

# Aspects of 'Quantifying the World: UN Ideas and Statistics'

## Abstract

This article provides a selective overview of some of the key issues raised in *Quantifying the World: UN Ideas and Statistics* (Ward, 2004), one of the volumes in the UN Intellectual History Project (UNIHP) series. The book refers to the critical legacy of the UN in influencing, through its significant contribution to the development of an international statistical system, mainstream policy thinking in the crucial spheres of economic and, much later, social and environmental policy and analysis.

*Keywords:* United Nations, statistical system, statistical thinking, statistical methods, statistics and development thinking

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## 1. Introduction

*Quantifying the World: UN Ideas and Statistics* (Ward, 2004) examines the political economy of statistics and describes how, over time, economic, social and political ideologies have implicitly determined what is measured in different countries. In most cases, UN direction has involved the application of common standards and the practical implementation of uniform frameworks and compilation methods. Operationally, this has had important advantages but also some drawbacks. In the latter instance, the adoption of a specific standard means accepting a particular view of what the world is like and how it behaves. Such a perception then becomes institutionalised by the data system. The application of common

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standards has also given rise in certain cases to the generation, at considerable cost, of potentially inappropriate and perhaps even misleading data methods. The thrust for standard approaches and treatment poses a longstanding question of how countries should balance the competing demands of international comparability against that of the national need for representative official statistics.

Statistics, nevertheless, constitute a lens through which, if perhaps sometimes foggily, people perceive the world and how it functions. Relying simply on the personal eyes and ears of the individual casual observer, it is not possible to comprehend more than the smallest sample of human affairs (Seers, 1975, 1983). It can thus be argued that good data, carefully, impartially and independently collected, should serve to deepen a common understanding of the world. An important objective of the book is to examine the background institutional context that defines the so-called 'rules of the game' under which much official data are collected and subsequently disseminated. Ideally, the official statistics countries produce should strengthen and underpin the democratic process, while helping people to enhance their individual capabilities that will enable them to open up all the various possibilities to change their lives. Statistics should impartially influence the way ordinary citizens look at policy issues and problems and think about how they are governed.

In a patient, careful and mostly 'behind the scenes' way, the UN has played a unique and crucially important (yet still mostly unsung) part in standardising and coordinating international data compilation. It has achieved this contribution to international consensus by laying the essential foundations of standard definitions and a common terminology and by simultaneously setting out well-conceived conceptual frameworks built around similar sources and uniform systems of classifications. It has recommended the application of universally recognised statistical methodologies, combining regular administrative records with appropriate sampling designs to fit specific survey enquiries. The aim of all this activity has been to seek, across all countries, the closest conformity of whatever data are officially reported with both established theory and empirical observations about economic phenomena and social behaviour. In creating an international statistical system, the UN has helped establish a recognised common basis for compiling and disseminating the numerical information. This has contributed to the important capacity of countries to confer more readily on strategic issues and policies and sustain good international relations.

*Quantifying the World* is intended to evoke a wider desire for

knowledge and truth by tracing the development of statistical ideas and their practical application through the evolving interrelationship of official data with policy objectives. The area of statistical development over the past 60 years is so vast that some sort of priority selection of subject matter had to be made. The book sets out to explore some of the more significant economic, social and environmental dimensions of development over this period and describes the role of the UN Statistical Office or UNSO (now known as the UN Statistical Division but referred to here as the UNSO) in this process and how it established the early foundations on which to measure many of these phenomena. At the end of each part dealing with the three core concerns, there is a short concluding section providing a brief subjective evaluation of some of the outstanding questions still to be resolved, with a suggested agenda for further enquiry. In most of these cases, while the UN has given clear direction to both national and international efforts to consistently evaluate and monitor the output and well-being of member countries, it has tended to overlook the increasing importance of global effects and changes.

The emphasis of the book is on economic questions and their interrelationship with social and environmental issues. There are gaps in the UN archives, which have resulted in the need to make some perhaps more speculative and personal interpretations of what transpired. Wherever possible these have been guided by consultations and interviews with some of the actors directly involved, the author's own experiences and institutional memory. For reasons of space, some UN contributions on statistics in the areas of trade and investment and on population, health and education, while broadly covered in *Quantifying the World*, are not considered in this article.

Towards the end, the book looks at the unfulfilled statistical agenda and draws attention to some missed opportunities for measuring critical concerns and to the growing need for statistics relating to individual social progress, human rights, civil society, the problem of international poverty and inequality, sustainability, governance and such global problems as the all-pervasive but invisible evil of world inflation. Until recently, many of these issues have been 'sidelined', in part because of the inherent difficulty of quantifying them sensibly. But, partly, this tendency is also connected with the inner tensions that have inevitably arisen between the UN and its member countries about the respective responsibilities and authority of international agencies and nation states. Some problems have proved intractable where statistical priorities need to be determined and decisions need to be made as to how (and indeed whether) sensi-

tive activities and societal characteristics of domestic concern to nation states should be evaluated. Such questions have clearly impacted on traditional notions of data control and national perspectives of what constitutes 'state-istics' – that is, information about the state. Whether the object and manner of official data collection should or should not be determined by an external international agency and how far such a realm should extend continue to be a matter of discussion. The UN, while avoiding the temptation to become enmeshed in debates about the philosophy of numbers, has tried, nevertheless, to encourage the view that statistical information should serve not only as a basis for expanding and sharing knowledge but also for improving general wisdom and insight. The desire to treat policy issues objectively, impartially and fairly has been, from the clear evidence of history, a strong motivating influence on most statisticians (Stone, 1997).

Statistics are now accepted as an integral part of everyday life and the book focuses on the range of statistics that has been developed by the UN to explore the various economic, social and environmental dimensions of progress. It examines how, over time, official data have been expanded and modified to reflect not only the increasing complexity of how the world operates but also the changing emphasis of political priorities. It tries to explain why this has inevitably become the main area where a debate over priorities and the relevance of what data to produce has taken place.

The UN contribution to statistical thinking has passed through three broad phases. The first pioneering and formative period launched many important ideas and reflected, in particular, a uniquely original perspective on the workings of national economies. It also responded to the pressing policy imperative to control the more volatile aspects of economic dynamics such as the trade and investment cycle. The second phase witnessed a longer period of applied innovation and the increasingly deliberate but sometimes involuntary concession of statistical authority to other international institutions, in part for budgetary reasons and in part for reasons of poor timeliness. The third most recent era has been characterised by recognition of the importance of regular data systems maintenance and the consolidation of existing methodologies. The ability to react quickly to the demands of data users in the international policy arena and to meet the requirements of global conferences for a more extensive array of performance indicators has become increasingly important. All this places new demands on the present UN Statistical Division.

## 2. The Statistical Legacy of the United Nations

### Laying the foundations

Before addressing the task of identifying and defining what specific data should be collected, the UN gave considerable thought to the important question of how an international statistical system should be set up. In May 1946, a distinguished group of statisticians from a cross-section of countries (closely resembling the composition of the Security Council) was convened to discuss the future of international statistics. The group, quite reminiscently, fittingly represented the former League of Nations 'Committee of Statistical Experts', and it met as a 'nuclear commission' to decide on the essential structure and framework of such an international statistical system. The representatives invited, not all of whom turned up, met at the Hunter College in New York which is now part of the City University of New York and home to the UNIHP. Their assigned task was to draw up a series of recommendations for organising UN statistics. Allowing for certain compromises and several important amendments later demanded by the delegates of the USSR and China (two countries that had arrived too late to participate in the full discussions), their proposals, for the most part, were subsequently adopted and put into action. These two countries took exception, in particular, to the proposals relating to the future composition of a Statistical Commission that was going to be entrusted with the overriding authority on all matters pertaining to statistical methodology and official data practice.

### Confronting basic choices

The nuclear commission had to agree, *inter alia*, on three major issues relating to how a supranational statistical body and some form of supporting UN statistical unit should best be organised. The fundamental questions it addressed were:

- (i) Should the proposed oversight authority be a permanent body?
- (ii) Should it be comprised of a small group of independent statistical experts or made up of nationally appointed representatives drawn from a selected (later self-elected) number of UN member countries?
- (iii) Should a UN statistical office be constituted as an internal bureau serving primarily the specific purposes of the UN secretariat or be a largely independent office staffed by data techno-

crats with a much broader remit to serve the more extensive and general needs of the international community?

- (iv) Should all international statistical functions be centralised and controlled within a single office or be decentralised to other units, particularly the specialised agencies of the UN, according to their various defined responsibilities and areas of concern?

In addition, the nuclear commission felt empowered to pronounce on the subjects and methodologies countries should be encouraged to adopt as a matter of priority.

