

III. USERS AND THEIR NEEDS

“We need statistics not only for explaining things but also in order to know precisely what there is to explain”.³⁵

Statistics is the “branch of political science dealing with the collection, classification, and discussion of facts (especially of a numerical kind) bearing on the condition of a State or community”.³⁶

159. Statistics are compiled to answer questions and, at times, to allow questions to be formulated with sufficient precision. Some inquiries are developed once and made continually (e.g., how many people who sought work this month were unsuccessful?). Other questions are asked less frequently (e.g., how many ton/miles can the railways system deliver per week?). Some questions are modified as the underlying reasons for asking them are modified in response to technological advances or the shifting relationship between the public and private sectors. Some questions still have not been answered (e.g., is the apparent slowdown in productivity increases merely a consequence of measurement problems, or is it real?). By and large, statistical agencies are accustomed to converting a general question into one to which a practicable answer can be found.

160. A statistical agency should strive for the organization that is most likely to produce an adequate statistical programme within the constraints of its budget, the capability of its staff and the intrinsic difficulty of the questions with which it is faced.

161. It is not only the demand side that is susceptible to external change. Technological changes may affect the ways in which statistical agencies are organized and, consequently, the way in which statistical information is collected and supplied. Advances in telecommunications and computer technology have vastly increased statistical agencies' scope and power in processing raw information. Taken in conjunction, these two developments constitute a reason why geographically decentralized field operations may not be needed much longer.³⁷ However, a geographically decentralized field operation may become a useful extension of the statistical agency's dissemination facilities, in addition to carrying out its traditional functions.

162. Changes in technology constrain a statistical agency in other ways. Business organization is shifting rapidly from national to regional, or even to global, modes.

³⁵ J.A. Schumpeter, *History of Economic Analysis* (London, Allen and Unwin, 1955).

³⁶ *The Oxford English Dictionary*, Second Edition, vol. XVI (New York, Oxford University Press, 1989).

³⁷ Precisely how much longer they will be required will of course vary from country to country. However, given the speed of diffusion of modern telecommunications and computer technology, even those countries with lower per capita income should be able to apply these technologies to their field operations in the not-too-distant future.

Communication and transportation technologies facilitate tight control and informed decision-making, which can be maintained irrespective of the geographical span of the business. However, the legal basis of a statistical agency is still very much bound by political frontiers; the agency cannot act beyond its national borders, regardless of the extent of its legitimacy at home or the importance of the information to its government constituents.

163. Changes in environment, equipment and expertise create new needs, which dictate changes in the agenda, policies and organizational structures of statistical agencies. The following paragraphs examine some of the typical features of the demand for statistical products by various constituencies.

A. The needs of Government

164. By its very nature, statistics is of special interest to Governments. In addition, official statistical agencies are largely financed by the central Government, although exceptions can be found. For example, there are instances in which the Government contribution to the statistical agency's budget is supplemented by the proceeds of sales of goods and services to all users, including the private sector. There are also instances in which statistics compiled by private sector research agencies over a long period of time acquire semi-official status. However, in the majority of countries, the largest proportion of the budget is supplied by the national treasury, aided at times by grants from international agencies.

165. As the source of financing, the Government may try to exert leverage on the activities of the statistical agency. When it helps determine priority activities, this leverage can be constructive. Conversely, when it attempts to delay the release of a vital number, modify a number, or defy a change in definitions or methods, such leverage may be detrimental. We have already seen why the latter activities are harmful. The present chapter examines constructive activities.

166. The needs of Government, like most needs of potential users, are not usually expressed in terms that lend themselves to instant data collection. They are divided into two categories: needs that call for regular observations of the same variable and needs that require information collected on an ad hoc basis. For example, regular observations are needed to find out the change in average consumer prices from one week, month or quarter to the next, so as to maintain a current perspective on inflationary pressures; the relationship between receipts and payments from and to other countries in case the treasury runs out of foreign assets; and the expected annual school enrolment by small area within particular regions, in order to ensure that classroom space and teacher supply meet the demand. These needs are met by the regular publication of statistics with known and describable properties, such as the consumer price index, the balance of trade and balance of payments with the rest of the world on goods and services and population projections by gender, age and area. In the majority of countries, there are

intermediaries³⁸ who interpret the current statistics in light of those compiled earlier and inform decision makers about changes that may require attention.

