “net imputed income from consumer durables” (which increases both NNP and GNP) and imputed “depreciation allowances” on consumer and government durables (which increases GNP). They also obtain a much larger estimate of national savings and investment, because they count changes in the stocks of consumer and government durables as part of savings and investment. This is a common feature of all extended accounts, as we shall see. Denison (1982, pp. 60, 62–3) argues against such procedures, on the grounds that the resulting adjusted measures of GNP, NNP, and national savings are less meaningful than the conventional NIPA measures.

There are several other sets of alternate accounts, the most important of which is from Eisner (1985, 1988). In an important article, Eisner (1988) surveys six proposed extensions of NIPA, including his own and that of Ruggles and Ruggles.

Eisner begins by noting how crucial it is to have adequate definitions of production, primary incomes, intermediate and final output, and investment and consumption. On the issue of production, he proposes extending the definition to cover nonmarket production (e.g. in households)

¹⁰ Carson and Jaszi (1982, p. 58) note that Ruggles and Ruggles’s definition of the household sector includes soldiers, prisoners, people in sanitariums, etc.

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and illegal production (drugs, gambling, prostitution), pointing out that it would make international comparisons much more meaningful (Eisner 1988, pp. 1613–14). On the other hand, he rejects the notion that “leisure time” be counted as a production activity, even though most other extended accounts do add a very large imputation for the value of leisure time to their measures of national output. Finally, he points out (p. 1622) that since extensions of the production measure to nonmarket activities require corresponding imputations on the income side (as the two sides must balance), extended accounts tend to give a radically different picture of the distribution of income (real and imputed) between capital and labor, employed and unemployed, and so forth. For instance, in official GNP accounts for 1966, the share of labor income is 82.6% and of capital income 24.3%. In the extended accounts of Jorgenson and Fraumeni (1987), because of imputations for the “services” of household durable goods and for the value of household production and leisure time, the total (real and imputed) income of households is raised over fivefold! Thus in the Jorgenson–Fraumeni accounts the labor share appears as 93% and the property share as a mere 7% (Eisner 1988, p. 1672, table S.4).

On the question of investment, Eisner argues in favor of counting the net changes in consumer and government durables as part of aggregate investment (as do Ruggles and Ruggles). He notes that various researchers also include in investment one or more of the following: changes in the value of land; expenditures for the development and discovery of natural resources; research and development (R & D) expenditures; and expenditures on health, education, training, and information (human capital). As he shows, such adjustments cause enormous changes in the measure of gross investment and national product. Finally, if one accepts the Haig–Simon–Hicks definition of income as that which can be consumed without changing real wealth, then real income, savings, and investment must all include an adjustment for the net monetary revaluations in stocks. This can add a sharply fluctuating component to the measure of national product (Eisner 1988, pp. 1622–5).

From our point of view, one of the most intriguing aspects of Eisner’s survey is his discussion of the treatment of police, fire protection, guard, and national defense activities. Recall that we classify all such activities as nonproduction activities. As such, we would exclude them from the total product and hence also from the net product. Eisner argues that they should be treated as intermediate inputs rather than final product, citing Kuznets to the effect that such activities constitute “the mere cost of maintaining the social fabric, a *precondition* for net product rather than the net product itself” (cited in Eisner 1988, p. 1617; see also Beckerman 1968, pp. 11–12, 23–4, 27–8). This means that they would be counted as production activities and would add to the total product, but would