On the first of the above questions, the desirability of having a standing Statistical Commission to maintain surveillance over the international statistical scene was readily accepted. The need for a recognised and independent supranational authority to oversee and advise regularly on the whole range of statistical matters, while at the same time assisting in the coordination of data activities, was generally acknowledged. Such an authority, it was believed, would help agencies avoid overlapping efforts that might involve the unnecessary duplication of data-gathering activities. The physical permanency of the Commission and of a supporting secretariat was not thought to be very necessary but it was proposed that a body concerned with matters of direction should meet on a regular basis. It was initially decided it would meet at UN headquarters, every two years, to carry out a review. The new UNSO, as it became, was founded on the ashes of the model previously established at the former League of Nations. It implicitly assumed, as one of its key functions, the supporting secretariat role for the Statistical Commission. In practice, the UNSO became the real eyes and ears of the Commission.

Whether this Commission should be made up of experts or national representatives (countries) was a more contentious issue. At the end of their first meeting, the nuclear commission – which had explored the possibility that the longstanding ‘official’ body representing the statistical profession, the International Statistical Institute (ISI), whose members were elected on the recognition of their peers, might play a role – advocated an arrangement to allow the formative UNSO to call upon the ISI to deliberate on questions of technical concern. Those members of the nuclear commission present at the time were clearly more disposed to the establishment of a body that would be comprised of internationally recognised statistical experts. But questions were raised about the relevance

and uniqueness of the ISI<sup>1</sup> to deliberate on policy matters. In any case, the governing authorities of the USSR and China took exception to this arrangement and, not without some backing from other countries, argued convincingly that the Statistical Commission should be made up of representation from the countries themselves. Honour was settled when it was agreed that the national representatives designated to serve and attend the meetings of the Statistical Commission from the countries chosen should be 'qualified persons well versed in statistical matters'. With hindsight, this was the most sensible outcome because it was left to the countries themselves to adopt what strategies and priorities they deemed most appropriate, i.e., to decide on 'what' to do, but left to the experts to advise on the best statistical methodology to use, i.e., 'how' to do it.

Regarding the third area of concern, the usefulness of a statistical unit that possessed only a narrow mandate to serve just the UN body itself was seen to be clearly limited. It was therefore proposed that the UNSO should have a much wider mandate and an extensive data remit. The office would be established as the leading international data agency with the authority to lay down how official statistics should be collected and compiled by member states. Its specific roles are described in more detail below.

On the fourth matter, and perhaps reflecting the consequence of the previous decision, the initial sentiment of the advisory nuclear body seemed to favour the creation of a single powerful central agency for statistics. But, then, most countries in the UN were more familiar with a pattern of data organisation that assigned the responsibilities for statistics to the respective line ministries in charge and they tended to operate under a decentralised system of government. Decentralised data units and their departments were directly answerable to their respective ministries but they usually engaged staff employed as civil servants belonging to a general statistical or administrative cadre. This organisational structure at the national level was reflected in the arrangement adopted to assign separate statistical functions to the respective UN specialised agencies responsible for given tasks. For matters pertaining to education (UNESCO) and health (WHO), where the topics are distinct and the collection units are well defined and most data can be compiled independently,

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1 The ISI is the professional organisation for all statisticians; medical, meteorological, astronomical, etc. and its specifically relevant expertise on matters primarily economic can thus be challenged. In addition there are other, more appropriate, international bodies like the IARIW that, in the view of many, could have done the job better.

this seemed an eminently logical and reasonable solution. But, in the matter of prices and wages (ILO) and agricultural production and, especially, food intake analysis (FAO), the case for separation and agency specialisation, although understandable, was less conclusive. The topics in which each of these agencies pursued its own interest were frequently closely interrelated also with other macroeconomic concerns that were seen as the mandate of the UNSO. The issues in these areas were less clear and the potential for conflict over the respective responsibilities regarding certain provenances of joint interest, such as price measurement and real wellbeing, was apparent. The problem was complicated because the ILO had had a long historical involvement since the First World War in producing a wide range of price and wage statistics, while the scope of duties assigned to the FAO by its 1945 mandate, namely to compile data on food and agricultural production, had the potential to overlap with those assumed by the UNSO.

Initially, the nuclear commission thought that a voluntary understanding combined with the assumed innate 'good sense' of those involved might constitute a sufficient and satisfactory basis for resolving most problems. Subsequently, however, it was decided that a special inter-agency sub-committee on statistics, reporting to the UN Administrative Coordinating Committee (ACC) and thus to the UN Secretariat and, potentially, the General Assembly, ought to be set up to keep the whole question of the respective responsibilities for appropriate 'turf' and subject matter management under regular review. It was initially through the ACC that the UNSO and OECD agreed to combine ideas and to issue the annual National Accounts Questionnaire sent out to countries. The procedure of discussing issues of common concern through the ACC worked well for many years until questions of budget surfaced and became more prominent in determining what data were and were not to be compiled by the UN and its various agencies.

Other tensions also began to emerge, particularly involving the Bretton Woods institutions (themselves formally part of the UN family), over the validity of key data. The IMF and The World Bank needed to pursue their own specific mandates, often with some urgency, and they had operational policy agendas and project imperatives to fulfil. Disputes, in particular, between the World Bank and UNSO arose over the timeliness and accuracy of crucially important economic aggregates as well as over the responsibilities for compiling and publicly disseminating certain key statistics such as GNP and population figures and the need for purchasing power

parities. The Bank needed reliable current estimates of key macroeconomic measures and corresponding current population figures, in particular because GNP per capita estimates figure prominently in the basic operational guidelines the Bank uses to determine its lending programme, whereas the UNSO observed data quality objectives and the importance of preserving the historical consistency of its series. It thus concentrated its efforts on ensuring the overall integrity of the data sets comprising the broader national accounts tables.

By the 1980s, however, the world and, subsequently, even the UN itself was using the Bank's current estimates of GNP per capita and GDP growth for several important policy decisions. Some of the biggest arguments and rivalry between these two agencies, however, occurred in connection with the implementation and objectives of household income and expenditure surveys and centred, in particular, on the Bank's Living Standards Measurement Surveys (LSMS). The debates over how these enquiries should be conducted went to the heart of the relationship between survey objectives, survey organisation, technical sampling design and the identification of the universe to which the results could be applied and thus impacted directly on how these should be used in policy analysis and for national income estimation.

On the whole, the same sort of difficulties did not arise over the UNSO's dealings with the IMF. The Fund maintained responsibility for its assigned set of money and banking, external transactions (including exchange rates), government and other financial data. The national accounts measures the IMF produces focus on the expenditure estimates and not on the production and income measures compiled by the UNSO. Rather than conflict, there was acknowledgement of the symbiotic nature of the data and technical support work for which the two agencies recognised their respective responsibilities.

In recent years, however, there has been close cooperation on the Millennium Development Goals and agreement between the agencies and member countries on the fundamental principles of statistics that deal with such important questions as statistical independence, data quality, data dissemination standards and release calendars, all of which have served to lessen the threat of political interference in official statistics.

Countries generally recognised, however, that there was a genuine need for a recognised international authority to determine and orchestrate statistical developments. This was not only to ensure

that common standards and uniform definitions were universally adopted around a world belonging to different political persuasions in which countries were at different stages of development but was also necessary to identify data priorities and establish coherent systems and frameworks. Most countries, at the time the UN was initially set up, attached considerable importance to these functions and placed a large responsibility on the UN to perform an effective coordinating role while overseeing general statistical progress. The aim was to provide consistency and facilitate comparisons over time both within countries as well as between them. Many believed statistics could contribute to greater understanding and international cooperation if the UNSO could recommend the adoption of common sources and collection methods for those data lying behind the information used to guide policy decisions.

### 3. The Economic Dimension

#### The changing economic perspective

*Quantifying the World* is concerned with how UN ideas and philosophy on development have shaped an international statistical system to serve member countries. Nowhere has this impact been greater than in the construction of suitable data frameworks to assess economic achievements and monitor economic and structural change.

In the very earliest years of the UN, pioneering Keynesian economic ideas and theory had begun to take hold (Keynes, 1936). These emerged as the new testament of thinking on policy. As Keynes himself stated, it is the power of ideas that can bring about change and the world is ruled by nothing else. It should be noted that Keynes was a strong believer in the persuasive power of statistics and saw them as an important means of underpinning ideas on policy. His thinking offered an almost redemptive vision of economic stability and progress that most governments, until then, had found so elusive. To senior policy-makers of the post-war years, many of whom had been dispirited and disillusioned by their governments' unhappy record of unmitigated failure during the previous inter-war period, the new economic perspective gave real hope. The powerful 'mechanisms' of the Keynesian model appeared to offer a lasting solution to the prolonged business depression and associated problems of mass unemployment that all countries had suffered in the uncertain economic and unstable political climate of

the inter-war era. Macroeconomic theory, with its emphasis on the importance of aggregate effective demand, gave fresh hope to those who until then had been presented only with empirical evidence that suggested the capitalist system, intrinsically, contained the seeds of its own potential destruction.

