

INTRODUCING A CERTIFIED ECONOMIC ACCOUNTANT (CEA)
DEGREE OR DIPLOMA PROGRAM: WOULD NANCY AND
RICHARD RUGGLES APPROVE?

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This paper is inspired by the work of Nancy and Richard Ruggles promoting national economic accounting in academic and non-academic areas. They were concerned with both compilation and use of national accounts as well as developmental issues. Now that the subject has matured with the 1993 SNA standards, the compilation, development and understanding of the accounts require special training and experience, but national economic accounting has become a multidisciplinary matter that cannot easily fit into one academic department. Hence we advocate a Certified Economic Accountant (CEA) degree or diploma program to gain enhanced recognition and greater understanding for national economic accountants and their work. The paper includes an annotated list of 50 references, covering the period 1942–2002, that might form a syllabus, and a section outlining the mechanics and problems of organizing such a program.

I. INTRODUCTION

This paper proposes the introduction of a Certified Economic Accountant (CEA) degree or diploma program. The general idea is that the time is ripe to consider a CEA program as a vehicle to promote understanding and competence in national economic accounting both in the academic and non-academic areas. A CEA program would then be somewhat parallel to certified commercial and public accounting degrees or diplomas, such as the CCA and the CPA. But, and this is important, there are critical differences both in scope and structure. Indeed the paper is inspired by some early work of Nancy and Richard Ruggles—at a time when the case for a CEA had not yet arrived.

Aside from the impact of the 1993 SNA and 1995 ESA and their international acceptance as the new standards for national economic accounting, what has changed? We know that the SNA and ESA Manuals are often difficult to read and absorb: they are Standards Manuals. Examination of national accounting discussions centered at OECD and elsewhere reveals the field as a kind of “debating society” where issues originally raised by Nancy and Richard Ruggles (and others) are still being discussed. True, we do have international standards but is this in itself progress? Yes, it will be argued, there has been progress. In fact the “debating society” image of national accounts can be turned around to become part of the CEA certification process (see later discussion).

Note: Very useful comments of two referees are gratefully acknowledged. Special thanks are due to Helen Stone Tice for suggesting the format of the important Table 1.

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This writer only became convinced of the potential viability of a CEA program when confronted with two recent books that are essential for education purposes. The first book is elementary, requiring no previous knowledge of economics: *The New National Accounts, An Introduction to the System of National Accounts 1993 and the European System of Accounts 1995* by Dudley Jackson (2000). The book is a readable exposition of definitions, classifications and sequential allocations used in national accounts with many illustrations from national accounting tables. The second book is more advanced: *Une histoire de la comptabilité nationale* (also available with English summary) by André Vanoli (2002). Here we learn that the field of national economic accounting has a “heritage”—a rich and profound intellectual history that is still evolving and very much alive (the importance of “heritage” has recently been stressed by Blaug, 2001).

I would say that anyone who could master the two books is on their way to becoming a CEA! But, of course, to make the case for a CEA program we need to show much more. Indeed it is important to highlight recent activities in the field of economic accounting and related disciplines—to show pitfalls that should be avoided and to show opportunities that have not yet been exploited. There are also issues of augmented roles for accounting theory and statistical infrastructure that might appeal to the Ruggleses. These are some of the matters that are now presented in an open, non-technical way.

2. BACKGROUND DISCUSSION

Nancy and Richard Ruggles were concerned with establishing and improving the status of national economic accounting both as academic and non-academic disciplines. Their work was directed from the very beginning to the training of compilers and potential users of national accounts and always with a strong international flavor. This can be seen in the Reich review article (2000) and Peter Hill’s Forward to Volume I of their collected papers (Ruggles and Ruggles, 1999) particularly, as well as the early papers contained in Part One of Ruggles and Ruggles (1999) and its supporting Preface. (Richard Ruggles tried to attract the attention of rather skeptical business accountants in one of these papers.) Nancy and Richard Ruggles delivered four special lectures at Statistics Canada in 1984 motivated to stimulate interest and activities in national accounts—lectures that were attended by the senior economic community of Ottawa, both academic and non-academic. This was at a time when planning for the new SNA was underway.

Today we have both the 1993 SNA and the 1995 ESA, but this paper will concentrate mostly on the SNA (the differences are given in Jackson, 2000). Today we also have considerable international discussion (or debate) concerning the SNA guidelines—mainly matters of implementation and possible modifications. These activities are largely centered at the OECD, IMF and UNSD (the U.S. Conference on Research in Income and Wealth should also be noted). The discussions are typically dominated by economists and statisticians from national and international agencies with backgrounds in compilation problems of national economic accounts.

