

The “Protestant” View: The Norwegian and Scandinavian Approach to National Accounting in the Postwar Period

Einar Lie

Around the 1930s, many countries began developing a systematic practice of keeping national accounts—comprehensive statistical systems that could provide an empirical foundation for economic planning and policy. Different countries approached this task in markedly different ways. And yet, at the same time that various countries worked independently to develop their own methods of national accounting, there was a parallel effort, during and after the Second World War, to create a common standard for national accounting. This standard was to make it possible to compare figures between countries and to set guidelines for what was considered “best practice” in national accounting.

The development of national accounts is often considered—even by economists interested in the history of their profession—to be an extraordinarily dull topic. National accounts are overwhelmingly considered to be neutral tools for more core activities such as model building, analyzing economic cycles, and designing policy. Constructing the national accounting systems was both a comprehensive and a complicated task—but the problems that arose during the course of this work have mostly been seemingly of a technical or administrative nature, and thus became uninteresting as soon as they were resolved.

Correspondence may be addressed to Einar Lie, Department of Archaeology, Conservation, and Historical Studies, Moltke Moes vei 35, P.O. Box 1008 Blindern, NO-0315 Oslo, Norway. All translations are mine unless otherwise indicated. I am grateful for the comments of two anonymous referees.

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However, the Nordic encounter with the Anglo-American approach to national accounting in the 1940s and 1950s demonstrated that there were far more than simply technical and administrative principles at stake. The standard for national accounting that was adopted in the early 1950s, with Nobel Prize winner Richard Stone as the main architect, was criticized harshly by the Nordic, and particularly Norwegian, economists. The disagreement centered not only on what kind of basic information an international standard should require from a national account, but was also one of principle: The Norwegian economists argued that the British-influenced system broke with key conceptual principles that characterized Norwegian and Nordic theoretical thinking and political-economic rhetoric.

In the following, I will first present the development and key characteristics of the Scandinavian approach. I will then highlight some of the differences between this approach and the Anglo-American tradition, and finally discuss why and how this created a heated debate in national accounting forays in the 1950s and 1960s.

From “Eco-Circ” to National Accounting Theory

In the 1930s, Scandinavian economists and statisticians worked intensely on various topics related to national income estimation. In Sweden, Erik Lindahl was a driving force behind the comprehensive national accounting calculations that were carried out during the interwar period. One of the major achievements was the publication in 1937 of the three-volume work *The National Income of Sweden, 1861–1930* in collaboration with Einar Dahlgren and Karin Koch.

In Norway, Ragnar Frisch spent years trying to develop a large-scale theoretical framework for classification and registration of economic transactions. One of his main projects in the 1930s and 1940s was his work with the so-called eco-circ system, which came to provide the conceptual basis for the Norwegian national accounting system. “Eco-circ” was an abbreviation for “economic circulation,” and the primary aim of the work was to establish a system of economic principles that was as complete and consistent as possible, one that would form the basis for macroeconomic models and a national bookkeeping system. Frisch put a tremendous amount of effort into the project, and many of his main assumptions regarding how the economy should “really” be looked at eventually formed the basis for the Norwegian and, to some extent, the Nordic approach to

national accounting. In Norway, the development of planning models and national accounting were also tightly linked to an institutional framework that had certain similarities with the approach that was adopted in France (Bogaard 1998; Bjerkholt [1998] 2000). Thus the special characteristics of the national accounting system also shaped the design of macroeconomic models that were used in short-term planning.

One of the main principles behind *eco-circ* was the essential distinction between real flows and financial flows. Definitional equations, and particularly the large graphic figures that illustrated economic circulation, thus appeared in a kind of double system: one for real objects and one for financial objects. Real objects were concrete goods and services, which in principle would exist in the same way regardless of who owned the property rights. Financial objects were various forms of payment instruments. For most transactions, two separate flows could be constructed: a real flow and a financial flow, each going in its own direction.

Frisch and his students never attempted to provide an explicit theoretical or empirical justification for this distinction. Such a justification was considered unnecessary: the distinction between “real” and “financial” was seen as elementary and a natural point of departure for all economic analysis, regardless of theoretical standpoint. Still, the distinction might well be inspired by Knut Wicksell’s “natural” or “real” rate of interest. This is basically similar to the interest rate in the Walrasian system, which is the net return of physical capital. But Wicksell also brought a monetary rate of interest into his analysis. This rate was not merely the monetary expression of the return of capital in equilibrium: It was an independent variable, partly dependent on other factors than those that affected the real rate (Schumpeter 1954, 1118–20). In Sweden, Erik Lindahl used this distinction in his interpretation of economic historical data, and so did his successor, the national accounting specialist Ingvar Ohlsson. Neither of them made the distinction between real and finance with the same persistence as Frisch did in the *eco-circ* system. In, for instance, Ohlsson’s account of the Swedish tradition, he implicitly dissociates himself from Frisch’s insistence on establishing this distinction as an axiom for national accounting.

