

A POWERFUL LINK BETWEEN ECONOMIC THEORY AND PRACTICE: NATIONAL ACCOUNTING

A review of J. C. Dawson (ed.), *Flow-of-Funds Analysis*, M. E. Sharpe, Armonk/London, 1996; and J. W. Kendrick (ed.), *The New System of National Accounts*, Kluwer Academic Publishers, Boston/Dordrecht/London, 1996.

I. INTRODUCTION

The importance of the publication of the *System of National Accounts 1993*, or '93 SNA (United Nations *et al.*, 1993) was noted in a joint foreword by the chief executive officers of the UN, IMF, EU Commission, OECD and World Bank. Arguably, it marked a milestone in the history of economics. For the first time, a truly universal “language” of (macro-)economics became available. Moreover, this handbook provides a powerful linkage of economic theory to actual policy-making and represents an impressive intellectual achievement. Yet, the involvement of the academic economic community in the realisation of this book has been surprisingly modest. In addition, to my knowledge, no single economics journal has thus far published a (book) review of the '93 SNA. Why this neglect?

Is it because academic economists take the national accounts for granted and do not realise the practical importance of the numerous choices that are made in operationalising the underlying concepts? Is it because the SNA is purely seen as a “technical” handbook and as a seemingly endless list of boring definitions? Is it not realised that these definitions are more closely intertwined than the bricks of a mansion and, in a way, constitute an economic theory of their own (and perhaps even a quite influential theory)? Or is it because the mathematics involved in the SNA is so simple and straightforward that one does not see the SNA's real intellectual challenge?

The way the SNA classifies every single event with an economic meaning, in a very broad sense, is subsequently reflected in the national accounts of all countries across the globe. In turn, these accounts exert a major influence on the perceptions, expectations and decisions of analysts, investors and policy-makers. Such decisions may affect the fate of whole populations, as the recent economic crisis in Asia illustrates. Seemingly mundane questions as the border-line between intermediate input and investment (e.g. R&D expenditures), the delineation of production and asset boundaries, the selection of a value concept, the application of a certain deflation theory, and the classification of labour and capital inputs—to name but a few—all deserve less simple answers than is sometimes assumed by academic economists.

The main objectives of the volume edited by John Kendrick are: (1) to enhance understanding of socio-economic accounts generally and of the '93 SNA

in particular, (2) to critique the '93 SNA and to offer constructive suggestions for future revisions of the system, and (3) to serve as a textbook or book of readings in conjunction with the '93 SNA for courses in economic accounts. Among the most important uses of the national accounts is the analysis of interrelations between financial and non-financial transactions. For that reason, John Dawson's idea to bundle a collection of existing essays on this topic, as a handbook for practitioners, is equally laudable. Books that would indeed fulfil these objectives deserve a broad audience, if only to lure more economists into studying and commenting upon the '93 SNA itself.

This article concentrates on three topics in these books, which may illustrate why more economists should study the SNA: (a) the accounting framework, in particular the linkages between production and income distribution accounts, and between real and financial accounts; (b) the measurement and valuation of (non-monetary) production, and (c) the concepts of capital, finance and wealth. Conclusions will be drawn in the last section.

2. ACCOUNTING FRAMEWORK

For an introduction to the design of the national accounts' framework, one should consult the chapter by Carol Carson in Kendrick's book. She introduces the concepts of flows (transactions and other changes in stocks), stocks (of assets and liabilities), and the (sequence of) accounts, and discusses how these all fit together. Moreover, in an appendix she provides a useful selected glossary of the SNA jargon.

Basically, an account—such as the generation of income account, the secondary distribution of income account, the use of income account or the financial account—shows incomings and outgoings of flows which are economically similar. In each account, the total of incomings and outgoings is equal by definition. Due to this requirement, most accounts contain a so-called balancing item. Many of these balancing items, such as Gross Domestic Product (GDP), Net National Income (NNI) and Net National Saving, play an important role as macro-economic indicators. The next account of the sequence typically opens with the balancing item of the previous account. The total sequence of accounts elaborates all changes that have taken place between the opening and closing balance sheet; this can refer to an economy as a whole or to an individual sector, such as households, (non-)financial corporations and the government.