What does all this add up to? Is anything more needed? These were questions previously raised by a Session devoted to The Role of National Accounting in Teaching Economics at the IARIW Conference, Cambridge, August 1998. It was

found that national accounting plays a minor and declining role in teaching economics in universities, and the release of the 1993 SNA has not reversed the process. National accounting is typically picked up in macroeconomics on a catch-as-catch-can basis. (The questions were also discussed at a session at the Canadian Economics Association Conference, Vancouver, June 2000, but no papers are available for reference purposes.) The declining role of national accounting in academia is often “explained” by the loss of interest in macroeconomics vis-à-vis the successes experienced by microeconomics (see also Krueger, 2003). A thoughtful paper from France at the Cambridge Meeting (Archambault, Debord, and Percheron, 1998) concluded:

A revival of national accounting teaching in higher education depends on the writing of clear and simple Handbooks presenting SNA 93 and ESA 95. No doubt they are coming . . . To reach this aim statisticians and teachers have to work together more tightly . . .

A more up-to-date reference to the thoughts of Édith Archambault can be found in Vanoli (2002).

Since 1998 new Handbooks have appeared from the OECD, UNSD and Eurostat together with important new material from the IMF—all based on the 1993 SNA. And, of course, the two books (Jackson, 2000; Vanoli, 2002) are now on the market together with Reich (2001). So the prime question now appears to be: How are we to integrate all this material to enhance a more universal understanding and competence in national economic accounting? Has the time arrived for a paradigm shift, intellectually speaking?

The suspicion that there is something “missing” from the world of national economic accounting has been stated by others. For example (Richard and Patricia Ruggles, 1995):

National accounting is no longer a topic in the subject listing of the *Journal of Economic Literature* and it has been eliminated from the economics curriculum in most (U.S.) Universities. Indeed few economists in the U.S. outside of BEA are aware of the 1993 SNA . . .

Three years later Keuning (1998) points out:

To my knowledge, no single economics journal has thus far published a (book) review of the 1993 SNA . . .

and then goes on to speculate reasons for “this neglect.” Actually the situation has improved in most recent years, as indicated for example by the support being received by the BEA Strategic Plan for 2001–2005 (Landefeld, 2002) and the fact that some academic economists are beginning to take the 1993 SNA seriously as also seen in Landefeld (2002).

But why be limited to economic academia? We are still faced with the spectacle that all certified branches of business and financial accounting (CCA, CFA, CMA, CPA) have essentially ignored the existence of national economic accounting whose foundations were laid by Stone (1947) in a League of Nations Report 55 years ago. In fact, some national accountants insist on perversely quoting the pronouncements of FASB and IASB to support their proposed revisions of SNA (e.g. the debates concerning integration of “employee stock options”). I have yet

to see FASB and IASB show any regard for national economic accounting principles even though the fields of corporate business and financial accounting standards are in deep trouble (*The Economist*, 2002, 2003).

Indeed it has been shown by Bodenhorn (1988) that current cost accrual accounting and reciprocal symmetry principles can be derived from economic equilibrium theory. Bodenhorn puts national accounting, business accounting and household accounting all on equivalent bases. Unfortunately this approach has been overlooked by all accounting parties. The Ruggles colleague at Yale, Martin Shubik, has also drawn consequences from economics and financial theory to the benefit of economic accounting, micro as well as macro (see the Shubik reference in Section 4 of the present paper).

Finally one more background point is noted. The field of applied economics, based on statistical inference, is now subject to a decline of interest in the big econometric models (Arrow, 2000). It is realized that the national economy is too interactively complex to be manageable by macro-econometric modeling techniques. Even relatively simple compilation such as alternative treatments of unfunded employer pension schemes and alternative treatments of non-performing loans, recently investigated by IMF, raise complex issues that cannot be justified in an econometric setting. (The same is true for, say, reverse financial transactions.) Yet these issues are the heart and soul of national economic accounting and its systematic allocation and recording, with external checks and internal balances, of all observed economic transactions.

Let it now be said: A competent (certified) national economic accountant not only knows the current standards, but also knows the alternative treatments.

3. SOME INITIATIVES

It should be clear that something more is needed than giving national accounts a larger role in the academic teaching of economics. Such a “larger role” may develop on its own stimulated by events and conditions outlined in the previous sections. However, judging from past experiences, there are no guarantees. Moreover it will be shown in the next two sections that national economic accounting has significant multidisciplinary dimensions in both theory and practice. Therefore national accounting as a subject matter would be difficult to confine to one university department.

In the meantime some statistical agencies and institutions have already taken initiatives. The BEA and the UNSD have offered special courses on national accounts on an irregular basis. The most important is a four-week course provided annually by the IMF Institute focusing on, for example, the goods and services accounts of the 1993 SNA together with an overview of the System. (I understand the course content could vary from year to year.) The emphasis is also on compilation aspects of the System of special interest to the IMF. The instructors are all highly competent national accountants and the students are drawn mostly from developing nations with large unrecorded economies. The course content, then, coincides in part with Jackson (2000) on classification and definitional issues. There does not appear to be much room for purely accounting principles per se (see next section).