Eventually, through the experience of post-war reconstruction, industrial rehabilitation and political revival in Europe, economists began to rediscover their self-belief and, in undergoing a fundamental ideological conversion, they set about introducing policies to eliminate the economic turbulence and fluctuating fortunes that had invariably haunted their predecessors. Policy-makers now felt more confident they could control the tides of economic change. But they also soon discovered that the nature of domestic economic dynamics was subject to rather less readily controllable international forces. It became clear that the rationale and logical coherence of an internally focused Keynesian system with its various 'leakages' could not be relied upon to provide a robust theoretical basis for dealing with all seasons and situations. Further, the susceptibility of macroeconomic policy management to the finer manipulations of microeconomic decisions and, specifically, its vulnerability to government actions driven by statutory social obligations and political pledges of social welfare support that ignored economic imperatives, soon became recognised. While America did not face the same challenges of social support and physical reconstruction, the focus of US economic policy was less emphatically 'Keynesian' during this period. It is not until 1972 that the famous American economist, J. K. Galbraith, who had expounded so elegantly over a decade earlier on 'The Affluent Society' (Galbraith, 1958) was able to echo President Johnson's remark 'we are all Keynesians now' and to declare 'Mr. Keynes comes to America' (Galbraith, 1972).

### **The choice of economic models facing the UN**

At a time when the UN was confronted with the choice between alternative perceptions of economic 'order', one of which emphasised the satisfaction of material requirements through the centrally determined identification of people's 'needs' by the state and another where, allegedly, the observed satisfaction of need is best reflected in the market by the preferences and demands expressed by consumers, the UN statisticians decided, in 1946, that countries should adopt the national accounts. This was the statistical system underpinning the Keynesian view of the world. The national ac-

counts, in fact, allowed governments to pursue a new 'mixed' model of economic policy that had a distinctly Keynesian flavour. Until then, this type of economics had been untried in peacetime conditions. The UN adopted this core approach in preference to the centrally controlled planning model followed by the Soviet Union and its satellites. The latter, nevertheless, had seemed to score particularly well in allocating investment and promoting growth and in supporting social equity. The UN was against retaining a data system that reverted to the pre-war situation of microeconomic and market-based statistical perspectives aligned mainly with a conventional, long-standing, corporate capitalist view of the world. The System of National Accounts (the SNA as it became systemically known through the years) was born, having been first developed originally for the ECE and OEEC in 1952 and then adapted for the UNSO, by Sir Richard Stone (UN, 1953). Stone, along with James Meade (Meade and Stone, 1944), was an original pioneer in this field and a former wartime assistant and close associate of Keynes. Both were later to become Nobel Laureates in economics. Stone was not alone in this work but he did play a dominant role in the development of the UN system of national accounts. Ragnar Frisch of Norway, Jan Tinbergen of Holland and Simon Kuznets of the USA had all made seminal contributions in this field before the Second World War, not just in national accounts but also in input-output analysis and all three had made an impact on Keynes and influenced the way he approached their construction.<sup>2</sup>

Inevitably, however, the frailties and inherent distortions within an economic system where the whole production structure depends on a willingness to pay and, consequently, on income levels, has become more exposed as policy-makers try to unite economic and social objectives. The data bias implicit in monitoring the reported value of exchange transactions has reinforced the market ideology and helped compound those imbalances intrinsic in the existing distribution of wealth and income. Crucially, the national accounts have underlined the fact that it is mainly the rich who can both exercise and enjoy the privilege of choice. Thus those who are better off have most influence nationally and globally over what is produced in the formal economy. The Keynesian system attaches considerable significance to the importance of the public sector, not so much in delivering non-market goods and services for the social benefit

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2 Ragnar Frisch shared the first Nobel Prize in Economics with Jan Tinbergen in 1969.

of the population, but more for directly and indirectly manipulating total effective demand and serving as an agent of stabilisation. Invariably, this managerial function has placed power and influence in the hands of government that many now believe is unwarranted and because it has contributed to an economic control and inflexibility that many deem undesirable.

The choice of what aspects of the economy are most important and require focus is determined by a combination of recognised theory and the operational requirements of policy. Over time, however, both the emphasis of theory and the nature of the policy imperatives facing governments tend to change, from free market economics to micro intervention, then to macro management and monetary policy and, in more recent years, back to liberal markets, private enterprise and now the asset economy. This creates a need to modify the range and characteristics of the statistics the authorities require, moving away from the 'real' economy and towards the financial sphere. To cope with different priorities and perspectives, and meet such changing circumstances, countries must devise a comprehensive and coherent axiomatic information framework. This should serve as the foundation for generating useful and inter-related data series. The continued validity of these series depends only on their current value and usefulness to policy analysts.

A priori, the requirements of such an axiomatic framework should include:

*(a) Data Sets of Quantities*

The most important data sets here include the size and composition of the population; the size and nature (quality and characteristics) of the labour force; the availability of land, natural resources and raw material supplies, including access to coastal regions and ports; and the information on the physical production of goods and services, including imports and exports.

*(b) Information on Values*

Values relate to exchanges of goods and services involving transactions in cash and kind, and embrace the wages and profits paid out from the use of the basic factors of production, land, labour and capital in the process of generating output; exchange rates and interest rates; prices (basic, producer and purchaser prices); and the imputed values of all the various non-market transactions of households, non-profit institutions and governments, including the output of services for their own use.

*(c) Net Worth Information*

Counterpart financial data relating to changing asset and liability positions corresponding to the above value flows are required for an assessment of overall sustainability and vulnerability. They should reflect the ability of policy-makers to encourage the use of ‘stored’ wealth (as collateral) in conjunction with policy instruments such as interest rates to stimulate or control a higher level of economic activity, particularly in the area of household expenditure and saving.

In a more exact context, a meaningful framework should thus incorporate:

- (i) a recognition of the demand (outlay) and supply (output) functions of the system and the identification of the crucial linking role of income – real and imputed – as the facilitating mechanism for generating inter-sector and institutional economic flows;
- (ii) an acknowledgement of the fundamental distinction between demand, as expressed and revealed in the market, and need (whose non-market features more are difficult to capture) in the economy;
- (iii) a classification structure that reflects the desirability of delineating between different institutions in the economy on account of differences in their objectives, mandates, behaviour patterns and incentive systems;
- (iv) the primary endogenous and exogenous factors and external features of the global economy that exert and influence on the internal economy;
- (v) a matching asset balancing and flow of funds system describing how different economic transactions are financed and by whom.

The implications of all these prerequisites is that any data system, whatever background institutions exist and political ideology is in place, will need to quantify and take into account some basic components reflected by the real quantities and associated values embedded in reported transactions and their respective financial importance. Many of these features are already depicted in a comprehensive set of national accounts.

Crucially, most economic data systems depend on the relationship between quantities and prices. Their dynamics are driven by the various price and income elasticities, output and consumption propensities, and average-marginal relationships that exist at different levels of economic development and activity. The UNSO, while establishing and maintaining the SNA, does not retain equivalent full

control of the measurement of some important micro-aspects of price movements and price-level differences. This has made it difficult for the office to check on the validity of economic data submitted annually by member countries and to modify reported data where they are evidently inconsistent. In the past, this exposed the UNSO to weaknesses that served to undermine its international authority.

In retrospect, the bold decision taken by the UN in 1946 to go with the Keynesian macroeconomic model and its then novel supporting national accounts system, when this approach was only just becoming accepted for policy review, proved far-sighted. The SNA proved highly relevant as a framework for gathering a comprehensive and integrated set of economic statistics related to a wide range of issues. It could thus be applied to many uses and extended along established principles to take in new demands for data emerging from different sources.

The SNA has undergone a number of changes from its earliest manifestation in 1952/3 as a set of 'drop-down' interlocking production, income, consumption and accumulation accounts, through to an extended inter-industry based framework in 1968, to the present comprehensive system approved in 1993, incorporating all types of transaction and links flows (income) to stocks (assets). The system is equally relevant now as a comprehensive data framework as it was when a mixed market and planning approach to policy was in vogue after the Second World War. At that time, the world faced significant constraints in the supply of raw materials and other scarcities that made rationing and the central direction and allocation of resources, especially investment, inevitable. Planning was deemed essential to the process of physical reconstruction and general social rehabilitation and for achieving greater equity in society. Today, governments rely much more on the signals provided by the market to help direct their policies. Yet both situations are equally well catered for by the SNA with its sector and institutional breakdowns. The system is being continually refined and is now under review to see if further revisions are required.