Important economic and political considerations were used to support the *eco-circ* system before and after the war. One such consideration was that the distinction between real and financial objects made it possible to place different values on goods and services than those dictated by market prices. It was not taken as a given that the market prices were

correct if one wished to measure welfare or the productive contributions of the various factors. Thus in the translation between physical numbers and economic value, a set of “valuation coefficients” entered into the equation. These coefficients could be set to be equal to the existing prices—as was always done in practice when the system was quantified—but in principle, they could also be set to reflect broader socioeconomic impacts of the various transactions. The postwar argument for being able to use “value coefficient” was partly that of externalities: Consumption of production might have broader effects on social benefit than was reflected in the market price (Aukrust 1955).

Frisch’s ambitions to create a detailed mapping of economic relationships broke with earlier, more pragmatic aggregates that aimed to generate figures that would express a country’s income or wealth. Some international presentations of how national accounting developed present a relatively gradual development from early national income calculations to more comprehensive national accounting compilations after the war. This is particularly clear in certain early British and American presentations (Studenski 1958; Kendrick 1970; Carson 1975; Kenessey 1994), while Dutch and Scandinavian authors all describe a marked break with previous traditions in the 1930s and 1940s associated with breakthroughs made by economic pioneers in each of those countries (Ohlsson 1953; Aukrust 1955; de Vries et al. 1993). This difference in how the evolution is presented is even more interesting given the fact that the development of national accounting—in contrast to related fields such as the history of statistics and the history of economic theory—has largely been presented by insiders, that is, national accounting experts who themselves have helped shape the history.

In Norway, Ragnar Frisch (1933) used the concept of national accounting early in the 1930s (see also Andvig 1977, chap. 7; and Bjerve 1989, 35). The aim of his work in the 1930s was to develop a structure of economic relationships between intermediate goods used in the production process and manufactured products, and between various functionally or institutionally defined social sectors (Frisch, Keilhau, and Wedervang 1936). At a meeting of the Nordic Statistical Association in 1939, he presented the objective of his accounting project with these words:

By “national accounting” we mean an overview of not only the national income for a certain year or the national wealth at a certain point in time, but also a relatively complete overview of the entire *national economic activities* for a given year, presented in such a way that the

relationships between the various data are easily apparent. . . . We can say that national accounts aim to provide almost the same overview of the total economic activities of Norway's citizens and institutions as normal double-entry bookkeeping provides for the individual firm.¹

This ambition to register the relationship between these types of indicators in a way that would be, in accounting terms, both consistent and systematic was put into practice earlier in Norway than perhaps in any other country. James Meade's and Richard Stone's works in 1940–41 have been referred to as internationally pathbreaking in precisely this context (Comim 2001).² But the discussion among Nordic economists obviously precedes this and other efforts made during the war.

Frisch's work remained, however, at a theoretical and principle level. In the *eco-circ* system, greater emphasis was put on constructing the most general correlations between economic concepts, rather than providing concrete interpretations of them. By "general," it was meant that the system should primarily illustrate the activity of any given sector, and that the conceptualizations should be built up in pyramid form; one should be able to move incrementally from the specific to the more aggregate indicator, from the individual sector to the national economy. In the late 1930s, Frisch led a major project that was to create an "economic overview of Norway's structure." This was an ambitious project, one that attempted to quantify the Norwegian economy on the basis of the principles of the *eco-circ* system. This was done to some extent, but the project never came anywhere near meeting its ambitious goals (Andvig 1977). The main results of Frisch's work in the design of a national accounting system in Norway were mainly of a conceptual nature, such as the distinction between real and financial, and the ambition to create a general axiomatic system, where the relations between specific variables and concrete interpretations were derived from predefined principles. This point

1. "Beretning om det 3. nordiske statistikermøte i Oslo 1939" ("Report from the Third Nordic Conference of Statisticians in Oslo"), p. 142. Available from the library of Statistics Norway.

2. "It was during this period [1940–41] that a new conception of measurement emerged from the collaboration between Stone and Meade. This conception viewed the measurement of national income not merely as a quantification of isolated single magnitudes but as a quantification of an integrated accounting system in which magnitudes from different sources had to agree. Although Stone and Meade were not the first to create the concepts of national accounts or to estimate national aggregates, they were the first to put forward a notion of measurement based on criteria of systematization and consistency among aggregates" (Comim 2001, 217).

of departure, and the assumptions that accompanied it, came to signify the Norwegian national accounting thinking and proselytizing from the 1930s to far into the postwar period.