Equally noteworthy is the teaching of national accounts at the Institute of Social Studies (ISS) in The Hague—well described at the Cambridge Conference by Van Heemst (1998). There are a range of degree and diploma programs offered to students of economics from developing nations. Some of the programs specialize in national accounts with complementary courses in statistical methods and compilation software. It is clear that the Netherlands CBS matrix approach to national accounts has a large weight in the program. Like the IMF the emphasis is on spelling out the complete sequence of flow (and stock) accounts and related statistical problems in the spirit of the 1993 SNA. There does not appear to be any room for the economic historical and theoretical items presented in, say, Vanoli (2002).

I certainly commend the efforts of both IMF and ISS and a lot could be learned from examining their courses and programs. Nevertheless I continue to feel that the subject of national economic accounting could be established in a way that would offer a more universal appeal to both sophisticated users as well as compilers of national accounts. Could we set up national economic accounting as a multidisciplinary activity intimately connected to its related disciplines of: (1) accounting principles and practices, (2) special topics in economic theory, and (3) economic statistical infrastructure—ultimately oriented to new extensions of national accounting? Is this what the Ruggleses were really searching for during all their years of inspiring activity?

The next section will outline the scope of a Certified Economic Accountant (CEA) degree or diploma program with a core list of references. The following section will face the mechanics of actually implementing such a program on a national and international basis.

4. A CERTIFIED ECONOMIC ACCOUNTANT PROGRAM

This section provides an overview of the “core” of a CEA program. The overview consists of a list of topics and references that might be compared with the contents of the IMF and ISS course and program. The suggested CEA program has a number of peculiar features that should be noted. (The references are given more fully in the References at the end of the paper.)

We assume that the basic definitions, classifications and sequential accounting structure of national economic accounts can be picked up from Jackson (2000). A prior knowledge of Jackson should be regarded as a prerequisite for entering the CEA program or could be covered in the first several weeks of an instruction program (see also mechanics in next section). Thus the list shown here contains advanced features of the CEA with emphasis on: (1) interdisciplinary connections, (2) historical continuity (covering the period 1942–2002), and (3) exposure to the classics of the national economic accounting literature. We do, indeed, have something in common with Vanoli (2002) as well as building on prior knowledge of the elements in Jackson (2000). Some emphasis is given to the most up-to-date references and to this writer’s experience in the field, and some will notice a North American orientation.

It should also be clear that we make no pretense at comprehensive coverage. For example, the whole field of environmental economic accounting is essentially

absent (actually requires an additional program) and there is no presence of the familiar SAMs and satellite accounting practices. The concentration then is on core foundations, but at an advanced level.

The reader is now advised to examine the list shown as Table 1. In this paper it is not possible to justify each of the 50 references in the list. Instead we will offer several-sentence explanations of each section of the list in order to clarify and motivate the material.

Accounting Connections are vitally important. It is desirable that a CEA program produces graduates with a sophisticated knowledge of traditional accounting principles and practices. Otherwise national economic accountants will be unable to dialogue with the many other professionally certified accountants. Many of the listed references are not known to economists and the topics are not available in economic curricula. This is the first reason why the CEA program should be regarded as multidisciplinary.

Economic Theory Connections contain references that could also fit into accounting (e.g. Edwards *et al.*, 1987; Bodenhorn, 1988). Shubik and Nordhaus are included because they were colleagues of the Ruggleses at Yale. The reference to Economics as a Cyborg Science will be picked up later in this paper. Edmond Malinvaud provides a complement to Vanoli (2002).

Economics Statistics Connections cover a lot of ground with references that are mainly well known. Here critical work has been accomplished and is underway at Eurostat and IMF, but my favorite reference is still Stone, Champernowne, and Meade (1942).

Statistical Infrastructure Connections has no readily-available references, but its relevance to a CEA program is supremely important. It is a field that is simply overlooked almost everywhere except on the “firing-line” of national accounts compilation. This is a second reason why the CEA is a multidisciplinary venture even if the component disciplines do not formally exist.

Statistics Canada did pioneering work in this area in the 1970s and 1980s and supporting documents are available for inspection. The field is evidently not currently covered in academic offerings and has been replaced by methods of statistical inference. Briefly the area includes: (1) central registers, profiles and delineations of standard statistical units, (2) a large collection of survey and administrative reporting interfaces, and (3) a long list of integrated standard economic events accounting for the creation, dissolution and updating of economic units. (There are also non-integrated events.)