In addition to the sequence of accounts for institutional sectors, Carson also explains the so-called supply and use table (akin to the more familiar input-output table). In this table, the supply and use of commodity groups by industries is shown. Industries are clusters of establishments ("business units") that have a similar (principal) production activity. Every corporation contains one or more establishments.

Unfortunately, the *linkage* between the supply and use table (i.e. a detailed overview of production and sales) on the one hand, and the institutional sector accounts (i.e. income distribution, expenditures, etc.) on the other hand, does not receive much attention in this chapter, or in the '93 SNA's central framework

itself. Specifying this linkage—that is, accounting for the *generation of income* (value added) by means of labour and capital inputs—is key to a better understanding of differences in welfare and productivity among nations and over time. Instead of the trivial “generation of income” account in the ’93 SNA, this account should record the actual remuneration of homogeneous groups of production factors, paid by industries (the demand side of factor markets) and received by institutional sectors (the supply side of factor markets). The ’93 SNA’s central framework distinguishes neither various types of labour input (by sex, skill level, etc.) nor various types of capital input (by asset type) in production. In view of the important role of (human, financial, other intangible, natural and fixed) capital in economics, this is a serious omission. It is ironic that, in an era in which management gurus and economic policy advisors alike emphasise the pivotal role of human resources, the core national accounts provide no insight whatsoever in the qualifications of the potential and actual labour force. For a remedy, one must look to the Social Accounting Matrix (SAM) as elaborated in Chapter XX of the ’93 SNA; cf. also Keuning (1996).

Another crucial *linkage*, which is quite well elaborated in the ’93 SNA, relates to the connection between real and financial transactions. Every market transaction gives rise to six entries in the SNA: as a real resource (for the seller) and as a real use (for the buyer), simultaneously as a receivable (for the seller) and a payable (for the buyer), to be recorded in the financial accounts, and finally, as a change in the balance sheet of both parties involved. In the SNA’s categories of aggregate flows, though, the mirrored representation of real and financial transactions is blurred because monetary and non-monetary flows (e.g. an “imputed” rent for owner-occupied housing) are lumped together in the accounts for the real transactions.

A separation of money imputations for non-monetary transactions from actual monetary transactions is a precondition for the integration of micro data and national accounts. Richard Ruggles (Kendrick, Chapter 12) argues that both the need and the feasibility of integrating micro databases—for households, enterprises, establishments and the government—and the national accounts has increased. The complete statistical system would benefit because, as he puts it: “By developing micro databases that match the control totals in the macro accounts, those using micro data will have greater assurance that the data they are using are representative, complete, and unbiased.”

However, Ruggles’ discussant, Harry Postner, identifies a number of snags *en route* to this ideal world. He observes “. . . strong opposition to carrying back the reconciliation adjustments to the micro-data level.” This may be exacerbated by the national accounts’ emphasis on reliable, yet quick estimates for changes over time, sometimes at the cost of the accuracy of the level estimates, and the consequent need for regular revisions of the accounts.

In conclusion, the micro–macro link can best be established for benchmark years only, and even then it is perhaps preferable not to strive for complete macro–micro consistency (think only of the difficulties created by the illegal economy). A more practical objective is an “optimal” degree of (conceptual and numerical) integration, supplemented by well-documented, so-called bridge tables. At the same time, starting a dialogue between business (“micro”) accountants and

national (“macro”) accountants may turn out to be quite beneficial to both professions; see, for example, the United Nations’ (1998a) *Handbook on the Links Between National Accounts and Business Accounting*.