167. In some cases the Government requires ad hoc statistical information to explain the roots of a particular problem. This situation becomes complicated when there are no measurement conventions geared to the nature of the problem or the expected answers. Examples of such problems include whether the scale of evasion of value added tax collected appears to be growing; whether the underground economy is growing; whether the current policy on incarceration makes best use of resources to meet stated objectives; and whether current pay scales discriminate against women. In such cases, the very nature of the evidence may be open to interpretation and discussion. Clearly, translating users' information needs into the data collection or rearrangement that will eventually take place is a complicated process.

168. Some problems persist irrespective of time, place and method of Government or structure of political system. "How many people are there of military age?" was a popular question even two thousand years ago. "What gross tonnage is available to feed the inhabitants of the British Isles?" has had a fairly long tradition and was until recently a matter of concern to many cabinet ministers in the United Kingdom. Other problems are entirely new and are the result of technological innovation and of the changes in the way economic agents organize themselves in response to new techniques. These problems also exert pressure on statistical agencies, not only for the compilation of new information but eventually for the reorganization of basic data as well.

1. Ministries of finance

169. The needs of ministries of finance are long-standing, even though the form in which data must be presented changes in conjunction with advances in economics and accounting. Their needs range from measuring the wealth of the country to balancing the State ledgers and setting aside resources for future generations.

170. A ministry of finance attempts to ascertain whether imbalances exist between the uses and the applications of resources, and what impact those imbalances can have. Of particular interest are those imbalances that affect the labour market, raising questions about how much is required from labour to maintain the current production level.

171. A ministry of finance must know how changes in quantities and prices interact to change value. By and large, a ministry of finance is more interested in statistics that relate to rapidly changing variables, such as the demand, rather than the supply, side of the overall balance. For this reason, its questions tend to be clustered around the behaviour of the major demand aggregates: consumers, the confidence with which they behave in the marketplace, and the portion of their incomes they are prone to save; investors and the structures and equipment they wish to acquire; businesses abroad and the willingness they display to purchase nationally produced goods and services. Other ministries are more interested in looking into the supply side of the balance.

³⁸ For an explanation of where those intermediaries should be located (within or outside the statistical agency), see chapter 10.

2. Other ministries

172. These are the so-called vertical ministries (agriculture, mines, energy, transportation and communications are the most frequently encountered examples), and they need to know the size of their respective constituencies. In addition to some core information about production and its structure, such as employment and rates of return on capital invested, each ministry has a unique set of interests relevant to its sector. For example, the ministry of agriculture tends to be particularly concerned with improving crop production forecasts and learning about the environmental effects of herbicides and fungicides; the ministry of transport, with road safety, the condition of the rolling stock, and the adequacy of airports; and so on. At times, the special interests of these ministries precipitate detailed regulation of their respective sectors.³⁹ This certainly has been the case with both road and air transportation in a number of countries, although in the last ten to twenty years, the motto of some of these ministries has been “deregulation”.⁴⁰

173. Ministries of energy have become very important in recent years and are to be found in both producer countries and dependent user countries. Essentially, their concerns are met if the statistical agency succeeds in compiling a current balance of energy supply and demand that allows substitutions, shortfalls, import requirements and other concerns to be detected. The ministry will seek to ensure, for example, that the country’s endowments are not depleted too rapidly; that prospecting and drilling take place in an orderly environment; and that fuel substitutions are based on the correct rates of exchange. As in previous cases, this is a ministry that not only wishes to keep abreast of the size and resources of its constituency but also requires information of the kind that only specialists would possess.

174. Ministries of labour are known by a variety of names, such as the ministry of employment or human resources. Their interests include the condition of the labour force; the facility with which it can take part in gainful occupations; equitable remuneration of the workforce; workplace safety; the availability of appropriate training facilities for employees whose skills are no longer needed as well as for those whose skills are in short supply relative to emerging demand; and the detection of barriers to geographic mobility where geographic, rather than overall, imbalances in demand and supply exist.

175. Examples of cross-cutting ministries (or, in some cases, parts of ministries) are sports, culture and tourism. Their primary interest is to evaluate the sector for whose promotion (or regulation) they are responsible and to determine its unique characteristics

³⁹ In regulated sectors, the forms used to ensure compliance frequently are, or can be, used for statistical purposes.

⁴⁰ Deregulation may have been good for free enterprise, but it posed a dilemma for statistical agencies. Some statistical agencies relied on the regulatory information requirements of these ministries, finding all the information they needed in the specialized ministries’ administrative records. Not only did deregulation put an end to this state of affairs, but in many instances the ministerial authorities passed new legislation, asserting that henceforth the paperwork burden they imposed would be drastically diminished. These promises compounded the problem created by the absence of administrative records. A few countries still have not found a way to improve this situation.

so that resources can be efficiently assigned.