As the national economy moves into new network forms of organization, new kinds of statistical infrastructures are needed. These include: (1) statistical units oriented towards a project reporting entity, (2) non-standard (imputed) economic events covering the sudden appearance and disappearance of transient concerns, and (3) the identification of temporally non-synchronous aspects of economic reporting transactions (easily misclassified as unilateral transfers).

At this moment, the whole field of statistical infrastructure connections is the exclusive province of informal on-the-job statistical experience with all the perils of consequent non-comparabilities among different statistical agencies. Outside users of national economic accounts are typically unaware of the field and its basic importance. Problems with new kinds of statistical infrastructure probably play a

TABLE 1

REFERENCE LIST FOR A CERTIFIED ECONOMIC ACCOUNTANT PROGRAM

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| <p><i>General references</i></p> <ul style="list-style-type: none"> • Jackson (2000), Vanoli (2002), 1993 SNA <p><i>Accounting connections</i></p> <ul style="list-style-type: none"> • Structure of accounting theory (Littleton, 1953) • Commitment accounting and contracts (Ijiri, 1975) • Value added accounting (Morley, 1979) • Making accounting policy (Solomons, 1986) • Double-entry accounting (Yamey, 1987) • Renewals accounting (Canadian Institute of Chartered Accountants, 1989) • Suspense accounting (Ijiri, 1989) • Creative accounting (Rees and Sutcliffe, 1992) • Current cost accrual accounting (Jackson, 2000) • International accounting standards (Epstein and Mirza, 2002) <p><i>Economic theory connections</i></p> <ul style="list-style-type: none"> • Evaluation of social income (Samuelson, 1961) • Flow-of-funds accounting theory (Alford, 1986) • Economic analysis of accounting profitability (Edwards <i>et al.</i>, 1987) • Economic accounting theory (Bodenhorn, 1988) • Economic theory of money and financial institutions (Shubik, 1999) • Correspondence principle of sustainable national income (Nordhaus, 1999) • Classical value theory (Reich, 2001) • Economics becomes a cyborg science (Mirowski, 2002) • Interview with Edmond Malinvaud (Krueger, 2003) <p><i>Economic statistics connections</i></p> <ul style="list-style-type: none"> • Precision of national income estimates (Stone <i>et al.</i>, 1942) • Microdata simulation problems (Arrow, 1980) • Production accounting, sources and methods (Nancy Ruggles, 1986) • Quality change and new products (Gordon and Griliches, 1997) • Quarterly national accounts statistics (Bloem <i>et al.</i>, 2001) • Comparing NIPA profits to S&P profits (Petrick, 2001) • Processing statistics for national accounts (Eurostat, 2001) • Measuring capital stocks and services (OECD Manual, 2001) | <p><i>Statistical infrastructure connections</i></p> <p><i>National economic accounting</i></p> <ul style="list-style-type: none"> • Measurement and construction of accounts (Stone, 1947) • Measuring national wealth in accounting systems (Goldsmith, 1950) • Input-output and social accounts (Stone, 1954) • Copeland's money flows after 25 years (Cohen, 1972) • Integrated economic accounts for U.S. (Ruggles and Ruggles, 1982) • Measurement of saving, investment and wealth (Lipsey and Tice, 1989) • Quadruple-entry accounting (Postner, 1994; ESA, 1995) • Consequences of compacted accounting (Postner, 1995; SNA, 1993) <p><i>Applications of national accounts</i></p> <ul style="list-style-type: none"> • Financial innovations and national accounts (Krueger, 1992) • National accounts for an information economy (Carter and Postner, 1996) • Treatment of nonperforming loans (Bloem and Gorter, 2001) • Treatment of unfunded employer pension schemes (IMF, 2002) • Treatment of reverse financial transactions (Joise, 2002) • SNA issues for the new economy (Moulton, 2002) <p><i>Extensions of national accounts</i></p> <ul style="list-style-type: none"> • Jorgenson systems of national accounting (Fraumeni, 1999) • Treatment of mobile phone licenses in accounts (Dippelsman and Maehle, 2001) • E-commerce measurement issues (Fraumeni, 2001) • Integration of employee stock options (Postner, 2002a) • Economic accounting for software innovations (Postner, 2002b) <p><i>Computerization of national accounts compilation and dissemination</i></p> <ul style="list-style-type: none"> • BEA Strategic plan for 2001-2005 (Landefeld, 2002) |
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role in identifying and resolving the creative paralysis that permeates external reporting of corporate accounts.

National Economic Accounting references comprise the core of the CEA program. This is a minimal reading list emphasizing historical continuity leading to 1993 SNA, 1995 ESA, and beyond. Program participants should note that the Ruggleses' Integrated Economic Accounts is generally regarded as a highlight of their career as seen, for example, in the Forward by Peter Hill in the Volume (Ruggles and Ruggles, 1999). The acceptance of the term "quadruple-entry accounting" did not generally appear until 1993, but the discussion is not yet over (sometimes under the term "compacted accounting").