Satellite extensions of the SNA, e.g. concerning environmental accounting, are discussed in the contribution by Robert Eisner to Kendrick’s book. Eisner squeezes all goods and bads into a single, adjusted GDP measure (including, for example, an estimate of the value of unpaid work within the household and of environmental costs). He is well aware of the valuation problems involved, but does not mention perhaps the most important obstacle to constructing adjusted GDP measures: if unpriced goods and services (e.g. pollution) had been priced in reality, this would have led to a dramatic change of both the prices and the volumes of all *actual* market transactions. In other words, imputed values and GDP are not independent, and just adding (or subtracting) the two yields a meaningless number. In addition, the usefulness of any macro-indicator increases considerably if it is embedded into a comprehensive accounting framework that is suitable for modelling and policy analyses. Unfortunately, the issue of expanding the SNA with (non-monetary) social, demographic and environmental accounts is not discussed in Kendrick’s book. To a large extent, though, this is taken up in a recent United Nations’ (1998b) *Handbook on Household Accounting*.

Dawson’s book concerns the (sub-)system of financial accounts and is quite clear about the principal objective of such a system: showing who is financing whom. Moreover, as a practitioner *par excellence*, Dawson’s own writings always start from the notion of both the limited data availability in most countries and the main policy uses to which the accounts must be put. It is an interesting question whether the availability of a (sufficiently detailed and sufficiently recent) integrated system of financial, non-financial and balance sheet accounts by sub-sector would have provided an early warning on the financial crisis which suddenly emerged in many Asian countries in 1997. Given the huge costs of the crisis, an affirmative answer might suggest an investment in the statistical capabilities of the countries concerned, and similar countries elsewhere.

A related sub-system of statistical information, with immediate policy relevance, concerns the external sector accounts. Among the main achievements of the ’93 SNA is the complete conceptual harmonisation (unfortunately except for the recording of the interest margin, or FISIM) with the Balance-of-payments manual of the IMF. However, actual consistency of figures or even full integration of compilation practices is quite another matter. It is well-known that if reciprocal import and export figures of two countries are compared, substantial discrepancies show up. So, a world-wide integration of balances-of-payments and national accounts, as reported by Vos (Kendrick, Chapter 11), is indeed an Herculean task. Vos and his collaborators have constructed a so-called World Accounting Matrix for this purpose, and this has resulted in major revisions of external trade balance estimates of the major economies (e.g. they arrive at a substantially lower deficit for the United States and a substantially lower surplus for Japan). In addition, their estimate of external asset holdings by developing countries (including “capital flight”) far exceeds the total of the figures provided by these countries themselves. A similar conclusion has been reached by the IMF, in a 1992 study excerpted as Chapter 18 in Dawson’s book.

3. THE MEASUREMENT AND VALUATION OF PRODUCTION

In Chapter 6 of Kendrick's book, Jonathan Levin notes the SNA's inconsistency in valuing non-market output by the government and non-profit institutions at input cost, while valuing the same output by other institutional units at equivalent market prices. Keuning (1998) argues that the former valuation method is preferable in all instances, provided that the cost of the use of the financial assets involved is included. Levin also points to the serious under-valuation of government output by excluding interest payments as an input cost. This issue should clearly be taken up in the next revision of the SNA.

Levin also signals the discrepancy between the cash registration usually applied by governments and the accrual basis advocated by the SNA. Reich, in his discussion of Levin's chapter, rightly remarks that the SNA does not exactly prescribe the time of recording and, even worse, does not prescribe the same time of recording throughout the accounts. Such lack of consistency and precision is particularly important in the (candidate) countries of the Economic and Monetary Union (EMU) in Europe, where the size of the government deficit as measured in the national accounts can have quite substantial financial consequences for the country concerned. Reich suggests that the correct time of recording is the time when a claim legally arises—a change that might be implemented as a minor revision of the '93 SNA.

The production account does not receive much attention in Kendrick's book. Separate chapters are only devoted to somewhat related topics as the reliability of quarterly GDP estimates and price and volume measures. For the rest, only household production is extensively discussed, in the chapter on household accounts.