### **GDP, national income and its distribution**

Despite the obvious socioeconomic importance to analysts of being able to understand, on the one hand, the relative factor distribution of income and, hence, the factor relations in production, and, on the other, the household distribution of income and its impact on aggregate effective demand as revealed in the pattern of aggre-

gate expenditure behaviour, the UNSO never officially attached high priority to the important question of the distribution of income and national well-being. Something might have been developed if there had been, universally, a stronger emphasis on national income calculations rather than on easier-to-compile production accounts and selected aggregate expenditure measures. In the late 1970s, when the predominant concern was with how to raise growth, the UNSO did produce an interim manual that examined macro distributional issues but only at the broad level of the national aggregates of income, consumption and accumulation. At that time, the objective was to identify, across countries, the total rewards accruing to different factors, relate this to the respective contribution each factor made to GDP and use the results to help explain differences in growth performance. The report did not produce any formal recommendation to address the more crucial question of how to measure the domestic distribution of household and individual income. This matter was left in the hands of the household survey analysts whose operational activities were not only separate from the national accountants but also, more importantly, separate (for the most part because survey operations were primarily a technical assistance activity) from the main activities of the UNSO itself.

The question of measuring income distribution within a country, and thus the extent of poverty and inequality, was long considered by the UN to be an integral aspect of the 'internal affairs of a member state' and the subject of domestic policy concern. The technical direction and conduct of survey work at the country level, however, could well be provided by the UNSO (or its consultants) although, more usually, the work was left to the ILO, FAO and, latterly, UNICEF and UNDP to organise. The issue of income distribution and, similarly, of the distribution of wealth, along with the related matter of household accounts and flow of funds analysis, emerged as questions of concern that were taken up by contemporary scholars such as Raymond Goldsmith, Harold Spicer, Jack Dawson and Ed Wolff. It was only in the latter part of the 1990s that the UNSO decided to tackle some of these crucial issues after taking a more holistic look at the formation of household accounts and at related statistics on flows of funds. Nevertheless, the question of how income and wealth were distributed was still deemed to be a matter that demanded domestic rather than international policy attention.

It was left to the independent 'Canberra Group', one of several internationally convened so-called 'city groups' that have been in-

independently set up by collections of country experts outside the UN to study specific statistical measurement issues, to report on the nature of income measurement (Canberra Group, 2001). This expert group made special reference to the importance of compiling distribution statistics and the need to do this in an internationally consistent way. The fact that some countries have expressed the view that the UN should confine itself to international matters and not interfere in the monitoring of phenomena considered primarily the internal concern of a 'sovereign member state' has not served such interests of data comparability.

In the 1970s and 1980s a similar 'hands-off' stance was taken with respect to the generation by the UNSO of data referring to individual and household social status. Attempts to devise 'value-neutral' social indicators to monitor, correspondingly, the social progress of households and their communities through time and to produce comparative data for countries, encountered equal criticism and opposition. A number of member governments, and not only those representing the poorer developing countries, feared the results of such enquiries might be held up as a mirror to their society and official policies.

### **Extending the SNA to meet new demands of policy**

In the 1970s and early 1980s, given the comprehensive conceptual foundation provided by the revised 1968 SNA, considerable effort was expended to improve the identification and measurement of micro-macro economic and social linkages. This had been a topic of particular interest to the early pioneering empirical economists and modellers such as Tinbergen and Frisch who, even pre-war, had always been anxious to extend the usefulness and outreach of the basic national accounts. Stone was significantly influenced by their work and this clearly shows up in the macro modelling research on computable models of economic growth that he directed at the Department of Applied Economics at Cambridge through the 1960s and early 1970s. Out of all this activity came social accounting matrices (SAMs) that belong to the wider family of macro models with distributional effects. These tried to show how household expenditure patterns at a more detailed commodity level, as associated with the underlying income distribution, influenced what was produced. The UNSO took more than a passing interest in SAMs but the work of developing this initiative was left primarily to individual countries to pursue. In several notable cases, how-

ever, the compilation of SAMs attracted official bilateral support, particularly from countries that had pioneered the approach, such as the UK and the Netherlands. Experts associated with the early research helped develop this line of work in several developing countries (for example, Graham Pyatt and others in Sri Lanka, Malaysia and Botswana; and Eric Thorbecke and Stephen Kuening in Indonesia). Other aspects of this research, such as the UN's own global 'Link' model under Lawrence Klein, also had operational policy implications.

For somewhat different reasons more connected to technical and resource management matters, the UNSO implemented the National Household Survey Capability Programme (NHSCP) without which the conduct of the household surveys essential to the compilation of SAMs might have been sidelined. Although the UN concentrated on technical statistical questions and on the general ability of various countries to undertake surveys designed to serve different purposes, such surveys and their Living Standards Measurement Survey (LSMS) counterparts launched by the World Bank in the 1980s did contribute to the more coherent integration of micro data into the SAM framework and to a better understanding of demand analysis.

A problem encountered in low-income developing countries applying the SNA as the data framework guiding and underpinning the application of macroeconomic policy decisions was their apparent inability to secure the effective implementation of investment and development policies. Many of the newly independent countries were undiversified, single-export commodity-producing economies supporting large subsistence enclaves. Otherwise, there were few internal domestic economic linkages, especially with the major revenue-earning resident producers, many of which were foreign-owned. Some observers like Seers had long questioned the universal applicability of the SNA as an appropriate policy tool (Seers, 1963). They had raised the question of whether there might be, perhaps, a separate, distinct 'core and periphery' structural network in economic relationships that determined and sometimes even controlled the pattern of economic behaviour of the developing countries. If so, this would require a different statistical framework that more relevantly took into account their openness and vulnerability as 'satellite' economies with high-income foreign-owned enclaves. The exposure of poor countries to international markets and their subjection to multinational management decisions over which they had little or no control clearly made them more vulnerable to external shocks.

For these countries, there was another problem of defining what really constitutes investment (as opposed to reported gross fixed capital formation) and what represents the true cost of acquiring new capital. But it was the failure of most of these countries to factor into their policy prescriptions some of the major problems of external leakage in both income and trade that was frequently the main concern. The real mechanisms driving investment strategies, the inexorable problems of overcoming a limited local absorption capacity and the weight of an often weak and corrupt bureaucratic administration have clearly combined to aggravate the customary problems of economic policy management.

The importance of price-level differences and hence of relative purchasing-power parities both within and between countries and of gaining a good understanding of the relative size and patterns of the flow of foreign and domestic funds between institutional sectors, plus the ever-present tensions between economic and political time preferences, have all served to undermine a fully effective and universal implementation of the national accounts as the central tool of policy. This might not be so much an issue of whether a separate reality of 'development economics' exists, which makes the SNA irrelevant in certain contexts, but rather a question of how, in practice, statisticians should best assess the unique problems of globally dependent enclave economies and how they can regularly monitor performance in a meaningful way.

Over time, even if the core components of the macroeconomic system have remained relatively unchanged, the national accounts have continued to serve most countries reasonably well in the fiscal planning and public-investment aspects of national policy. There have been, however, some significant changes in the emphasis and direction of economic policy over the past half-century. Although 'the money supply' has always figured quite prominently in policy discussions, particularly in the context of inflation control and public-sector borrowing ceilings, greater attention has been paid in more recent years to the financial strength of the economy and to monetary policy. In fact, some analysts could be forgiven for thinking that the 'quarterly national accounts' estimates and associated quarterly GDP growth rates, seen as leading indicators of economic health, are now little more than measures to signal whether the government or its central bank should adjust the base interest rate. The changing economic philosophy and fashions of thinking about economic policy since 1945 is outlined in Table 1. As can be seen, assumptions about the role of the market and beliefs concerning the

relevance and nature of investment in directly promoting national growth have undergone significant change over time.

Since the early days of the UN, thinking about economic policy has become more refined and the statistical tools to monitor the effects of decisions correspondingly more sophisticated to match the increasing complexity of the modern world. There have been successive waves of economic emphasis that have ebbed and flowed between liberal open-market policies and the declared preference for more interventionist approaches, and between traditional

**Table 1. Changes in economic emphasis since 1945**

1945–1960s:	Keynes, the Harrod–Domar Model (and later the World Bank’s own ‘Two Gap Model’) with their focus on growth and the role of investment and, specifically, the dynamic function of the incremental capital–output ratio (ICOR). Government as a key factor in preserving aggregate effective demand, full employment and investment; its role in national economic oversight in blending public and private investment requirements and preparing medium-term development plans.
Late-1950s to 1970:	Monetarism and the total money supply; the influence of interest rates and liquidity preference; the impact of the UK Radcliffe Committee (1956) and Friedman and Schwartz in the US on monetary policy. Preservation of fixed exchange rates and the external payments balance; strong pressures from outside agencies to control the domestic economy; the resurrection of micro-economic ‘equilibrium’ alongside prices and incomes control; inflation, employment (the Phillips Curve) and fiscal deficit control.
1970s:	Collapse of the old IMF fixed exchange rate regime. The oil crisis [1973 and 1978]. The supply side (output productivity and efficiency) revisited; concern with energy shortages and impact of prices as constraints on production.
1980s:	The Washington Consensus; structural adjustment and getting prices right, privatisation and removal of subsidies; the liberalisation of markets; downsizing government and its role in social provision; services and supply outsourcing and making people fend more for themselves.
1990s:	The Era of the New Economics; redrawing the relevance and importance of investment and changing the perspectives on productivity and embodied technology. Game theory and collusion in explaining market and corporate behaviour; corporate takeover theory.
Since 2000:	Back to monetary economics; new sovereignty of the base interest rate and its influence on the dynamics of cash balances; the emergence of asset economics, with collateral lending on household fixed assets for consumption purposes and portfolio rearrange

fiscal strategising and central monetary policy. Conceptually, however, the primary direction and supporting data framework of the SNA have remained relatively intact. The SNA continues to offer the best comprehensive description of a country's 'real' economic position, one that depicts the importance of its various sector- and institution-based activities. In effect, it continues to represent the core axiomatic framework around which the whole body of economic statistics, as represented by the combination of quantities, values and prices involved in real or virtual exchange, has been developed and constructed.