Frisch and his students clearly perceived their concepts and systems as superior to any others. This perception was expressed with intensity and self-confidence. This was clearly demonstrated in an oft-cited exchange between Frisch and the Swedish economist Erik Lindahl at the Third Nordic Conference of Statisticians in Oslo in 1939. At the 1939 conference, Lindahl presented his methods along with some concrete problems that arose in connection with his national income calculations. One of the participants in the debate was Frisch, whose presentation appeared more to be an independent lecture than an argument in a debate. Frisch explained, "I will generally be expressing a slightly different and more general viewpoint than Professor Lindahl expressed in his presentation. Nevertheless, it will become evident that there is a close relationship. It is interesting to see how most of the special problems brought up by Professor Lindahl can be localized to certain points in the more general system."³ In an article some years later, Petter Jakob Bjerve, one of Frisch's students, compared the eco-circ system and the concepts and definitions used in Keynes's *General Theory*. Not altogether unexpectedly, the young Bjerve (1944, 24), after a highly detailed review of the similarities and differences in the two systems, concluded that "Keynes's circulation system is a special case of . . . the eco-circ system." And in a presentation of Frisch's eco-circ system at King's College in Cambridge, Odd Aukrust explained in an early international appearance that it was superior to all alternative systems. In particular, he mentioned the British national accounting system and Wassily Leontief's input-output analysis as examples. These were very different approaches, which nevertheless in a certain sense could be said to converge in the eco-circ system. "Thus, in our system, both [approaches] are included," was the conclusion (Aukrust 1949–50, 184).

This system, which the Norwegians claimed was both more general and more complete, was often presented as a system for "social accounting." In the 1940s and 1950s, there was in the English-speaking world an interesting (in hindsight) confusion in terminology and concepts in this area. "National income estimation" was used to refer to the traditional calculations that would provide specific figures for what the state had produced. From here, there was a grey zone overlapping "national

3. "Beretning," p. 142.

accounting,” which in some presentations was reserved for more comprehensive calculations of economic correlations, but in others could also cover previous attempts to estimate the nation’s income. In what still stands as a significant work in the history of national accounting and its various predecessors, the American Paul Studenski’s treatise *The Income of Nations* from 1958, the main theme is the history of “national income analysis.” Studenski does not use the term “national accounting” at all, but presents a development where the national income calculations gradually expanded both in scope and ambition as a result of efforts undertaken during and after the Second World War. Studenski presents, as a contrast to these gradual developments, a new direction within national income analysis in what he calls “the social accounts approach.” Studenski (1958, 213) was somewhat unsure about the delimitations and status of this direction:

Some of the adepts of the social accounting approach seem to assign to it a special role wholly independent from that of the estimation of national income. They no longer consider national income to be the prime objective of an integrated statistical analysis dealing with the operations of the national economy, but view it as merely one of a number of pertinent items of interest. . . . The function of social accounts, in their judgment, is to reveal as closely as possible the *actual* “circulation and productive process” in the economy, and this, they believe, can be done outside the national income concept. Some of the Norwegian economists, R. Frisch and O. Aukrust, for example, seem to be inclined this way.

Studenski found elements of this approach also in works by Anglo-American national accounting experts that had influenced the international standards in this area. But Scandinavian economists, primarily Frisch and Aukrust, had taken the project “far beyond” what was found in the works of the British pioneers such as James Meade and Richard Stone (Studenski 1958, 213). Studenski probably exaggerated the importance of the distinction between these terms (“national income estimation” and “national accounting”); in the international debate, these concepts did not demarcate different positions.⁴ Nevertheless, it is not

4. With respect to terminology, it is worth noting that for a long time Norwegian economists used the term *nasjonalregnskap* (national accounting) in Norwegian, while using “national accounting” and “social accounting” interchangeably in English—as did Richard Stone (1959, 1961). The actual distinction in terminology disappeared during the 1960s when “national accounting” became the preferred term in English.

difficult to understand why he felt compelled to articulate what appeared in the 1950s to be an essential difference between Norwegian economists presenting their work as a result of radical new thinking about production and distribution processes in society, and approaches that to a larger degree seemed to stem from earlier traditions.

The “Protestant” View and the Anglo-American Approach

Many younger economists took part in Frisch’s work on eco-circ correlations and the resulting attempts to quantify the system. But it was Petter Jakob Bjerve (1913–2004) and Odd Aukrust (b. 1915) in particular who were to carry the work further. Bjerve was working at the Central Bureau of Statistics during the occupation of Norway by the Germans. Together they also wrote *Hva krigen kostet Norge* (*What the War Cost Norway*), which quickly gave them a position in the Norwegian public eye. Through this work, Aukrust was also introduced to the comprehensive calculations of, among other things, national income. Aukrust was then employed in the newly established office in the bureau in 1946 to carry out national income calculations on a more permanent basis. Soon he became involved in national accounting work on a broader basis, also internationally. In several international forums, discussions took place with the aim of reaching a common standard for how national accounting should be constructed. Here, Aukrust—and to some extent also Frisch and Bjerve, the latter particularly after he was appointed director of the bureau in 1949—had to confront the other approaches to the topic.