The chapter by Diewert, on price and volume measures, differs from the others in Kendrick's book, in its extensive use of mathematical notation, and is a really useful supplementary reading to the '93 SNA itself. It relates the SNA's text to economic theory, contains an extensive list of references, and clearly states the advantages of using so-called chain indices (yearly changing weights) for the computation of volume and price changes. Diewert also discusses the problematic international comparison of price and volume indices, so that, as his discussant Robert Gordon puts it: "... measures of purchasing-power-parity exchange rates create a very fragile basis on which to assess the relative standards of living of various countries."

In addition, Diewert signals a number of deficiencies in the SNA. First, the '93 SNA does not address the estimation of productivity change; according to Keuning (1996, Chapter III), this serious shortcoming can be remedied by decomposing value changes of operating surplus/mixed income into their concomitant price and volume changes. Secondly, Diewert points out that the purchase of all consumer durables should be treated as fixed capital formation (and not as consumption). Thirdly, interest should be seen as a (factor) cost of production. Finally, more research is needed on the measurement of output associated with risk or uncertainty.

Heinrich Lützel, in Chapter 4 of Kendrick's book, questions why only the unpaid household production of services is excluded from the SNA's production

boundary. His discussant, Luisella Goldschmidt-Clermont, goes further and argues: "The distinction between goods and services is weak and not operational in the perspective of households' productive activities." In fact, everybody agrees that all these activities are productive in an economic sense. So, the real problem is the valuation of unpaid services (and goods!). However, since an unpaid service provided by a relative or friend may provide either more or less welfare to the beneficiary than professional care, imputing the (market) price of the latter to the former does not really make much sense. In fact, the valuation problem becomes much less acute as soon as one abandons the unattainable ideal to capture national welfare in a single indicator, Domestic Product. This is not to say that the national accounts should give up measuring welfare. On the contrary, the SNA should be extended to incorporate non-monetary (time input and output volumes) accounts, including summary welfare indicators derived from those accounts. This would result in a list of twenty, say, core welfare indicators. A further aggregation requires a political, not a scientific evaluation.

4. CAPITAL, FINANCE AND WEALTH

As has been amply demonstrated by the recent Asian crisis, the financial and real side of economies are closely intertwined, if only because of the intimate relationship between capital formation, financial flows and balance sheet positions. Among the biggest steps forward of the '93 SNA, in comparison with the previous, 1968 version, is the elaboration of the "other changes in assets" accounts and the balance sheets. So it is surprising that these novelties are not extensively discussed in Kendrick's book. To some extent, though, this is compensated by an illuminating chapter on (fixed tangible) assets and the measurement of their depreciation, by Charles Hulten. Like Diewert, Hulten links the SNA's accounting conventions to economic theory, discusses implementation problems, and gives a comprehensive and lucid survey of this notoriously tricky subject—this review touches upon just a few of the issues he addresses.

For instance, the author remarks that the "remaining present value" approach recommended by the '93 SNA as the basis for valuing existing fixed assets is in accordance with the neo-classical paradigm. However, Hulten's statement that ". . . it is the amount a bank would use in determining collateral value for a loan." is not quite convincing. For, the remaining present value cannot be assessed unambiguously, let alone by an outsider, and, even more importantly, in the circumstances that the bank actually acquires the collateral, the remaining present value concept becomes problematic (because then there is no longer a "going concern"). Instead, the (expected future) price of the asset concerned in the second-hand market is probably all that matters. Hulten notes that under competitive conditions, both prices (remaining present value and second-hand market price) are equivalent. In my view, existing assets in the SNA should be valued at second-hand market prices *in any case*, because: (1) it would be consistent with the exchange-value approach followed in the rest of the SNA; and (2) it would lead to more reliable (and realistic) estimates of asset values and of the consumption of fixed capital. Surveying second-hand market prices is also easier now, if only because the popularity of leasing assets has increased tremendously.

