FAO Norms and Standards; A suitable basis for securing the shifting foundations of Agricultural Policy?

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1. Introduction

The collection and dissemination of statistical information on food and agriculture is a core mandate of FAO. Article 1 of the FAO constitution requires the organization 'to collect, analyze, interpret and disseminate information relating to nutrition, food, and agriculture'. As John Boyd-Orr, the first Director-General of FAO stated in his address to the first FAO Conference in 1945, if FAO is to carry out its work successfully it will need to have relevant information relating to the problems it was expected to tackle. He went on to say that 'such data will serve as a basis for making plans, determining the efficiency of measures used and measuring progress from time to time'. Setting the data objectives clearly implied laying down the definitions and classifications to be followed and the nature of the norms and standards by which policy success would be recognized.

FAO norms and data standards thus represent the core sentinel structures that define how policymakers establish the targets by which observers and analysts assume progress, structural change and development in the agricultural sector can be evaluated and should be perceived. In this respect, the application of such an approach means that the formats and methodologies officially adopted have implicitly played a significant role in determining both FAO and national policy. The standards determine the type of assessment of farming conditions and crop production, set indicative direction of how to proceed and, thereby, subsume the objectives of agricultural policy. Over the years, however, the norms have altered and certain aspects have proved less than axiomatic, as was once presumed, with the passage of time and the emphasis of FAO policy direction has undergone several swings and undergone change.

2. The General Background Context

Initially driven by a post-war political imperative to raise agricultural output to feed a devastated and disrupted war torn world and a growing global population, FAO went on to consider the role of agriculture as a means to support development and increase the incomes of both rural and urban workers, through mostly government run commodity marketing arrangements and local cooperatives and also through export promotion. It simulataneously pursued this objective by encouraging schemes to raise productivity and improve product quality. The first data priority, therefore, was to define what constituted an agriculture product and implement a classification scheme. In addition, data were compiled on crop areas under cultivation and associated yields. The contribution of the agricultural sector as a whole to GDP, as an indicator of the means to raise overall economic activity by transfering the gains of improved labour productivity in agriculture and releasing rural labour to find work in the emerging industrial sectors became an important plank of development policy. A consequent data priority required the integration of

information about agricultural activities into a broader International Standard of Industrial Classification prepared by the UN (ISIC). There were corresponding changes in the way 'farm' activities were measured.

Later, the pendulum swung back to the human priority to feed a large and growing number of people, particularly in Africa, where significantnumbers were suffering from perennial crop failures, drought and famine and serious dislocations due to civil wars. The issues of alleviating hunger, treating malnutrition and lessening food insecurity became the priorities. The protection of the most vulnerable populations and others at risk assumed a key place in FAO policy. This objective remains one of the most important problems FAO is still continuing to address. Elsewhere, however, through its newly introduced and comprehensive data system, FAOSTATS2, and inter-linked national data reporting framework, Countrystats, the organization is going back to its orginal mandate, that is, to gain a more detailed and better understanding of the overall demand and supply of agricultural, forestry and fishery products.

It is important to recognize that any assessment of the agricultural sector's achievements and the contribution of FAO to national policies and to current thinking about its changing role in supporting this sector, has to be seen against other external influences and circumstances. These factors include the changing economic philosophy of development, the associated priorities of national policy, the pace of cultural change, the background of global technological development, the growth of multinational corporations and the mostly uncontrollable and unpredictable variations in climate. The answers to simple questions such as 'what should a country grow?' cannot be found in apparent domestic comparative advantage in agricultural output nor tied, as it was originally, to the unique properties and alleged indestructible qualities of the soil (or of inland waters and the surrounding oceans).