Aukrust’s most important contribution to international research in economics was his lifelong work with national accounting. In 1985, when he retired from his position as research director in Statistics Norway and withdrew from his international posts, he delivered a farewell address at the International Association for Research in Income and Wealth. Here, he claimed that “national accounts are the biggest thing that happened to economic theory and economic policy in this century.” But in his reminiscing, he focused mostly on his struggle to promote his viewpoints—“preaching Scandinavian protestantism against the catholic dogmas of the Anglo-American tradition, the thirty-year war ending with the truce in 1968.”⁵ That was the year in which a new international

5. Farewell address at IARIW conference. Aukrust papers (National accounting), Statistics Norway, Oslo.

standard was introduced for national accounting, which adopted the “protestant” view to a much greater degree than in previous years.

Although Aukrust’s speech was humorous as well as conciliatory in tone, the warlike metaphors were not an inaccurate depiction of the old discussions. The scholarly debates on the technicalities of properly registering the social economy in economic bookkeeping were clearly carried out with finely honed verbal weapons. When it came to setting the premises for how facts should be produced, it appeared that there was less room for pragmatic concessions than there was when more purely theoretical issues were at stake.

When Aukrust first came in contact with his international colleagues, the framework for the future national accounting system was already for the most part in place. The system was to be both general and detailed; it was to be highly specific, but the specifications were to follow from more generally defined premises. And the emphasis was to be put on the “real aspect,” more on the structure of production than on cash flows. This was to a large extent a common Nordic characteristic, one that the “protestants” found lacking in the national accounting practices with Anglo-American origins.⁶

Those who for the most part set the premises for the international standard established by the OEEC and UN through measures adopted in 1952 and 1954 were the American and British statisticians and economists. The United States is probably the country that experienced the most gradual evolution from simple national income calculations to more sophisticated systems (Kenessey 1994). In the 1920s, and particularly in the 1930s, there was a significant growth in macro-oriented statistics. Great Britain, too, experienced a strong growth in this discipline during the crises in the interwar period. But in Great Britain, the war, and also to some extent inspiration from new economic theory, strongly forced the development of national accounting early in the 1940s. James Meade and Richard Stone were key players in this work, with Keynes as a driving force (Kenessey 1994; Comim 2001). In 1944, representatives from Great Britain, the United States, and Canada met with the aim of consolidating and standardizing concepts and techniques that were used in national income calculations in these countries. The work continued through expert committees of international organizations just after the war. Stone emerged

6. There were certain differences between Norway, Sweden, and Denmark with respect to these issues that I will not get into here. In international discussions, these countries appeared as a single unit and presented a coordinated viewpoint.

as a leader among the major countries' national accounting theoreticians; and in 1984 he alone was awarded the Nobel Prize in economics for his pioneering work in this field.

Between Stone's and the Nordic countries' national accounting systems there were practical differences as well as differences in principles. Stone's system in many ways drew more from established fields of knowledge than did the systems designed by Norwegian and Swedish economists. In the comparison of Stone's earlier national accounting works with the works of Aukrust and his Swedish colleague Ingvar Ohlsson, which came to play a key role in the practical formation of national accounting systems in Sweden, a couple of differences stand out: Stone, to a greater degree, used concepts and insights from microeconomic business accounting practices and theory in his presentations, and in many places he discussed the opportunities and constraints provided by the accounting statistics.⁷ These were fruits of a long-term cooperative effort with accounting experts that was specifically intended to find concepts that were compatible with both economic and accounting needs (Meade [1944–46] 1990, 300; Comim 2001, 217). We find very little of this in Ohlsson and none in Aukrust. In addition, Stone's earlier work to a larger degree had its point of departure in certain economic aggregates, and the aim was to come up with methods to calculate these in the most intelligible and verifiable way possible. On this point in particular, the connection with earlier traditions in national income calculations was clear, as pointed out by Paul Studenski in *The Income of Nations* (1958).

Technically speaking, the Anglo-Saxon tradition opted to build its national accounting statistics in a different way than that used in the Nordic countries. There were mainly three methods that were used, and partly combined, to calculate a national aggregate for national income or production. A first method was to attempt to measure income flows for the various production factors in the economy. Here, wages paid to workers in addition to the profits, interest, and dividends paid out to shareholders constituted the essential basic material; thereafter, independent calculations of production in the public sector had to be carried out. A second method, more closely connected to macroeconomic concepts and theories, focused on attempting to measure the national income by categories of total expenditure. In a closed economy, the total production could be measured as the sum of wealth accumulation in the public sector, and

7. I draw particularly from Stone 1947 and 1951, and OEEC 1952 for these and other related points.

consumption and investment in the private sector. And finally it was possible to measure national income by registering the value added at each stage in the production process. Subtracting the value of the intermediate goods from the value of the end-product for each firm or each manufacturing sector resulted in a measurement of the firm's or sector's productive contribution. From here, it was possible to calculate the total income as a sum of the various sectors' production.