An important issue in the estimation of fixed capital consumption relates to the breakdown of the price change of an existing asset from one year to the next into (a) revaluation and (b) consumption of fixed capital. According to Hulten, the former equals the price change of an asset type of a certain fixed age, while the latter is equal to the percentage difference between the prices of two successive ages of the same asset type in the same year. This is not always fully correct. For instance, if the price change of a certain asset type is lower as the vintage is older, this means that economic obsolescence occurs; in that case, the price change of the new asset (corrected for quality change!) equals the revaluation for all vintages, and the depreciation can be computed residually.

Next, Hulten convincingly argues that, contrary to the '93 SNA's view, net operating surplus is not just an accounting residual, but in fact equals *ex post* return to the money invested in the assets used (adjusted for asset revaluation). This implies that (changes in) operating surplus can be separated into price (change) and volume (change) components; refer to Keuning and Reininga (1997) for an empirical application of such a split, on the basis of information from the liabilities side of the balance sheet ("which kind of money has been invested").

Hulten does not discuss liabilities, nor financial assets. On this subject, John Dawson rightly criticises the '93 SNA because its tables do not in general tell us who is financing whom, the central task of financial analysis. Of course, this omission is remedied in Dawson's own book, which contains no less than 44 chapters, divided into eight parts. Parts I-III present the flow-of-funds accounts, discuss their origin (by Morris Copeland) and evolution, and introduce them to the non-specialist. Unfortunately, these parts only deal with the compilation and usage of the accounts in the United States. Nevertheless, the readings provide a good insight into the influence exerted by the accounts on policy formulation by the Federal Reserve System in the U.S. For instance, the accounts clearly helped the Fed in tracking down the causes and consequences of the suddenly steeply rising non-financial sectors' debt-to-GDP ratio in the eighties (Chapter 3). In addition, the role of financial factors in explaining business cycles is well set out, by Copeland, in Chapter 8. Chapter 2, by the Fed, demonstrates, *inter alia*, that in general the purpose of borrowing cannot be defined. This entails, of course, that any allocation of the interest margin (the so-called FISIM) in the national accounts to demand categories and industries is purely fictitious. In Chapter 11, James Earley, Robert Parsons and Fred Thomson use an analysis on the source and use of funds to substantiate their thesis that "... changes in the money stock as commonly defined play only a secondary role and are unreliable and indeed misleading as 'targets' for monetary and credit policy."

Evidently, flow-of-funds data and projections are most useful if they are embedded into a broader system of national accounts, which should then show both flows and stocks (achieved in the '93 SNA), and preferably also who is exchanging what with whom (which requires a matrix format). Stephen Taylor, in Chapter 6, states that financial flows should mainly be seen as a stock adjustment, and that the availability of balance sheet information is crucial to monetary policy. Chapter 43, a 1994 monetary policy report of the Fed, argues that the 1990-92 recession in the U.S. was to a large extent a balance sheet phenomenon,

that is, the general dissatisfaction of both borrowers and lenders with their financial conditions led to restrained spending and debt accumulation.

Part IV of Dawson's book consists of six chapters on compilation issues, and particularly the first three of these (Chapters 13–15) contain useful guidelines and tips. Part V deals with the conceptual design of the flow-of-funds accounts. Parts VI through VIII deal with the uses of the accounts, in empirical model analysis, in historical data analysis and in current policy analysis, respectively. The uses of the accounts for modelling are set out in six articles, all of which date back more than 15 years. Perhaps, this is illustrative for the decreasing popularity of large-scale econometric modelling (of the determination of interest rates) since then. Nevertheless, some of the findings may still be relevant, such as Bosworth and Duesenberry's conclusions in Chapter 27 that in modelling the real side of the economy the financial structure does matter. This then entails, in my view, that the composition of the liabilities' side of the institutional sectors' balance sheets should not be neglected in an analysis of their production, income and expenditure decisions.