### **Economic data: the next agenda**

There is considerable interest, if not agreement, about what aspects of the economy require more extended review and renewed emphasis. The availability of relevant data has importantly contributed to a shift in the development paradigm from economic growth to poverty reduction and this trend needs to be extended. Some of the issues to be covered can be enumerated by their respective relevant level:

(a) *National*. A major requirement will be to obtain, on a more regular basis, details of the household distribution of income and how total income is generated and distributed to various institutional sectors. This includes knowing what constitutes real (flexible) disposable income at the household level and what share of these receipts is ordinarily spent, saved or transferred to other institutions, especially persons. It will be useful to understand what proportion of these outlays comprise 'mandatory' and unavoidable commitments that must be made on a regular, routine basis and what part is subject to the exercise of some element of choice by the household – and therefore 'squeezed' when things get tight.

Accompanying such an initiative, analysts will require data to determine more detailed and refined demand equations to show how total (private and public) consumption is related to social circumstances, physical location and people's economic activities.

The improved perspective on the effectiveness of government introduced in the 1993 SNA does not lead, automatically, to any prejudicial assessment of the size of the public sector. In distinguishing between the value of official spending deemed to be directly beneficial to the household from spending on the bureau-

cracy and on the collective provision of communal ‘public goods’ supplied to society as a whole, observers are now better able to distinguish efficacy from profligacy and to gain a clearer understanding of what determines the perpetuation of poverty.

(b) *International*. It is becoming increasingly apparent that, because of the impact of externalities and existence of overlaps, some international statistics cannot be compiled simply as straightforward aggregates of numbers gathered at the individual country level. Such calculated aggregates may not be sufficient for identifying ‘global’ problems. New measures and definitions are required to assess overarching global problems and to underpin the expanded governance requirements and international decisions necessary to deal with such issues. These include world poverty, global income distribution and inequality, the global and transnational ownership of productive assets and enterprise, global inflation, the structure and location of global production (and its direct and indirect links to global warming) and the nature of official and private debt. The UN, as a loosely knit group of individual nation states, is no longer well placed in its present form to grasp the nettle of international measurement and meet the challenge of truly ‘global’ concerns. For it to do so would require a major change in governance arrangements.

The UN has to do more to encourage the implementation of institutional classifications of production and trade to identify who produces and sells what to whom. How far are exports of goods and services generated by the same enterprises that bring in most imports? In what sectors and areas of the globe are there important economic interlinkages between goods and services output?

An important objective should be to expand the present scope and coverage of international comparisons of relative price levels and purchasing-power parities (PPPs) for different classes of commodities and income groups. PPPs and the detailed underlying price data used in their construction serve to enhance an understanding of product use and quality, markets, product competitiveness and, to some extent, productivity. While from time to time in the past, the UNSO held responsibility for compiling PPPs under the International Comparisons Programme (ICP), it possessed no long-term comparative advantage in this area and little specialist knowledge about price collection; responsibility for global comparisons therefore shifted to the World Bank. In parallel with prices, there is also a need to improve

comparative inter-country measures of real gross and net output (and, hence, productivity) as they relate to both the private and public sectors.

## 4. The Social Dimension

### Background

There is no core social theory equivalent to that which describes the structure and dynamics of economic relationships. Society, instead, is ruled mostly by codes and a cultural legacy of accepted customary behaviour. The concept of 'self' and personal atonement through the work ethic in economics bred by the Enlightenment gave rise to the alternative notion of 'economic man'. Actions driven by individual self-interest evidently disrupt ancient traditions creating forces and tensions that change the social hierarchy. Personal autonomy effectively replaces the cultural conformity and social uniformity bred by centuries of ranking authority exercised by the nobility and the church. In the process, this removes a dominant need for the existing supportive network of communal ties. The underlying behavioural mechanism of economic conduct is clearly different and poses questions about how best to measure, from a social perspective, both the perceived 'status' of individuals and 'change' in society.

Many aspects of social development and change, unfortunately, are not readily amenable to exact quantification. In the implementation of policies to address specific objectives of human welfare and progress such as health and education, some measures or indicators are available to assess what has been accomplished and how well services have been delivered. In many other areas, the measures are chosen primarily because they are believed to act as reasonable proxies for phenomena that cannot be measured directly, such as good health and expanded knowledge. Social data should be able to raise questions for policy attention about the state of education, on health risks and the efficacy of the system of health care in place to deal with them, on various threats to the security of the community, the status of women and so on. The corresponding statistics required to map the social characteristics of a country are thus overwhelmingly pragmatic and operational, focusing on specific issues, rather than elements that fit neatly into a well-defined social model.

For a long time, governments believed that economic growth should be the main objective of policy because it was widely as-

sumed most social benefits would flow automatically from improved material well-being. It is now readily acknowledged that growth is a necessary but by no means sufficient condition for social progress.

### **The effects of the Second World War**

The end of the Second World War marked one of the most profound watersheds in the history of economic, social and political thinking in the Western world. With the enthusiastic adoption of Keynesian economic ideas in Europe, the embracing of new social philosophies and the closer involvement of government in both economic and social welfare policy, and especially investment planning in social capital, governments took on new responsibilities for ensuring social stability and improving household well-being. There was a move away from the traditional microeconomics of competitive market equilibrium and towards central management of resources and a more controlled allocation system designed to bring about the improved distribution of benefits and greater social justice, at least in material terms. The declared aim of policy, however, was to provide full employment and make sure there would never be any return to the widespread suffering of industrial depression and the attendant social evils experienced by most working class people in the pre-war era. Full employment was an important plank in strengthening the wide-ranging significance of real wages as the principal means of raising household living standards viewed then as a primary social objective.

The achievement of the worthy goal of full employment, however, was well assisted by the pressing urgency throughout Europe to rebuild the damaged infrastructure, quickly restore war-afflicted societies and implement the related intangible activities of social reconstruction. Following the physical devastation left by the war and the need to set priorities to avoid the potential wastage of very limited supplies of food and raw materials, a higher level of peacetime intervention by governments was considered necessary. While making the maximum possible use of whatever scarce resources were available in the world (the basic stocks of which had been seriously depleted by the prolonged hostilities), most authorities recognised the pressing need to introduce some form of rationing. This gave rise to a certain amount of political soul-searching. In the interests of fairness and to ensure that the burden of sacrifice was evenly spread, that a basic minimum of supplies was secured for everyone and that the goals of social justice were served, rationing

was introduced – and presented as being only temporary and selective. Such intervention was the closest most Western countries have come to conducting policies to address perceived 'need' from an overall societal vantage point.

### Early social planning

The contingent integrated planning of both economic and social policy had become an unavoidable imperative. Socially, all the countries of Europe, irrespective of their national ideological persuasion, eschewed the former philosophies of individual social responsibility that had contributed to the awful deprivations endured by most populations during the 1920s and 1930s. They embarked on far-reaching official programmes of mass education reform and free health care. These early policy concerns to improve the quality of human capital were driven as much by ideas of fundamental social reform as they were by those of economic interest and value. In parallel, many governments introduced cash benefits for improving family welfare and to provide minimum income support. School-based feeding programmes, particularly for the needy, to deal with problems of nutritional inadequacy among infants and young children, were implemented. Thus, with the introduction of 'the Welfare State', governments assumed the overall authority and responsibility for establishing a minimal level of well-being for their country's inhabitants. These policies demanded the collection of a range of new data to ensure that various criteria were met and that every social provision was properly and regularly monitored.

In Britain, the new Labour government elected immediately after the war, held out the vision of a 'New Jerusalem' with the promise of 'a home for every returning soldier' and a land once again flowing with milk and honey. Historians now argue that this phrase was intended to refer to the wider improvements in the social structure and was used simply as a metaphorical device to boost post-war morale in a period of severe rationing. The promise was never meant to be taken too literally and thus to be evaluated in quantitative terms. Nevertheless, politically, the governments of many countries such as Britain made a strong post-war commitment to socialist principles and this marked the beginnings of a routine social-monitoring and performance-measuring system.