The methods were also to some degree combined in the early phases of the development of national accounting, but the Nordic countries generally came to prefer the third method, while the British and American tradition favored the first—moving toward a concept of national income that was built on aggregate factor income (Stone 1951). As mentioned earlier, in Aukrust's and Ohlsson's works up to the early 1950s, the choice of method was not presented primarily as a question of how aggregate indicators should be calculated or defined, but rather what information the system as a whole should be able to provide regarding the production of goods and services in the economy. Here, Stone's system was considered by the Norwegians to be deficient. He operated with only a few institutionally defined sectors (manufacturing companies, banking and finance, households, the public sector), which were divided up according to basic functional criteria, such as "consumption," "investment," and so on. In Norway, Sweden, and Denmark, a highly detailed categorization of the economy according to functional criteria—particularly when it came to categorizing manufacturing sectors and defining various end products—was common much earlier. Aukrust's national accounting system from the late 1940s, for example, operated with thirty-five industrial groups and more than one thousand specified types of goods—and this was subsequently expanded significantly. From the beginning, input/output analysis was built into the national accounting system to show how the various sectors were interlinked with respect to delivery and receipt of intermediate goods, among other things. In this area, inspiration arrived directly from the works of Wassily Leontief (Aukrust 1955, 35; Bjerkholt 2000, 118–19).

Disagreement about System Design

This way of building up the national account was a matter of dispute between the experts in the Western countries. Aukrust later described how the international discussions in 1949 turned out when an expert group

in which he participated was to establish the international standard. At that time, he resided with Stone in Cambridge, along with economists and statisticians from other countries, including France and Belgium.

The actual account of Aukrust's trip is in itself very enlightening with respect to how he, Frisch, and Bjerve evaluated their own works in relation to contributions from other countries. When Aukrust received Stone's invitation to participate, he wrote to Bjerve wondering whether he should go. At that time, Stone was well known by the Norwegian economists because he had held a series of lectures about national accounting in Oslo in the spring of 1947 (Bjerkholt 2000, 171). The self-confidence of the two young economists seems to have been better developed than their power of judgment. Aukrust writes, "It would be very useful for the world [!] if a Norwegian economist were part of this work, at least for a short period of time. We have *very* much to contribute."⁸ Bjerve's answer, however, was that Aukrust was "too good" to work for Stone, that "Norwegian labor must be used to greater advantage!"⁹

Aukrust nevertheless chose to go, but his missionary efforts were in vain. Aukrust tells how although certain experts, such as the Frenchman Jan Marczewski, were receptive to his ideas (Marczewski was both "open to criticism" and "willing to learn"), this was not the case with Stone. Aukrust (1993, 19) describes how the international standard came to be in the following way:

When November arrived, Milton Gilbert showed up for a one-day visit from Paris. Gilbert was the director of the section at OEEC that Stone worked for. He was an American, the former director of the American national accounting, and was a friend of Stone's from cooperation during the war. Now the proposal for the "Simplified System" was to be adopted. All proposals that Marczewski and I had worked on over the autumn were set aside. Instead, we sat as silent witnesses as Stone and Gilbert, practically over the table, adopted a caricature of a national accounting where interest and profit flows were described in great detail, while the real economy was treated cursorily. This could hardly be what the OEEC countries needed now during the reconstruction.

In a letter to the Danish national accounting authority, Aukrust wrote that he renounced "any responsibility" for the result of the work he him-

8. Aukrust to Bjerve, 8 March 1949. Aukrust papers, Statistics Norway, Oslo.

9. Bjerve to Aukrust, 14 March 1949. Aukrust papers, Statistics Norway, Oslo.

self had been a part of (Bjerkholt 2000, 267). Certain revisions and expansions were made before the final proposal was adopted by the OEEC. Nevertheless, the standard from 1952 became virtually a permanent target for concerted and organized Norwegian opposition in the international forums.

The criticism that the “real economy” did not come through sufficiently was to some degree—but only to some degree—a question of specificity and rigorousness. The main issue was that Stone had not fully understood the importance of the “fundamental distinction” between real and financial circulation. This was the theme that constituted the protestant view, and was a distinction that did not exist conceptually or otherwise to the same degree in the English-speaking world; it is still the case that Norwegian economists and statisticians who visit other countries and talk about the “real economy” are, at best, misunderstood in the direction of their being concerned with fixed prices. More than anything else, it was the lack of a practical and theoretical distinction between these flows that made many of Stone’s solutions “conventional and arbitrary,” stated Aukrust in his doctoral dissertation from 1955 (Aukrust 1955, 34). Stone’s system registered transactions between economic units—cash flows that went from one place in the economy to another—for example, from the household sector to the industrial sector. “A system of social accounting is a practical means for describing what is taking place in an economic system insofar as this can be expressed in terms of transactions between a set of accounts drawn up on the double-entry principle,” explained Stone (1949, 1) in one of his works. The accounts not only registered actual payment flows, but also imputed payments. These could express depreciation within a production unit, or transactions between units that did not lead to payment flows that could be registered.