Finally, in the last part of Dawson's book, half of the (eight) chapters discuss experiences with flow-of-funds accounting outside the U.S. For instance, Chapter 40 provides an interesting financial diagnosis by the Bank of Japan, showing the contraction of flows of funds during the 1990–91 recession, following their rapid expansion in the second half of the eighties. The Bank concludes that this contraction was predominantly related to an unwinding of arbitrage transactions (fund-raising by economic entities to invest in financial assets) and was not detrimental to the smooth operation of corporate finance. With the benefit of hindsight, though, the latter conclusion may be challenged, as the Japanese economy still appears to labour under the aftermath of the speculative bubble of the eighties (nicely labelled by the Bank as the "asset price-steep rise" phase).

5. CONCLUSIONS

The main lesson to be learned from Dawson's book is that policy-relevant (macro-)economic analysis requires a quite elaborate system of national accounts. A full-fledged study of the real sector cannot do without a study of the financial accounts and balance sheets, and conversely, a thorough analysis or forecasting of financial developments requires articulated flow-of-funds as well as production, income and expenditure accounts. Many economists and analysts may not be sufficiently aware that an accounting framework is such a powerful and indispensable tool for their work. They are certainly advised to read (parts of) this book.

On the other hand, over 60 percent of the chapters in Dawson's book were written (well) before 1990. Not all of these contributions are equally relevant today, and there is some overlap between chapters. A much more limited selection of writings, and a more thorough introduction by the editor (who himself has written several of the most useful pieces) would have been preferable. Moreover, the book does not at all guide the reader who wants to account for modern financial instruments like derivatives, deep-discount bonds, etc., lacks an article on the necessary adjustment of flow-of-funds statistics and analysis under conditions of significant inflation, and almost completely neglects experiences in OECD-countries outside the United States.

Dawson selected existing articles, so he knew in advance what he included in his book, but Kendrick selected authors and worked with the material he received. In general, this has led to a collection of interesting essays, among which Chapters 5 and 8, on the measurement of capital and on price and volume change measures respectively, stand out above the rest. These chapters relate the SNA to economic theory and discuss some important implementation issues as well. In addition, several important topics are well covered in this book, among which: the linkage between micro and macro data, the time of recording transactions (cash or accrual), the world-wide reconciliation of national external accounts, and how to account for unpaid household production.

Yet, various parts that are new in the '93 SNA and thus merit some discussion are omitted or hardly touched upon. This includes: a number of novel aspects in the production accounts; the other changes in assets account; the rest-of-the-world account (now aligned with the balance of payments); the relationship between the supply and use table and the input-output table; population and labour inputs; functional classifications; Social Accounting Matrices; and the design of a satellite accounting framework. In addition, no reference whatsoever is made to the ESA '95, the European pendant of the '93 SNA. The ESA '95 (Eurostat, 1996) is both more elaborate and more precise ("cookbook") than the SNA, albeit much more concise on the rationale behind each booking. As a legal text, it also performs a very specific function, which in itself had warranted some discussion in Kendrick's book.

In general, though, Kendrick's book provides a good introduction to the '93 SNA's central framework. In addition, throughout this volume several criticisms of the '93 SNA are expressed. This concerns, for example: the valuation of government production (incorrectly excluding interest costs and the like), the recording of the purchase of consumer durables as consumption instead of fixed capital formation, and the imprecise definition of the time of recording. Other parts of the SNA that ought to be revised are the following: (1) a more prominent role is needed for the generation of income account (really describing factor markets), (2) inter-relationships between economic subjects should be more fully described (that is, recording as well *from whom to whom* the "money" flows), and (3) the SNA should be expanded to become an overall framework for economic, socio-demographic and environmental accounts.

These comments do not preclude however that the world-wide application of such a comprehensive and ingenious accounting framework as the '93 SNA implies an enormous advance to economic research, applied analysis and policy-making. Returning to the core question at the beginning of this review—why do most economists neglect the SNA?—it may be conjectured that part of the answer lies in a lack of communication by national accountants about the SNA's crucial role as a link between economic theory and practice. The books edited by Kendrick and Dawson illustrate that economists have a contribution to make to a better understanding of the SNA and indeed to better national accounts. These books deserve a wide audience, if only for that reason.

STEVEN KEUNING
Statistics Netherlands

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