Applications and Extensions of National Accounts are strictly selective with emphasis on contributions that are recent and innovative. Here it is clear that IMF is on the forefront of new developments. Indeed the paper by Bloem and Gorter (2001) has important illustrations of symmetry principles in national economic accounts. The paper by Carter and Postner (1996) displays applications of renewals accounting and suspense accounting in a study of the information barter economy. The paper by Dippelsman and Maehle (2001) is a good application of "quadruple-entry" principles.

Finally, the BEA Strategic Plan 2001–2005 and its updates is also relevant to possible future Extensions of National Accounts.

5. MECHANICS OF A CERTIFIED ECONOMIC ACCOUNTANT PROGRAM

Having described the core contents of a proposed CEA program it is now natural to turn to practical questions of implementation. How would such a program be organized? Where would the students come from? What would it mean, in terms of employability, to have obtained a CEA degree or diploma? A CEA is "certified" for exactly what? And who would certify the certifiers? Why cannot a CEA program be simply embedded in a graduate M.A. or Ph.D. program in economics with specialization in national accounts? Would the number of potential students justify instituting a CEA program? And certainly a CEA program would need a strong international dimension, so who would coordinate the program on an international basis?

These are all perfectly legitimate questions. I have no definitive answers to all these queries, although some answers may be inferred from earlier discussions. These are questions to be answered for *any* type of new degree or diploma program. Successful responses depend on initiatives and on the good faith of the existing discipline and its proponents. One way to proceed is as follows.

At the present time I would argue that the field of national economic accounting is not well known and, in fact, misunderstood even within economics and certainly within other fields of accounting. Yet national accounting, with its systematically allocated and balanced recording of observed interdependent economic events, has a lot to offer that is available nowhere else. Further I would argue that national economic accounting has a potential appeal far and wide—outside applications of official national accounts estimates for quasi-legal purposes.

For example, consider the frustrations currently being experienced by the many corporate business and financial accountants whose disciplines have become

paralyzed by lack of rigorous and consistent reporting standards that are susceptible to creative accounting manipulations. Can they not benefit from exposure to rules of transaction articulation, symmetry principles and current valuations, unencumbered by contingency reserves, that are all an integral part of an economic accounting system? Consider the many economic journalists and business and government policy analysts who try to use national accounts estimates on a regular basis, but have little real understanding of what the estimates mean or where the figures come from. They must take whatever the statistical agencies are willing to give them. And consider the many economists and statisticians working within government statistical agencies who are marginalized by their lack of advanced expertise necessary to take initiatives to improve national accounts compilations and methodology in face of a rapidly changing global economy. These public servants are certainly not prepared to innovate alternative treatments when needed. The CEA program should also appeal to many academics, both inside and outside economics, who wish to enhance and update their qualifications in a multidisciplinary field that is difficult to access in a departmental setting.

The point of all this is that a properly instituted CEA program should not necessarily be marketed as a device for educating people to move into entirely new jobs. The CEA program, rather, is primarily oriented to training and qualifying people for the jobs they are already holding but cannot accomplish because of lack of knowledge of the field of national economic accounting.

I am not advocating more of the routine warehousing of students in universities and colleges. Truly educated people these days must be capable of activating and reprogramming themselves towards the continually changing opportunities that life creates. A CEA program could be made available on the Internet for anyone interested. The program would be subject to modest prerequisites and strict supervision of certification standards. There already exist other such programs on the Web advertised, for example, in *The Economist* such as Phoenix University in the U.S. and Athabasca University in Canada. On the other hand, the highly commercial online program offered by Oracle University is not the way to go.

The CEA program could be offered at different levels ranging from elementary to advanced. Economic journalists and analysts might prefer the elementary offering; economic statisticians and academics with research interests should prefer the advanced offering. The contents outlined in the previous section are mostly advanced, but it is easy to arrange an elementary version. Corporate accountants might be exposed to a more selective intermediate version. An advanced degree or diploma should have high certification standards—with most candidates possibly “failing” on their first and second attempts.

Let us be clear. The certification process is a means for candidates to learn and master a difficult field in which they have a presumed interest and to gain some intangible recognition, including self-recognition, for doing so. Once a CEA program takes hold the certification may become a requirement for particular kinds of employment. There are also issues of “keeping up to date” with new developments in the field. And again, the key concept should really be one of “self-programming” more than anything else.