In many countries, the emphasis of agricultural policy has tended to shift over the past half century as people have moved from the land.The rapid expansion and urbanization of populations has become a worldwide phenomenon and there has been an associated huge increase in demand for basic 'wage goods'. In key areas, also, there has been an increasing concentration of commodity marketing activities into just a few hands. A small handful of multinational companies has taken over the control of the global production and marketing of many major export commodities as well as of certain staple food crops yet, at the same time, malnutrition and famine continue to co-exist alongside plentiful harvests and food surpluses in different regions. Above everything else, including major changes in the way production is organized across the range from individual farmers to the level of communes, collectives and cooperatives right up to large companies and plantations, policymakers have witnessed a growing concern among the public about the environment. New concerns have arisen in respect of the production of biomass-fuel crops, land-use for recreational purposes, veterinary controls (or their absence), battery farming, and the proper supervision of the use of chemicals, such as pesticides and fertilizers, on the land. The environmental issue now hangs over every decision, especially because agricultural practices involve the use and exploitation of all natural resources

and affect also the sustainability of water supplies to crops and its availablity for other uses. The possible displacement of traditional food products by crops of higher value is also giving rise to concern in some quarters

FAO policy has had to adjust to these changing conditions and so classifications and benchmarking requirements have been updated. New standards have been introduced to cope with the need to identify and monitor emerging agricultural concerns and to facilitate the work of harmonisation and cooperation. The pressing financial imperative to conserve limited resource and coordinate, as far as possible, new data initiatives with other agencies engaged in using baseline population related data has been over-riding. This is one reason why FAO is now seriously looking into how best to organise future agricultural census activity that, historically, has been mostly carried out on a decennial basis and has adopted the physical 'farm' (size) or land area as the main sampling unit of interest. FAO is reviewing the question of whether it can shift to the household as a primary sampling unit. This means the decennial population census could serve as the core survey reference frame. An advantage of making this change is that this frame can be more readily updated and potential use could be made of more regular inter-linked survey programmes. A disadvantage is that land area data might be less available and less accurate and continuity with the past will become disrupted.

3. The More Detailed Perspective

Like most other UN specialized agencies FAO was established shortly after the end of the Second World War. At that time, an overwhelming proportion of the world's population lived in the rural areas where the most of the poorest households could be found. Producing data on agriculture meant collecting data about the basic source of life support for the majority of people. While a problem heightened by the recent effects of the war and massive shortages this had brought about, the major concern was with whether sufficient global food supplies were available to feed the world's population and avert widespread hunger. In particular, the possibility of starvation and widespread malnutrition was (and still is in some countries) a major fear. The inability of a country to feed its people was clearly manifested in widespread poverty in both the countryside and cities and this, mistakenly in many cases, shifted official strategic attention to raising domestic production at whatever the cost in terms of subsidies, protection measures and other forms of support for farmers and to a widespread thinking that the solution was if not agricultural, then food, self-sufficiency. But the whole response indicated a major failure in economic policy and an incapacity to weigh up the relevant relative benefits and costs.

3.1. Measuring Agriculture Production

FAO thus set about establishing an intuitive, easy to understand framework of basic data collection that was intended to identify in an independent, non-reportorial way, agricultural production. This first identified the area of land under cultivation for different types of crops, it then measured the yields obtained from a standard unit of land and from these two variables it

indirectly estimated the total (area times yield) crop production from different plots. The classifications initially brought into use set out the specifications for annually cultivated and permanent crops [the primary standards and definitions] and the methodologies adopted for measuring crops in the field were developed from theoretical sampling procedures [norms]. Since it was operationally and financially impossible to collect data from every farm and household in the country, the sampling procedures required, first, the identification of all those units engaged in some form of farming activity in the country; second, the selection of a representative sample of them; and, third, the choice of a parcel or plot of land on which the actual crops were to be sampled. This latter step similarly involved, on the land itself, a further random selection by local agricultural field officers of several very small (often no larger than one square metre) sample plots to be fully harvested and weighed.