This approach was characterized in Nordic national accounting discussions as the “payment-flow” approach. Its opposite in the Nordic alternative was called the “commodity-flow” approach. According to Aukrust, Denmark was a pioneer for the practical implications of the commodity-flow approach (Hanisch 1990, 25; Aukrust 1993, 16). Aukrust’s interpretation was that the basic thinking behind the eco-circ system was the same: to map the “real economic” flow in the economy. This was not implemented in the practical national accounting works conducted by Frisch and his students in the 1930s. In their work, the basic material was essentially accounting material that was interpreted according to the principles and within the conceptual framework of the eco-circ

system.¹⁰ With several important modifications, Aukrust had built on Frisch's thinking that the economic circulation should be consistently considered in a double perspective. Physical objects in the form of goods and services were to be kept separate from cash flows.¹¹ In several of Aukrust's more theoretical works, he explained this meant that national accounting should be kept in accordance with a principle of quadruple-entry bookkeeping, not double-entry. The double-entry principle is based on registering the transaction both in the delivering and receiving sector; the quadruple-entry system is based on registering the flows of goods and payments separately within the double-entry system. In Stone's system, however, the transaction concept was more homogeneous: When a "transaction" occurred between two sectors, it was the resulting monetary value that was registered, although the transaction was naturally classified as if it were a pure cash transfer, regardless of whether goods or services were sold.

It was, however, more than difficult for Norwegian economists to gain acceptance for the idea that real flows and financial flows should be kept separate. In an autobiographical work, Aukrust recounted one of the most challenging moments in working with Stone. During a visit home from his stay in Cambridge in 1949, he confided in Frisch his despair over Stone's inability to understand this "factual" distinction. Frisch reacted by sending on his own initiative a strongly worded telegram to Stone, followed by one of his own works, encouraging Stone to listen to the young Norwegian. "The initiative was not appreciated by Stone, and this was reported back to me in no uncertain terms," explained Aukrust (1993, 20). Frisch, however, attempted a similar confrontation in the Netherlands a year later, during an international seminar on input/output analysis. He spoke after Stone, and explained that over the last fifteen years he had "tried to impress on his associates in this work the necessity of making a thorough distinction between flows in real objects and financial objects" (Netherlands Economic Institute 1953, 228). In the latter, however, he had conceded some points in Stone's approach:

Mr. Aukrust and Mr. Bjerve had not been happy about these concessions and in the further work it had turned out very clearly how impos-

10. Built on the author's review of unpublished material from work with "Strukturoversikt for Norge" ("Overview of Norway's Economic Structure"), Frisch archive, Department of Economics, University of Oslo.

11. Frisch had originally postulated a full congruence between real and cash flows. This was later described by Aukrust as an incorrect conception and unmanageable principle.

sible it is to maintain simplicity, clearness and logical consistency that will cover all cases, if the fundamental distinction between the two types of flows is not maintained unfailingly. From now on he decided never to accept any system of concepts where this distinction is not made in a clearcut fashion. (228)

Frisch then went on to comment on a graphical presentation that the host country's national accounting expert Geer Stuvell had made earlier the same day. Not surprisingly, he recommended that the audience refer to "the much more elaborate ecocircgraph used in the Oslo studies" rather than the Dutch author's figures (228). In his memoirs, Ingvar Ohlsson (1987, 43) provides an additional perspective, relating how this core doctrinal issue was discussed during a dinner with Stone, at which Petter Jakob Bjerve was also present. "Bjerve attempted to convince Stone of the validity of the elements of Frisch's eco-circ system and its benefits. I can envision both faces: Bjerve enthusiastically burning with missionary zeal, and Stone impassively smoking his cigar without being visibly affected."

In hindsight, however, it appears that the practical bookkeeping consequences that followed the real/finance distinction were somewhat exaggerated from the Norwegian front. In Norway, there was indeed a great deal of data gathered on physical quantities. The national accounting, however, registered economic values, the product of quantity and price. One of the rationales behind the distinction between real and finance flows was that, as mentioned earlier, the market did not always set a price that was correct from a socioeconomic standpoint, and that other valuation coefficients could be chosen when it was useful to look at the value of a good rather than its quantity. And to some extent the emphasis on the coefficients may have reflected a more general disbelief in the market system. Frisch believed that an unregulated economy inevitably would create its own crisis. But this remained a radical utopia from the interwar period that did not have a practical impact on later national accounting figures. However, it did become an important argument in the Norwegian's claim of having a more general and universal approach. Only the separate registration and interpretation of commodity and money flows made it possible to replace market prices with value coefficients (Aukrust 1955).