But who will guard the guardians? Or in our case: who will certify the certifiers? Perhaps enough has been said to stimulate a discussion on the subject among

leading economic accountants in their respective national and international agencies and institutions. There are a lot of administrative problems to work out; there are a lot of text-retrievable scanning procedures to examine. The CEA program would need a sponsoring institution in one form or another. Perhaps a pilot program on the Internet is a place to start. It took 500 years to go from the double-entry accounting of the merchants of Venice to the quadruple-entry accounting of the present SNA and ESA. So how long will it take to go from the Certified Commercial Accountant (CCA) to the Certified Economic Accountant (CEA) that is presently being advocated?

Finally, would Nancy and Richard Ruggles approve? Before trying to answer that question we need to take a more comprehensive view of the proposed CEA program and of new opportunities for dialogue that are appearing on the horizon.

6. CONCLUSION

The CEA program is a long-term disciplinary goal to gain enhanced recognition and greater understanding for economic accountants and their work. It is indeed discouraging to observe that economic accounting has not been treated with knowledgeable respect either by other “branches” of accounting or by the economics profession itself.

There was in fact a dialogue between business corporate accountants and national economic accountants in the late 1940s and early 1950s in which the Ruggleses and Richard Stone were involved. At that time there was skepticism about the viability of the “new” subject on the part of business accountants. Nowadays skepticism has been replaced by simply ignoring the subject. Business, financial, management, and public accountants are aware of some new developments in economic theory (e.g. agency theory and information economics) and economic statistical inference. But economic accounting principles have little or no influence on their accounting practices despite the presence of some economic accounting influence in Morley (1979), Solomons (1986) and in accounting footnotes.

It is disappointing that economic accountants have not spoken up and shown how their expertise in accrual recording, comparability doctrine and transaction articulation, can be deployed to help resolve the creative paralysis that is currently being experienced by corporate financial accounting reporting (Riahi-Belkaoui, 2003). Economic accountants experience with new statistical infrastructure should also play a key role here.

In the meantime the impact of the IASB is growing rapidly (Epstein and Mirza, 2003). The IASB has the goal of making “national economic standards” compatible under the authority of a new set of “international accounting guidelines.” Their explicit terminology overlaps with and conflicts with that of the system of economic accounting! Indeed the IASB is now engaged in setting up new international accounting standards for many of the issues currently under review by the Statistical Commission on the Update of the 1993 SNA (*SNA News and Notes*, April 2003). Therefore it would seem advisable for economic accountants trained in SNA to initiate dialogue with their “counterparts” at IASB and FASB (the latter Board has increasingly strong connections with the former Board). But national economic accounting is the only “branch” of accounting that

does not possess a certification process and this lack of certified stature might make a credible dialogue difficult.

The release of the IMF study on treatment of mobile phone licenses in accounts (Dippelsman and Maehle, 2001), and its endorsement as the basis of an official update of the 1993 SNA, represents a quantum leap forward in the development of national economic accounting. It should encourage more high quality extensions of the accounts to reflect changing economy. The adoption and understanding of these extensions is one of the goals of our CEA program.

There are other opportunities for “leap forwards.” One possibility is an economic accounting framework for the treatment of computer, server and software applications as a Utility—generated by computer processing stations all over the world, delivered over the Internet and monitored by meters at all points of consumption. This idea is now being intensely studied by a Hewlett-Packard team at Palo Alto, California, directed by Bernardo Huberman. (The big problem is to come up with a single comprehensive unit of measurement for computing consumption.) Some background to the work of Huberman can be found in Mirowski (2002). Economic accountants can innovate by anticipating new technical developments and their alternative national accounting treatments rather than merely reacting to existing developments. In fact a CEA program delivered over the Internet may be a good candidate for the text-retrievable aspects of “Utility Computing.”

In this paper we have tried to portray national economic accounting as a *bona fide* branch of accounting with a rich intellectual history and with multidisciplinary features that have a lot to offer. National accountants, potentially speaking, have everything going for them except an agreed-upon certification process to help establish their professional standards. The door can be opened to place national economic accounting at the leading edge of new accounting treatments and as a Grand Auditor for Accounting Credibility, working closely with other branches of accounting, but yet also retaining the “big picture.” As for “The Fall of the House of Andersen,” a certified economic accountant would be willing to forgive but not to forget. All this, I think, would meet the approval of Nancy and Richard Ruggles.