The associated international guidelines provided in 'A Short Manual on Sampling' produced in 1960 by the then UN Statistical Office contains a number of examples and applications that are exclusively related to just such agricultural situations. The Manual was prepared by a group of experts who, although primarily academics, had essentially had some previous practical experience in agricultural statistics. The Manual was designed to weigh up the theoretical choices between different techniques that had varying cost implications and thus had less to say about the practical problems of sampling that would confront investigators in the field and invariably give rise to potentially large non-scientific sampling errors, although only rarely in the matter f 'non-response'. The manual is nonetheless important in bringing the topic of sampling out of the experimental laboratory context (from places like the Rothamsted Agricultural Research Station in the UK) and into the general field of applied measurement and use. Also influential in this respect in making sampling more operational in a policy context were the US Department of Agriculture and the Indian Statistical Institute in Calcutta. One of the senior sampling theory statisticians from India, P.V. Sukhatme, was recruited by FAO to head its statistical division, a post he held for twenty years. The appointment of Sukhatme and the leadership he gave to the post, importantly, defined not only the foundation of all FAO data work but also, for many years, its direction.

For years, these techniques, perhaps ideally suited for measuring the output of selected units with irrigated and closely inter-connected plots of single, homogeneous crops on relatively flat land, went unchallenged. Modifications of the same approach were adopted for estimating potential fish output although, given the mobility of the object of measurement, harvested or landed catches tended to become the primary statistic of interest. In the case of forestry where, uniquely, there were standing products, the primary and secondary stages of sampling were essentially similar but some sophisticated adjustments needed to be made to account for the age and annual growth of trees.

The challenge to this approach came, first, from those practising field officers who saw that multiple-cropping and inter-planting (particularly of ground crops in between standing tree crops) on the same plots was a common practice, most particularly on smallholdings; and,

second, who recognized that different surface elevations and slopes of land could give rise to dramatically different yield figures. The simple aggregation of findings on sampled areas to other plots, therefore, might give rise to significant error. Other experienced agricultural statisticians also argued that the conventional FAO method consistently biased the estimates of crop output in an upward direction because, in using any of the recommended sampling methods to find the exact section where to measure yields, few field officers ever took samples of areas where there were no crops (such as at the margins) just because there were no actual crops to measure, or sampled areas where the growth of products was only sparse.

3.2. Measuring the Costs of Output and Value Added

By the time these issues had surfaced, however, new problems and concerns had arisen. The above measurement practices were considered independent and neutral but the associated conditions under which agricultural output took place were far from neutral. The system had given rise to a philosophy to expand agricultural output by the best physical means possible. Such decisions were strongly guided by agricultural experimental stations' findings as to the most suitable crops to grow under certain soil conditions and topographical features. Little attention was paid to costs of production (or to cultural and social factors). FAO thus turned attention to 'farm economic accounts' because there arose a clear need to identify how farm output was managed and, irrespective of what crops were produced, how efficient and profitable certain agricultural activities proved to be. This approach also found favour with the national accountants who had long pondered over the problem of how to value of agricultural output at the farm level. But, in some countries, especially those where there was strong central political direction and a long-standing strategic concern about self-sufficiency and the especially the capacity to produce enough staple products to be able to feed themselves, certain farms were required to be 'grain producers' and to satisfy pre-determined output quotas related to the assumed intrinsic quality of the land under cultivation – not a far cry from the methods adopted by FAO.

Some years later, attention switched from this 'cost of production' approach where associated attempts were also made to value of the output of specific crops, either sold in the market or used for home consumption, to an assessment of the sufficiency of farming to generate satisfactory living standards. These limited studies based on a household survey approach were also designed to show whether farm households benefited more from expanding agricultural production or from incomes obtained from off-farm activities, often in nearby urban areas.

There is thus a strong inter-connection over FAO's history between situations where the data are determining the nature of policy and where the emergence of other policy imperatives begin to drive the primary characteristics of the data collected and the classifications and definitions drawn into common use are adopted form other institutions and lines of enquiry such as the system of national accounts [SNA], poverty enquiries and living standards measurement studies.