176. The ministries of health and education tend to be the largest of the service ministries, and their portfolios cover both public and private sectors. Licensing and/or regulating are onerous parts of their ministerial chores, demanding a great deal of detailed quantitative information. Moreover, the authority of these ministries, which are part of the central Government, typically dovetails with that of government authorities at other levels.⁴¹ Since these ministries assume regulatory duties, a wealth of detailed information is generated as a result of their administrative processes. The information requirements of these ministries have become increasingly dominated by the notion of effectiveness, which requires measuring the outcomes of their policies and actions. Administrative records are insufficient to measure outcomes. As a result, questions about effectiveness lead to demands for supplementing administrative records with independently generated statistical information within an analytical framework.

177. Since the Government is responsible for an overwhelming share of the provision of education services in many countries, questions arise regarding efficiency and public accountability. Examples of such questions include: How much does it cost society to provide free schooling for all children up to the age of 15? How are the costs recouped? Are the physical facilities adequate, or is there inequity in the provision of the service? Do the teacher/student ratios ensure effective use of the resources assigned to education? Are they likely to continue doing so in the light of the age of the workforce and the growth in population? Are there enough teacher training facilities to guarantee the maintenance of current teacher/student ratios?

178. Similar questions arise in the health sector. Are marginal expenditures on additional hospital beds more effective than expenditures on improved home care if the objective is to minimize pain? In general, statistical agencies must resist the temptation to compile information that is understandable and amenable to a count but uninteresting from the point of view of the policy and decision makers. Rather, the agencies must devise methods and techniques that will allow them to address the more difficult problem of measuring outcomes. In the case of health, education, and science, there is no designated length for the period of observation before an outcome can be assessed. Finally, the most important question to which decisive answers have not yet been found: is a marginal public investment in health (education, scientific research, etc.), in the light of the observed outcomes, commensurate with the expected return?

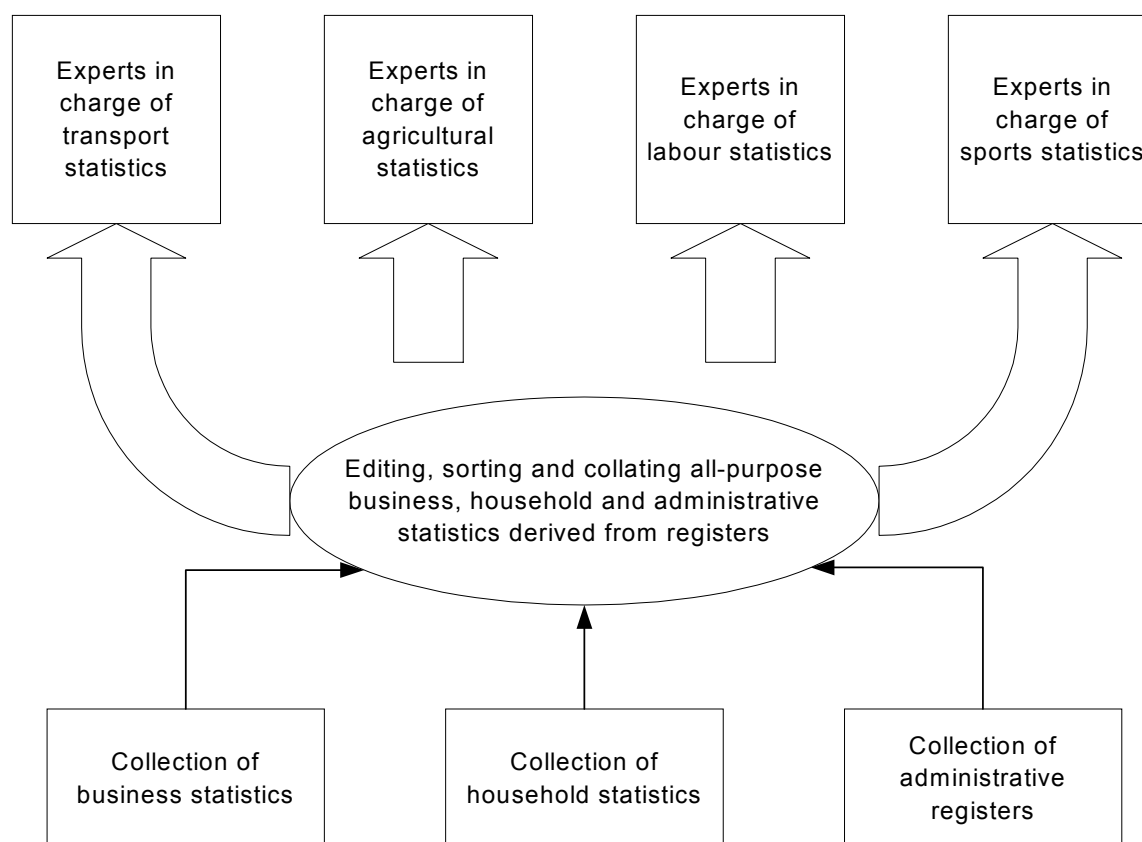
179. If it becomes clear to all that the question of effectiveness drives the need for information. Taking into account the difficulties in measuring effectiveness without making very controversial assumptions, the national statistical office should establish a close partnership with health economists, school administrators, criminologists and natural scientists. Such a partnership should be designed to help clarify the limits of the information available in these domains and the possible progress that a statistical agency can make.