REFERENCES

- Alford, R. F. G., *Flow of Funds: A Conceptual Framework and Applications*, Gower, Brookfield, VT, 1986.
- Archambault, Édith, Jacques Debord, and Serge Percheron, “The Role of National Accounting in Teaching Economics in France,” paper prepared for 25th General Conference IARIW, Cambridge, U.K., August 1998.
- Arrow, Kenneth J., “Microdata Simulation: Current Status, Problems and Prospects,” in R. Haveman and K. Hollenback (eds), *Microeconomic Simulation Models for Public Policy Analysis*, Vol. 2, Academic Press, New York, 253–65, 1980.
- , “Interview: Three Nobel Laureates on the State of Economics,” *Challenge*, 43, 13–22, January/February 2000.
- Blaug, Mark, “No History of Ideas, Please, We’re Economists,” *Journal of Economic Perspectives*, 15, 145–64, Winter 2001.
- Bloem, Adriaan M. and Cornelis N. Gorter, “The Treatment of Nonperforming Loans in Macroeconomic Statistics,” IMF Working Paper 209, December 2001.
- Bloem, Adriaan M., Robert J. Dippelsman, and Nils O. Maehle, *Quarterly National Accounts Manual: Concepts, Data Sources, and Compilation*, IMF, Washington, D.C., 2001.

- Bodenhorn, Diran, *Economic Accounting*, Foundation of Accounting Series, Garland Publishing, New York, 1988.
- Canadian Institute of Chartered Accountants, "Accounting for and Reporting Government Physical Assets," Research Study, Toronto, 1989.
- Carter, Anne P. and Harry H. Postner, "National Accounts, Concepts and Statistics for an Information Economy," paper prepared for 24th General Conference IARIW, Lillehammer, Norway, August 1996.
- Cohen, Jacob, "Copeland's Moneyflows after Twenty-Five Years: A Survey," *Journal of Economic Literature*, 10, 1–25, March 1972.
- Dippelsman, Robert J. and Nils O. Maehle, "Treatment of Mobile Phone Licenses in the National Accounts," Working Paper 72, IMF, 2001.
- Edwards, J., J. Kay, and C. Mayer, *Economic Analysis of Accounting Profitability*, Oxford University Press, Oxford, 1987.
- Epstein, Barry and Abbas Ali Mirza, *Interpretation and Application of International Accounting Standards (AIS) 2002*, John Wiley & Sons, New York, 2003.
- Eurostat, *European System of Accounts (1995 ESA)*, Eurostat, Luxembourg, 1996.
- , "Report from the Task Force on Accuracy Assessment in National Accounts," document CPNB-296 on Eurostat National Accounts Process Table, Eurostat, Luxembourg, 2001.
- Fraumeni, Barbara M., "The Jorgenson System of National Accounting," in Lawrence J. Lau (ed.), *Econometrics and the Cost of Capital: Essays in Honor of Dale W. Jorgenson*, MIT Press, Cambridge, MA, 111–42, 1999.
- , "E-Commerce: Measurement and Measurement Issues," *AEA Papers and Proceedings*, 91, 318–22, May 2001.
- Goldsmith, Raymond W., "Measuring National Wealth in a System of Social Accounting," in *Studies in Income and Wealth*, Vol. 12, NBER, New York, 1950.
- Gordon, Robert J. and Zvi Griliches, "Quality Change and New Products," *AEA Papers and Proceedings*, 87, 84–8, May 1997.
- Ijiri, Yuji, *Theory of Accounting Measurement*, Studies in Accounting Research #10, American Accounting Association, Sarasota, FL, 1975.
- , *Momentum Accounting and Triple-Entry Bookkeeping*, American Accounting Association, Vol. #31, Sarasota, FL, 1989.
- IMF, "The Treatment of Unfunded Employer Pension Schemes in Macroeconomic Statistics," paper prepared for OECD Meeting of National Accounts, Paris, October 2002.
- Jackson, Dudley, *The New National Accounts, An Introduction to the System of National Accounts 1993 and the European System of Accounts 1995*, Elgar Publishing, Northampton, MA, 2000.
- Joice, John, "The Macroeconomic Statistical Treatment of Reverse Transaction," paper prepared for OECD Meeting of National Accounts, Paris, October 2002.
- Keuning, Steven, "A Powerful Link Between Economic Theory and Practice: National Accounting," *The Review of Income and Wealth*, 44, 437–45, September 1998.
- Krueger, Alan B., "An Interview with Edmond Malinvaud," *Journal of Economic Perspectives*, 17, 181–98, Winter 2003.
- Krueger, Russell, "Financial Innovations and National Accounts," paper prepared for 22nd General Conference IARIW, Flims, Switzerland, August 1992.
- Landefeld, J. Steven, "BEA's Strategic Plan for 2001–2005," *Survey of Current Business*, 8–29, May 2002.
- Lipsey, Robert E. and Helen Stone Tice, *The Measurement of Saving, Investment and Wealth*, Studies in Income and Wealth, Vol. 52, University of Chicago Press for NBER, New York, 1989.
- Littleton, A. C., *Structure of Accounting Theory*, American Accounting Association, Monograph No. 5, 1953.
- Mirowski, Philip, *Machine Dreams: Economics Becomes a Cyborg Science*, Cambridge University Press, New York, 2002.
- Morley, M., *The Value Added Statement: A Review of its Use in Corporate Reports*, Institute of Chartered Accountants of Scotland, 1979.
- Moulton, Brent R., "The System of National Accounts for the New Economy: What Should Change?," paper prepared for OECD Meeting of National Accounts, Paris, October 2002.
- Nordhaus, William D., "The Future of Environmental and Augmented National Accounts: An Overview," *Survey of Current Business*, 45–9, November 1999.
- OECD Manual, *Measurement of Capital Stocks, Consumption of Fixed Capital and Capital Services*, OECD, Paris, 2001.
- , Handbook, *Measuring the Non-Observed Economy*, OECD, Paris, 2002.
- Petrick, Kenneth A., "Comparing NCPA Profits with S&P 500 Profits," *Survey of Current Business*, 16–20, April 2001.