### **The UN and national tensions over social measurement**

The UNSO did not see itself as centrally responsible for social statistics. In a way, it fell back on the original thinking and early decision of the nuclear commission to permit, if not endorse, the decentralisation of data compilation to the respective responsible agencies. One of the main questions that troubled the UN statisticians at the time was whether to regard the generation and use of social data as a matter solely of internal interest and for domestic political attention or an issue of general international concern. The issue had much to do with the fierce opposition to social planning that had emerged in certain influential quarters after the war. Some countries felt planning would imply undesirable social engineering and represent, potentially, the thin end of the wedge of tighter government controls over human behaviour. In low-income countries, there was a similar worry that regular social monitoring might lead to closer international scrutiny and apparently poor performance invite the criticism of donor governments and lead to possible cuts in official support for their programmes. The onset of the Cold War and the surge for national independence were associated in many parts of the world with public professions of unity and popular declarations of support for international socialism and this inevitably gave rise to considerable anxiety and suspicion in the West. There was a mistrust of political motives and an equal concern about the stability of some countries. Such fearful sentiments were not allayed by the widespread political unrest and feelings of social instability that spread in Europe, aroused by the worker-based student riots in Paris in 1968.

Curiously, these events occurred at a time when the vogue for planning was in its heyday in Europe. Researchers believed that the techniques used in directing economic efforts could be linked and extended in a more precise quantitative way to the social sectors and, eventually, to society as a whole. This was the time when Richard Stone came up with his sweeping proposals to the UN for a comprehensive 'System of Social and Demographic Statistics' (SSDS). This system (UN, 1974) extended, in effect, the dynamic linkages already embedded in the new 1968 System of National Accounts that Stone himself had devised which centred around highly detailed 'make and absorption' (output and use) inter-industry matrices integrated within a comprehensive input-output framework. Although the SNA had already been formally adopted by the UN, Stone encountered much greater opposition to the SSDS, despite the fact that it was, pre-eminently, a key feature of a classical

long-term national planning mechanism. The objections were primarily political but had also to do with the heavy practical burden imposed by the data needs of the system. Thus the statisticians themselves opposed its introduction, particularly because it came so close on the heels of the new SNA. Opposition to the SSDS and 'social planning' had little to do with later worries about official intentions to strengthen the relative profile of human engineering (particularly manpower planning). It would have served little purpose in helping elevate personal status and improve individual human rights.

The original perspective and objectives for producing social data were thus a little confused. There was quite intense opposition from several 'independent' and often politically insecure sovereign states to the introduction of measures that might allow outsiders to make assessments of human rights progress and social achievement. Several economically advanced countries also did not trust the use of such data to guide policy and were troubled by the spectre of the power this gave the state, by means of shifting education priorities and policies, to alter society. Those at both ends of the political spectrum opposed education programmes designed to serve the interests of industry and manpower planning. The idea of creating social capital as a means to strengthen civil society and enhance societal wellbeing had yet to receive general recognition.

### **Social indicators**

The early development of social indicators reflected a desire to measure the overall progress of society and improvements in both individual and household welfare. Whereas economic measures focus primarily on material well-being, social measures emphasise the non-material and often intangible aspects of human development. Analysts saw the desirability of attaching values to the non-market goods and services supplied by the government and non-profit institutions to households. Concerted attempts have also been made to produce more comprehensive social measures, including an overall composite social indicator to calibrate 'development' and others to parallel and have similar significance to that of GDP.

Pressures to improve social statistics have reflected both the desire to have governments more involved in the provision of welfare goods and services and the need to monitor their effectiveness in this process. Public recognition that market failures denied worthy recipients sufficient income and access to full participation in society reinforced action. In the interests of individual social justice

and of preserving well-being, governments need to contribute to the provision of at least a minimum level of social goods and services, particularly health and education. Equally, for the benefit of society in general, governments are required to provide, collectively, public services such as policing and environmental damage controls that would not otherwise be put in place, at least on any effective scale, if such matters were left to the market. The supply of services and the extent to which people have access to them and whether they adequately meet the needs of the community should be assessed and monitored on a regular basis.

The UNSO, while initiating a range of work on social indicators in the late 1970s and early 1980s, did not follow through with any specific recommendations, at least not until the 1990s when it called upon an expert group to recommend a minimum national social data set (MNSDS) of 14 or so main areas of concern where useful social indicators could be compiled on a regular basis by most countries. The main work on social indicators, however, was hived off early on to a quasi-independent wing of the UN in Geneva, the UN Research Institute on Social Development (UNRISD). This was a body whose programme was independently approved and supervised by a board chaired, initially, by Jan Tinbergen. Not surprisingly, its programme had a strong analytical research emphasis and rather less empirical application.

Furthermore, despite the early attention the founding Statistical Commission gave to strengthening the role of sampling in official data collection (under a committee chaired by the eminent P. C. Mahalanobis), little effort was made within the UNSO to follow through on practical sample survey work, except at the FAO and ILO, until the widespread introduction in the 1980s of large-scale household surveys conducted under the auspices of the World Bank's LSMS programme. The UN manual guiding work in this area concentrates on sampling methods rather than survey design (UN, 1960).

### **Social data: the next agenda**

With the growing international concern with the conditions of human existence, levels of living and poverty in low-income countries, as manifested in the various declarations and recommendations of successive global summits and subject-specific international conferences, there has been renewed interest in compiling detailed and disaggregated social indicators. There are also demands for related performance measures to monitor, more effectively, the impact and progress of

domestic policies and international support efforts.

In 1986 the World Bank decided to disseminate to a wider audience its annual 'Social Indicators of Development' (SID), a report intended originally as an internal document to provide background social information on each member country. The SID compared the trend in social progress over the long term (25 years and over) and medium term (5–10 years) with the most recently reported conditions in each country, using an extensive range of standard indicators. This initiative was followed by the publication by UNDP shortly afterwards (1990) of the first of its annual Human Development Reports and the launching of its influential Human Development Index. This renewed political interest in social indicators became truly manifest only in 2000 with the international consensus on the Millennium Development Goals (MDGs). With these, 48 related identifiable, if not completely quantifiable, targets have been drawn up to monitor progress towards the MDGs. Many of these statistical targets were based on the International Development Goals (IDGs) identified several years earlier by the OECD/DAC, with inputs from the World Bank and, nominally, the UN, to support the OECD's 'Shaping the 21st Century' document. The thinking behind the IDGs, however, had a much stronger monitoring and instrumental purpose related to improving development cooperation. The widespread acceptance of the MDGs, nevertheless, raises the question of whether the time is right to start thinking again about the possibility of developing a more comprehensive and integrated system of social statistics to underpin the MDG framework. However, while the MDGs form a meaningful and policy-relevant basis for integrating social statistics, the absence of a unifying social theory – much more than the availability of data – presents a serious obstacle to the establishment of a proper model and its supporting data system.

The ideas of the Nobel Laureate, Amartya Sen, which place an emphasis on human capabilities and 'being' as compared with the prevailing official interest in the human condition or 'state' have to be given a more thorough airing (Sen, 1999). Intuitively, a measure of the capacity of a person to be able to do something rather than simply identifying who or what that person is, may prove difficult to obtain both conceptually and empirically. New definitions will have to be devised, aspects of 'being' determined and the concepts refined into more readily identifiable and quantifiable elements. Notwithstanding, this broader vision of socio-economic inclusion embraces such elusive but fundamental concepts as empowerment, human rights; cultural, legal and physical access; and essential notions of distributive social justice.

Communal security and sustainability are also closely related to the prevalence of poverty and its characteristics. They are clearly linked to broader concerns of social responsibility and accountability and the strength of cultural and customary ties. How such aspects can best be measured and related to other influential economic and location-based factors must be high on the priority list of social statisticians.

## 5. The Environmental Dimension

### **Emerging interest in the environmental impact of policy**

The history of environmental statistics, generally, has been haphazard and the main focus of interest has changed significantly over time. In this field, however, the UNSO has taken a leading role in enhancing awareness of problems. The UN has played an important part in demonstrating the closely interconnected nature of the environment with other phenomena. Through its recruitment early on of leading experts in the field, the UNSO provided unique intellectual and practical leadership in the development of environmental statistics. It initiated a bold attempt to unify data compilation in this field by setting it within a more holistic economic framework, coherently based around the policy relevant national accounts. The data were incorporated into an integrated set of environmental and economic accounts that became known, for short, as the SEEA, an acronym that emphasised, in particular, the notion of a 'system'. Importantly, this system linked production flows with material and asset use and with resource depletion.

In the early years, many countries routinely collected, through their various ministries and local authorities, data relating to a multiplicity of aspects of environmental use and service deterioration, including changes in forest reserves, water use, refuse collection and sewage control. These data were all generated as part of the regular administrative process but nowhere were all the individual series brought together in a consistent way. In very few instances was there any attempt to quantify, in value terms, the relative significance to society of any damage that was being done to the stock of natural assets. The UNSO set out to draw all these separate and distinct threads together and to place them within a comprehensive data framework that, in the absence of any clear theory of environmental change, attempted to reproduce the observed dynamics and conditions of use and to model the links and interactions between social and economic behaviour and their resulting environmental effect.