That the differences between the approaches centered mostly on principles of interpretation emerged clearly in the discussions between the Nordic and Dutch national accounting experts. In the Netherlands, significant efforts were also made to undertake a detailed mapping of the

economy to use for economic planning. In this sense, the Netherlands was assumed to be an ally in the effort to specify in detail business and industry activities. But the Dutch followed up the Anglo-Saxon concept of transactions and thus did not escape the label of “traditionalists”—which was occasionally used by Aukrust and others. In 1965 when Aukrust presented his axiomatic approach to national accounting theory at a conference held by the International Association for Research in Income and Wealth, he again directed his criticism at the resistance to registering real objects instead of “payables”—that is, actual payments or commitments to pay. He received a rather sharp reply from Geer Stuvell, who accused him of, among other things, not being willing to accept that the payments were actually classified according to what kind of objects they were a payment for.

The Dutchman also made a more explicit attack on the core principles in the Norwegian approach. He claimed that Aukrust’s reasoning, with a strictly enforced distinction between real and financial, had nothing to do with practical national accounting. He argued that it was not possible to envision national accounting where this distinction was made. Many registered transactions were made with respect to goods or services that were not identical, and they could only be aggregated after having been converted to their monetary value. (“We cannot aggregate apples and oranges unless we price them.”) The Norwegian alternative was thus more of a theoretical exercise than a recipe for practical national accounting. “It is on this subtle point that Mr. Aukrust’s approach runs into the sands,” Stuvell (1966, 191) concluded.

It is difficult to overlook an element of validity in the criticism. In Aukrust’s system, where a transaction was normally interpreted as a real transaction accompanied by a financial transaction, each “real” flow had to be given a separate specification unless objects were completely identical in application, quality, and so on. It wasn’t just apples and oranges that in principle had to be registered in bookkeeping as independent “real” transactions, but also red and green apples, large and small apples, high-quality apples used for consumption and low-quality apples used for juicing, and so on. No statistical agencies maintain statistics for that level of detail. In hindsight, the significance of the real-finance distinction for practical national accounting building seems to have been exaggerated by the Norwegians.

However, the focus on the “real” economy did create real conflicts. The distinction between the real sphere and the financial sphere and the supremacy of the former had a number of impacts on how concrete economic variables were interpreted within a macroeconomic framework.

The treatment of interest payments was perhaps the most important of several differences in interpretation that emerged. In the international standard, the concept of total factor costs was integral in the calculation of national income. This was conventionally calculated as the sum of income from production factors, work (wages), and capital (interest, profit, and dividends), and seen as grossly erroneous in the protestant view. In this view, formulated in the Nordic social democracies, it was a politically important result that the capitalist's income did not measure the contribution of capital to the nation's income. A concept of aggregate wealth accumulation had to be derived from the real sphere. The capital that had to be included with labor in such a calculation was the country's *real* capital. Interest, profit, and dividends were, on the other hand, associated with financial capital. This argument echoes Knut Wicksell's distinction between the monetary and the real or natural rate of interest. However, the Scandinavians never cited Wicksell on this point. The interest-capital argument was an obvious conclusion of the general distinction between real flows and financial flows.

The Scandinavians explained that the distribution of the financial capital, and not least payments to those who owned the capital, were determined through institutions and conventions and provided little or no indication of what kind of contribution the capital owners had made to the country's wealth. Aukrust used, among other things, an example with interest rates, which could go up or down without (real) capital being more or less productive. "Obviously, the whole idea of factor cost, as measured by money flows, breaks down" (Aukrust 1949–50, 185). The consequence was that these measures had to be seen as a transfer of income and not as profits from working, productive capital.

The reasoning behind which aggregate indicators to use largely followed the positions outlined above. Anglo-Americans preferred the "national income with total factor costs" as an aggregate concept. This also included interest, but not transfers between countries (the Marshall Plan, development assistance). In Aukrust's opinion, this concept could measure neither the country's productive capacity, for the reasons mentioned above, nor welfare—because each country also benefited from the transfers received from abroad. Aukrust preferred two aggregate indicators: the national product, calculated as the sum of the value added from each production unit, and disposable income, where both interest and financial assistance from abroad were included.

A second controversy arose regarding the principles of how manufacturers that conducted business across borders should be handled. Under

the international standard from 1952, a nation's income was measured according to the income of the people who formally resided in the country: Income for a Swede who worked in Norway would be entered into the Swedish national accounts with the idea that it was here that the income ended up. Seen from the logic of the eco-circ system, however, the Swede was considered a production factor, labor, in the Norwegian real sphere. Thus his income had to be entered into the Norwegian accounts. Where the income was assumed to eventually end up, or what kind of passport was held by the worker, was of no consequence.