- Postner, Harry H., "A Historical Note on Quadruple-Entry Bookkeeping," in Z. Kenessey (ed.), *The Accounts of Nations*, 237–45, IOS Press, Amsterdam, 1994.
- , "The 1993 Revised System of National Accounts: Where Do We Go From Here?," *The Review of Income and Wealth*, 41, 459–69, December 1995.
- , "Integration of Employee Stock Options in National Accounts Using Principles of Corporate Governance," paper prepared for OECD Statistics Working Paper Series, June, 2002a.
- , "Economic Accounting for Software Innovations and Applications," paper prepared for 27th General Conference IARIW, Stockholm, Sweden, August 2002b.
- Rees, William P. and Charles Sutcliffe, "Creative Accounting," in *Palgrave Dictionary of Money and Finance*, Vol. 1, Macmillan, London, 514–15, 1992.
- Reich, Utz-Peter, "Economics as a Science: Review of Ruggles and Ruggles," *The Review of Income and Wealth*, 46, 501–6, December 2000.
- , *National Accounts and Economic Value: A Study in Concepts*, Palgrave Publishers, New York, 2001.
- Riahi-Belkaoui, Ahmed, *Accounting—By Principle or Design?*, Praeger Publishers, Westport, CT, 2003.
- Ruggles, Nancy D., *Accounting for Production: Sources and Methods*, Handbook of National Accounting, Series F, No. 39, United Nations, New York, 1986.
- Ruggles, Nancy D. and Richard Ruggles, "Integrated Economic Accounts for the United States, 1947–80," *Survey of Current Business*, 1–59, May 1982.
- , "Integrated Economic Accounts: Reply," *Survey of Current Business*, November 1982.
- , *National Accounting and Economic Policy: The United States and UN Systems*, Edward Elgar, Northampton, MA, 1999.
- Ruggles, Richard and Patricia Ruggles, "The Value Added of National Accounting," *The Review of Income and Wealth*, 41, 367–71, September 1995.
- Samuelson, Paul A., "The Evaluation of Social Income: Capital Formation and Wealth," Chapter 3 in F. A. Lutz and D. C. Hague (eds), *The Theory of Capital*, Macmillan, London, 32–57, 1961.
- Shubik, Martin, *The Theory of Money and Financial Institutions*, Vol. 1, MIT Press, Cambridge, MA, 1999.
- Solomons, David, *Making Accounting Policy: The Quest for Credibility in Financial Reporting*, Oxford University Press, New York, 1986.
- Stone, Richard, "Definition and Measurement of the National Income and Related Totals," Appendix to *Measurement of National Income and Construction of Social Accounts*, League of Nations, Geneva, 1947.
- , "Input-Output and the Social Accounts," in T. Barna (ed.), *The Structural Interdependence of the Economy*, John Wiley Publishers, New York, 1954.
- Stone, Richard, D. G. Champernowne, and J. E. Meade, "The Precision of National Income Estimates," *The Review of Economic Studies*, 9(2), 111–25, 1942.
- System of National Accounts 1993*, United Nations Publication, ST/ESA/STAT/SER.F/2/Rev.4, New York, 1993.
- The Economist*, "Special Report: The Trouble with Accounting," 57–60, February 9, 2002.
- , "Special Report: The Future of Accounts," 61–63, May 2, 2003.
- Van Heemst, Jan J. P., "The ISS, The Third World, and the Teaching of National Accounting," paper prepared for 25th General Conference IARIW, Cambridge, U.K., August 1998.
- Vanoli, André, *Une Histoire de la Comptabilité Nationale*, les éditions La Découverte, Collection Manuels Repères, Paris, 2002.
- Yamey, Basil, S., "Double-entry Bookkeeping," in *Palgrave Dictionary of Economics*, Vol. 1, Macmillan, London, 917–20, 1987.