Some earlier modelling and impact assessment research was available to help guide this work and give it direction. One of the first comprehensive quantitative enquiries involving environmental assessment to have any widespread political impact was the 'futures' study, *The Limits to Growth*, by Meadows *et al.* (1972), undertaken for the Club of Rome. This explored the 'predicaments for mankind' if existing economic activities and consumption were allowed to continue unchecked. The analysis relied on a sophisticated neo-Malthusian global model that took into account not just the definite prospect of rapid population growth but also the use (and using up) by people of natural and physical resources. The model employed a variety of parameters and sweeping assumptions were made about the behaviour of its key constituent variables. Many of these appeared not to be based on actual observations and were later heavily criticised. The researchers were also accused of failing to factor in fully the crucial element of technical change, i.e. the movement outwards of the production possibility curve. The team thought this was limited, however, and believed that the prospects for technical improvements would eventually run out of steam and inevitably hit a ceiling, thereby inhibiting further significant economic progress.

Elsewhere, Nordhaus and Tobin (1973) and the Net National Welfare Committee of the Economics Council of Japan (1974), which, as part of the Ministry of Finance, had undergone the expensive experience of cleaning up Tokyo Bay, pointed to the costs to society of unchecked pollution, congestion and time waste. More importantly, these groups showed how the various costs of such environmental 'bads' were being included, mistakenly, in the net value added of the economy (GDP). Their efforts can be viewed as early examples of trying to get at a 'green' GDP.

Earlier, in an otherwise unconnected context, Packard (1960) in *The Waste Makers* drew the attention of the public to the undesirable impact of media advertising and the way it encouraged the wasteful use of materials through fads and fashions and unnecessary consumption behaviour. This criticism of profligate household spending, or what is now seen as excessive 'consumerism', clearly flew in the face of the conventional wisdom of demand management, and, even today, corporations are still arguing for minimal public interference (because it raises costs) and pressing governments to allow such matters to be solved by the market.

The essence of what all these authors had to say was undeniably valid, but it should be remembered that GDP was never advanced as an indicator of welfare, although it is still often interpreted as such.

GDP remains, conceptually, a measure of the value added by economic activity; the debate is over what really constitutes value added.

In the 1980s, following the two oil crises in the previous decade, the economic exploitation of exhaustible and non-renewable sub-soil deposits of minerals emerged as the critical environmental resource-use issue. The practice of assuming natural resources to be 'free gifts of nature' was compounded by the mistake of treating all revenue arising from the sale of depleting natural assets as income rather than as a reduction in wealth. In the standard national accounts, the decrease in the stock of natural wealth was inappropriately incorporated into the estimates of value added. Conceptually, value added is intended to refer only to the rewards paid to the factors of production for their respective contributions to output. Ward (1982) and Salah El Serafy (1981) both drew attention to the significance of this question with respect to the depletion of reserves of super phosphate and oil and the consequential unsustainable nature of single commodity-exporting economies. The problem was similarly emphasised by Huetting and Bosch who considered the loss in general, through degradation, of the valuable environmental 'services' provided by all forms of natural capital. Later, and more extensively, Repetto and the World Resources Institute (1989) carried out a resource-depletion study using the specific case of Indonesia. In Norway, partial but selective resource-use accounts were regularly compiled by the authorities from quite early in the 1970s. It was not until 1994 that the US Bureau of Economic Analysis lay down a set of methodological guidelines and 'standards' for resource accounting with the publication of its first official comprehensive national mineral resource accounts. But, following political and budgetary pressure, which is alleged to have originated from powerful corporate interests, this exercise, sadly, was discontinued and it has never been allowed to become part of the agency's regular work programme.

It was the UNSO in the early 1970s that provided the initial impetus to the now widely endorsed 'pressure-state-response' approach to environmental accounting. This method of environmental analysis was pioneered by Tony Friend, a researcher who joined the UNSO as a consultant from Statistics Canada. The UNSO continued the process of bringing together the key elements of an environmental statistical framework in an exercise designed to draw into a single overall account information on atmospheric and water borne pollution, congestion costs, resource degradation, raw material depletion and everything else pertaining to all forms of resource use. The aim was to record changes in what seemed to be a gen-

eral deterioration, for the most part, in the quality and sustainability of the environment. The UNSO was helped in this endeavour by an informal cooperative partnership with the World Bank and a stream of inputs from a number of very active non-governmental organisations or NGOs. An important outcome of this relationship was a 'state of the arts' report produced by the Bank and edited by Ahmad, El Serafy and Lutz (1989), entitled *Environmental Accounting for Sustainable Development*. In this, the leading UN researchers, Bartelmus and Van Tongeren of the UNSO and Stahmer, who was on loan to the UNSO from the Federal Statistical Office of the Federal Republic of Germany, gave voice and wider visibility to their innovative ideas on integrated environmental and economic accounting.

The SEEA developed by the UNSO represents the outcome of these endeavours. It reflects the concerted desire of international statisticians and academics alike to make the complex nature of environmental accounting more accessible to the public. It allows governments, their associated political parties and various pressure groups to have a long-term view and to acquire a more strategic perspective on environmental interrelationships. The system forces the authorities to identify, at least roughly, the main environmental consequences of the economic and social policy actions they propose to take. The UN framework is designed to give analysts the opportunity to identify significant environmental problems and to review how the 'downside' externalities can be better managed and controlled. By integrating assumptions about prices, the authorities can review the extent of environmental damage and its broader consequences and calculate the total cost to society in both real and financial terms.

Further modelling and simulation based upon this core framework, make it similarly possible to explore questions of sustainability. The SEEA underlines the fact that the conventional sector-specific and project-based cost-benefit appraisals are not enough. By themselves, they fail to provide sufficient information about the environmental consequences of major policy decisions that do not appear immediately relevant to the overall environment. The calculation of net present values and of social or economic rates of return may fail to take adequately into account the inappropriate use of national assets that could come about from an existing unequal distribution of income and so be far from optimal. For example, in the absence of any external moral imperative, a standard cost-benefit approach could readily conclude that the dumping of hazardous waste in the

lowest-income countries or the piling up of refuse in the poorest areas of a town was economically efficient and justifiable.

### **Who pays the cost?**

Early interest in environmental accounting was promoted by a realisation that the use of natural resources and of the so-called 'indestructible qualities of the soil' was not in fact 'costless' and that nature could not indefinitely serve as a bottomless 'sink' into which various pollutants could be poured without any resulting disadvantageous effects on the community. People talked of 'the daily toll' of environmental loss in terms of hectares of forests destroyed, species that were becoming extinct and fish stocks being depleted. The response to this conventional 'free rider' problem was to propose a 'polluter pays' principle. This focused, however, on only one side of the equation, namely, the producer, whom it was sometimes difficult to identify. The responsible offenders were usually a similar group of people and it was thus difficult to tie down who exactly should pay the 'tax' and how much this should be. Significantly, this principle ignored the part played by those consumers, especially from rich societies, who were at fault for raising the demand for a product and for being responsible for its often only partial and wasteful utilisation.

Much of this debate occurred in a poorly informed context of 'doomsday' literature with its gloomy prognostications about global survival. But today there are even more worrying and credible scientific concerns about the potentially disastrous long-term cumulative effects of environmental degradation. These can result from not reappraising the wisdom of consuming, without check, the wealth of the earth's bounty. People are being urged to be more cautious and conservative about the use of the earth's scarce and ultimately limited basic natural resources and advised that the environmental services received from clean air, fertile land and fresh water are not 'free'. The SEEA is limited because it focuses only on environmental questions and concerns occurring within the relatively narrowly defined territorial boundaries of nation states. But many important environmental issues such as carbon (greenhouse gas) emissions and associated global warming do not observe such physical and political frontiers when spreading their broader impact. The SEEA does not deal with fundamental questions like what happens if important components of the whole eco-system, such as the growing holes in the ozone layer or the melting of the Antarctic ice cap,

occur? It is only by identifying how problems initially tend to arise that the SEEA can help attribute to various actions in different countries the possible causes of these environmental conditions.

The emphasis of the SEEA is on the sustainability of society and the welfare of future generations and not on planet survival, *per se*. There are too many examples around the world where the present generation, by its mistakes and misuse of natural resources, has underinvested in the preservation of a basic inheritance of natural facilities. The profligate use of the world's resources has endowed future generations with a legacy of environmental debt that it will be difficult to write off. The SEEA breaks ground with traditional assessments of economic resource use by weighing up choices between now and the future. Extensions such as those developed by the Dutch with their hybrid but well-integrated 'NAMEA' (national accounts matrix and environmental accounts) system have encouraged the introduction of scientific judgements about desirable ecological 'limits' that can be set alongside a parallel political assessment of the acceptability and feasibility of a given policy. The spirit of this approach, where natural scientists, partnered by social and political activists, are joined by practising economists to effect more constructive environmental strategies, is perhaps the shape of things to come in policy management in general. It has the positive effect of introducing different cultural perspectives that can lend guidance to more rational and less short-term policy prescriptions.