This is hardly surprising given the shift in development thinking from being solely focused on growth to one where poverty reduction is the primary goal.

3.3. Taking the Economic Overview

The importance of balancing the features of the demand and supply of agricultural products remains core to the FAO mandate. In terms of its drive to meet policy needs and for data standardization, FAO has recently introduced a new comprehensive framework for data reporting called Faostats2. This establishes a coherent and uniform basis for making comparisons not only between various sectors in the agricultural sector but also across countries..

In a number of areas there is considerable apparent homogeneity in the nature of outputs. However, the structure of production and various techniques employed lead to considerable variation in inputs and the type of production methods. The new system allows analysts to get some grip on these problems. FAO continues not only to lay down the fundamental protocols for initiating and monitoring data collection and recommend associated compilation procedures for the whole agricultural sector, including forestry and fishing, but it does so by placing all such reported activities into an intuitively meaningful supply and demand, activity based provider-disposition-recipient/beneficiary data system.

In doing so, FAO has launched what portends to be the largest and most influential global statistical dataset on food and agriculture. The core features of this data framework are conceptual consistency, integrated and inter-related data methods and genuine practicality for intended policy relevance at various levels of implementation. FAO's traditional pivotal role in compiling and analyzing agricultural statistics traditionally now places the organisation in a position of considerable importance in informing current debate on global and national questions related to all areas of agricultural and especially farm activity. Such information pertains to providing, over the global context, timely and regular data on crop yields, crop output, food security, sustainability, nutritional status and vulnerability. It also provides information on related supporting inputs – such as fertilizers, insecticides, etc - and on requirements that remain conventional concerns of agricultural policy.

FAO's strategic position in this area is of direct relevance to more than half of the world's population; it is of specific concern to the majority of poor households who inhabit the rural areas, but the organisation's role is now seen to be under some threat. Baseline and programme budget cuts along with internal budget uncertainties are being combined with new policy directions and data demands that place heavy additional pressures on the scarce resources of staff and financing in FAO. These new demands are no less critical to future global well-being than those traditionally part of the organization's essential mandate. They relate to a more recently recognized need for FAO to address various development and environmental concerns that are connected with land use, rural-urban imbalances and internal terms of trade issues, international trade and commodity market developments, droughts, global climate change, deforestation, over-

fishing and biodiversity, just to mention only a few of the more important issues on the agenda. Each of these areas requires prior agreement on what statistical procedures are necessary to assess and monitor such issues most effectively.

4. Some Concluding Observations

To meet these challenges and fulfill its traditional responsibilities, FAO aims to increase global knowledge in two ways; first, by improving the flow and use of the global statistics it produces using internationally recognized standards to ensure comparability as well as the essential additivity of all the data collected, literally, at the grass roots; and, second by improving national capacity to report all relevant and required data in a consistent way. In both cases the importance of metadata needs to be underlined -- that is to say the supplementary information that accompanies the actual numbers and provides an essential description of the quality of the sources, the methodology used and details of the definitions adopted must be fully described.

The implicit synergy lies in the symbiosis of these two approaches; the outputs of agricultural data at the national level feed directly as component inputs into the global database. If this works effectively, the latter can then be used to help refine the overall direction of policy and underpin the content of national programmes of agricultural statistics and development. By managing and compiling global statistics according to centrally defined standards and in the provision of support that FAO itself can give to countries that are endeavouring to comply with these procedures when preparing these data for their own use, the organization once more places itself in a pole position to offer advice and guidance on the appropriate methodologies to use. It can also help develop useful complementary data tools such as the Core Welfare Indicators Questionnaire [CWIQ] and create policy relevant instruments such as ‘poverty maps’ using ‘ground-truthed’ land-use maps with the GPS to produce an ‘agricultural’ GIS. This creates a set of tangible and intangible indicators for strengthening the quality of the data on which decision-makers in every country need to rely for implementing policy.

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