A third issue, and the one that undoubtedly had the greatest impact in terms of numbers, was how the concept of investment should be formulated. There was agreement in principle about how the "net investments" should be defined: as the difference between the value of the capital at the end and the beginning of the fiscal period. The disagreement arose with regard to what should be included in the concept of gross investment—how the depreciation of capital should be calculated. Copying the British pattern, the international standard followed up with regulations that conformed as much as possible to depreciation practices in private book-keeping. The result was that only large replacement investments were included in the concept of gross investment. In Norway, the practice was to also include expenses for smaller replacement investments and repairs: in national accounting slang, this was referred to as the "gross-gross" approach. The difference in the calculation of gross investment was considerable. When a new standard was created in 1968, without the acceptance of the gross-gross principle, Norway abandoned its traditional conceptualization of gross investment, which meant that the gross investment figures in the Norwegian national accounts had to be adjusted downward from 24.7 to 17.4 billion NOK. The comparable reduction in the gross national product was almost 13 percent.

The gross-gross principle was justified on the basis that it included activities with concurrent objectives—namely, maintaining or increasing the production capability of real capital.¹² In addition, it was the same type of real object (goods and services, the latter in the form of professional expertise) that was included, whether it was large or small replacement investments or considerable repairs. It was also maintained that

12. Aukrust, "Statement on concepts and methods used by the Central Bureau of Statistics in estimating capital formations," memo, 8 August 1950, Aukrust papers, Statistics Norway, Oslo. See also Aukrust 1994, 48; Ohlsson 1987, 43; Bjerke and Milhøj 1955, 15.

there was an element of convenience in the definition, that it was easier to operationalize this kind of gross concept with respect to the primary statistics. It must be noted that it was a statistic built on the goods-flow principle, where the point was to register similar goods separately. With a basis in a primary statistic that was more closely linked to private industry accounts, as was the case for British and American economists, it must have been comparably more convenient to use definitions that were used in private accounting.

The “Truce” in 1968

The “truce” that arrived with the new UN standard in 1968 was welcomed in the Nordic countries. Until that time, the Central Bureau of Statistics in Norway used the cost-intensive practice of preparing two sets of national accounts: one set of national accounts prepared in accordance with the old common standard was used for international organizations; for domestic use within Norway, however, accounting practices followed the protestant regulations up to 1969. “Eventually the differences were smoothed out somewhat in the international melting pot,” writes Ingvar Ohlsson (1987, 43) in his summary of the process of combining the two standards. It is, however, doubtful whether the melting pot actually functioned to stew together the most fundamental viewpoints. An important difference between the new and old standard centered on the degree and scope of specification. In Norway, emphasis was put on the new standard also requiring input-output relations. As mentioned above, input-output tables were included from the beginning in Norwegian national accounting. Also, areas that have not been discussed here, such as how the distinction should be made between flow and stock variables, were specified in the new standard in accordance with guidelines that closely resembled the practice in Norway (Fløttum 1980, introductory chapter). From 1968, interest payments were no longer considered to be factor income, but rather transfers. Also, types of pure real flows were incorporated, particularly in order to specify fringe benefits for employees, and not least for use in developing countries with weaker market economies. But nor was the distinction between real and financial as a point of departure for interpreting basic economic transactions and processes accepted in the 1968 standard—which was also authored largely by Richard Stone.

The difference between 1952 and 1968 was that everyone had more to add to the pot, and this probably had a larger impact than the gradual

fusion of ideas. The primary statistics that formed the basis of national accounting were significantly expanded in most countries in the 1950s and 1960s. In the 1940s, the choices regarding key national income concepts, concrete questions of interpretation, and the availability of, for example, production statistics were more tightly linked to the design of national accounting systems. When the statistical material increased both in scope and depth, it became not only possible to require greater specification of the national accounts, but also to build up national, aggregate indicators in many different ways. The early discussion on how the aggregates should be constructed—primarily use income flows or summarize value added through the production process—evaporated as the production of primary statistics expanded, and the methods to a larger and larger degree were combined.¹³

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13. There is, however, an important difference between the available primary statistics and the statistical information found in national accounting tables in the publications from the respective countries' statistical bureaus. By using definitional relationships between various variables and making a series of rough estimates, the information from the primary statistics is considerably extended. A simple example is the Norwegian accounting tables in the 1950s: the primary statistics from the production side of the economy (value added) produced the key aggregates (GDP, national income) and numbers for gross and net investments. Primary statistics from the public sector and trade were available from other sources. In sum, all this provided the basis not only for calculating a figure for national consumption but also for estimating consumption and incomes on a disaggregate level—through information on what was produced and incomes presumably made in the different sectors of production. Thus, the tables in the national accounting publications present information apparently stemming from a combination of all three methods. But the choice of method determined whether a certain part of the accounting system turned out to be detailed and reliable, or whether that part was more summarily established as residuals in equation systems or as "guesstimates" from the statistician in charge.

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