Environmental accounting examines the way nature is shaped by human action, and it thus reverses some long-held views of Darwinian evolutionary inevitability. It exposes the fragility of assumptions about species development being fashioned by nature.

### **Environmental data: the next agenda**

Fulfilling the objective of sustainable development requires governments to think holistically about devising an overarching data set to inform decision-making. The system needs to serve as a basis for overseeing all changes and to guide the effective implementation of actions to control environmental deterioration across a wide range of dimensions. One of the key influences that so far has been left out of UN environmental accounting initiatives is the importance of location and how the same core activities have different impacts depending on the density of populations and the proximity of people and activities to each other. Such 'densities' may be subject to the institutional influence of regulatory zoning for urban planning pur-

poses and reflect individual enterprises' assessments of the economic costs (to them) of setting up in specific locations. The existence of urban sprawl, vehicle use, traffic congestion and residential preferences and home operations, all have very different energy-use efficiency levels. The combined outcome of these factors contributes in varying degrees to the carbon gas emissions and greenhouse gas effects that go to increase global warming.

The closer the home to the office, for example, and the greater the ability of the population to use public transport rather than private vehicles (which are often run inefficiently and usually well below their potential optimal carrying capacity), the greater the overall social and environmental benefit that can accrue to the community. On top of the environmental 'status' and flow measures used in the SEEA, therefore, it would be desirable to introduce certain location-sensitive environmental measures that take into account the congestion contours and associated pollution profiles and 'gradients' so as to explore the additional dimensions involved in changing human behaviour in favour of greater environmental sustainability.

## 6. Concluding Comments

The debt countries owe to the UN international statisticians for unifying ideas about economic activities and for their efforts towards quantifying the human condition and highlighting environmental problems is enormous. UN statistics have influenced the way institutions work and they have shaped, and continue to shape, the progressive development of ideas about society and its operations. Some pressing measurement issues, nevertheless, remain. Among these, the identification of world poverty, the assessment of human rights, the evaluation of civil society and the nature of globalisation and its impact must figure prominently. The UN must be able to enhance wisdom and knowledge by continuing to deliver, as far as possible, truth in numbers while retaining a realistic vision of what might hold in the future for official statistics.

## References

- Ahmad, Y., S. El Serafy and E. Lutz, eds, 1989, *Environmental Accounting for Sustainable Development: Selected Papers from the Joint UNEP-World Bank Workshops*, Washington DC: World Bank.
- Arndt, H. W., 1944, *The Economic Lessons of the Nineteen Thirties*, London: Oxford University Press.

- Bartelmus, P., C. Stahmer and J. van Tongeren, 1991, 'Integrated Environmental and Economic Accounting Framework for an SNA Satellite System', *Review of Income and Wealth*, Series 37, No. 2, pp. 111–148.
- Butterfield, H., 1931, *The Whig Interpretation of History*, London: G. Bell.
- Cambridge University, Department of Applied Economics, 1962–1974, *A Programme for Growth*, Vols 1–X11, Cambridge: Chapman Hall.
- Canberra Group on Household Income Statistics, 2001, *Measures of Household Income and its Distribution: Final Report and Recommendations*, Ottawa: Statistics Canada.
- Easterly, W., 1999, 'The Ghost of the Financing Gap: How the Harrod–Domar Model Still Haunts Development Economics', *Journal of Development Economics*, Vol. 60, No. 2, pp. 423–438.
- Economic Council of Japan, Net National Welfare Committee, 1974, *Measuring Net National Welfare Effects of Japan: Report of the NNW Measurement Committee*, Tokyo: Ministry of Finance.
- El Serafy, Salah, 1981, 'Absorbitive Capacity, the Demand for Revenue and the Supply of Petroleum', *Journal of Energy and Development*, Vol. 4, No. 2, pp. 273–290.
- Friend, A. and D. Rapport, 1989, *The Evolution of Information Systems for Sustainable Development*, IREE Occasional Paper Series No.1, Institute for Research on Environment and Economy, Ottawa.
- Galbraith, J. K., 1958, *The Affluent Society*, Boston: Houghton Mifflin.
- Hayek, F. A., 1944, *The Road to Serfdom*, London: Routledge and Sons.
- Hueting, R. and P. Bosch, 1990, 'On the Correction of National Income for Environmental Losses', *Statistical Journal of the United Nations ECE*, No.7, pp. 75–83.
- Keynes, J. M., 1936, *The General Theory of Employment, Interest and Money*, New York: Harcourt, Brace.
- Kuening, S. and M. de Haan, 1998, 'Netherlands: What's in a NAMEA? Recent Results', pp.143–156 in Uno and Bartelmus, eds.
- Lavigne, M., 1995, *The Economics of Transition: From Socialist Economy to Market Economy*, New York: St. Martin's Press.
- Meade, J. and R. Stone, 1944, *National Income and Expenditure*, London: Bowes and Bowes.
- Meadows, D. et al., 1972, *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind*, New York: Universe Books.
- Moss, Milton, ed., 1973, *The Measurement of Economic and Social Performance*, Studies in Income and Wealth, Vol. 38, New York: National Bureau of Economic Research.
- Nordhaus, W. and J. Tobin, 1973, 'Is Growth Obsolete?', in Moss, ed.
- North, D., 1990, *Institutions, Institutional Change and Economic Performance*, Cambridge: Cambridge University Press.
- Packard, Vance, 1960, *The Waste Makers*, New York: Mackay.
- Pyatt, G. and J. Round, 1985, *Social Accounting Matrices: A Basis for Planning*, Washington DC: World Bank.
- Pyatt, G. and E. Thorbecke, 1976, *Planning Techniques for a Better Future*, Geneva: ILO.
- Pyatt, G. and M. Ward, eds, 1999, *Identifying the Poor*; Papers on Measuring

- Poverty to Celebrate the Bicentenary of the Publication in 1797 of 'The State of the Poor' by Sir Frederick Morton Eden, Washington DC: ISO Press.
- Repetto, R., 1989, *Wasting Assets: Natural Resources in the National Income Accounts*, Washington DC: World Resources Institute.
- Reich, Utz-Peter, 2001, *National Accounts and Economic Value: A Study in Concepts*, Basingstoke: Palgrave.
- Rothschild, E., 2001, *Economic Sentiments: Adam Smith, Condorcet and the Enlightenment*, Cambridge, Mass.: Harvard University Press.
- Seers, D., 1963, 'The Limitations of the Special Case', *Bulletin of the Institute of Economics and Statistics*, Vol. 25, No. 2.
- Seers, D., 1975, 'The Neutrality of Numbers', *IDS Bulletin*, Vol. 7, No. 4.
- Seers, D., 1977, 'The Statistical Needs for Development with Special Reference to National Accounting', *IDS Communication*, No. 120.
- Seers, D., 1983, *The Political Economy of Nationalism*, Oxford: Oxford University Press.
- Sen, A., 1999, *Commodities and Capabilities*, New York: Elsevier Science Publications.
- Stone, R., 1997, *Some British Empiricists in the Social Sciences, 1650–1900*, Cambridge: Cambridge University Press.
- United Nations Statistical Office, 1953, *A System of National Accounts and Supporting Tables*, ST/STAT/Ser.4/2, New York.
- United Nations Statistical Office, 1960, *A Short Manual on Sampling*, Studies in Methods, Series F, New York.
- United Nations Statistical Office, 1968, *A System of National Accounts*, Series F.2, Rev 3, New York.
- United Nations Statistical Office, 1974, *Towards a System of Social and Demographic Statistics*, Studies in Methods, Series F, No. 18, New York.
- United Nations Statistical Office, 1978, *Social Indicators: Preliminary Guidelines and Illustrative Series*, New York.
- United Nations, Eurostat, IMF, OECD and the World Bank, 1993, *System of National Accounts 1993*, Series F, No.2, Rev 4, New York.
- UNDP, 1990–2004, *Human Development Reports* (annual), New York and Oxford: Oxford University Press.
- Uno, K. and P. Bartelmus, eds, 1998, *Environmental Accounting in Theory and Practice*, London: Kluwer Academic Publishers.
- U.S. Bureau of Economic Analysis, 1994, 'Accounting for Mineral Resources: Issues and BEA's Initial Estimates', *Survey of Current Business*, April, pp. 50–72.
- Ward, M., 1982, *Accounting for the Depletion of Resources in the National Accounts*, DES Occasional Studies, Paris: OECD.
- Ward, M., 2004, *Quantifying the World; UN Ideas and Statistics*, UNIHP, New York: Indiana University Press.