⁴¹ Municipal authorities; or, in federal countries, with regional, provincial or state authorities.

3. Organizing and establishing contacts

180. A core of general information is of great interest to each of the ministries, however small their portfolios. That core contrasts with a number of specialized questions that are more efficiently answered by specialists. A statistical agency should ensure that the most efficient arrangements are in place to gather core information and that the ministries have access to specialists who will participate in the dialogue on the areas of particular interest (see figure 2).

Figure 2. Schematic representation of a statistical agency organized to collect, process and disseminate data in selected specialized fields



181. An essential point is to find ways to be sufficiently linked to the policy analysts in the specialized ministries in order to (a) foresee what kinds of problems are likely to arise several years from now; (b) foresee which part of the current demand already met by ad hoc information from the statistical agency is likely to become a fixture in the near future; (c) conduct a dialogue with the relevant ministry experts; and (d) supplement all-purpose statistics with more specialized information.

182. The organizational scheme illustrated in figure 2 is general enough to suit both decentralized and centralized systems. In the case of the former, each "expert" box might correspond to a statistical cell (or bureau) in a separate ministry. Moreover, each of those cells might carry out its activities in any one of four possible ways: by having its own

collection capability; by commissioning the central statistical agency to carry out the collection on its behalf; by adding statistical requirements to the ministry's collection of administrative records and separating the statistical from the general information when the records are collected; or by contracting a third party to take charge of the collection operations.⁴²

183. In the case of a centralized system, each of the “expert” boxes corresponds to an organizational unit within the central statistical agency. This unit may be in charge of liaison or dialogue, or it may fulfil an advisory function or other objective corresponding to a particular ministry or complex of institutions sharing the same concern. The essential properties of each cell include the following:

- The ability to foresee requirements and understand their nature and statistical implications;
- Knowledge of available information and ways to supplement it, so that a database capable of satisfying current and future needs can be created;
- Access to existing information—individual records if necessary—in order to ensure correct matching and record linkage;
- The direct or indirect collection capability required to add specialized information to the existing database.

184. Experience has shown that meeting the third requirement can present delicate, although not necessarily insuperable, problems of intrusion into the privacy of individual citizens. Some of these problems are strictly connected to the legality of access to individual records. Others, assuming the legal barriers are overcome, are more problematic because they concern actual intrusions into privacy, which may require special institutions for control and regulation.

4. Regional and local government

185. Problems relating to the interaction between statistical agencies and regional authorities are similar to those relating to interaction with ministries; the latter cut across subject areas, while the former cut across geography. This is a simplification of the problem of assessing and satisfying the information needs of other levels of Government. A more detailed examination of the problem reveals questions concerning problems of access to officials who work for different levels of Government; issues related to central versus regional politics; and constitutional issues that may pose formidable barriers to communication and access.

186. Often, those responsible for regional Government will ask for a small-scale version of what is done at the national level. Thus, if the national agency compiles national accounts, a consumer price index or other information, it is likely that all of these, limited to the scope of the region but as comprehensive as possible, will be

⁴² The underlying assumption is that the statistical cells have unimpeded access to the collective database.

required to satisfy regional authorities.

187. More realistically, the needs of regional and local authorities will be subordinate to those of the government apparatus. Thus, all of them, irrespective of size, will be interested in the number of people (or families or households) who live under their jurisdiction; the demographic and income characteristics of this population; employment status; housing conditions; and possibly health and education attributes. Such information makes planning at a local level possible.⁴³

188. In most countries with a federal constitution, each state (province, autonomous region) has a Government with certain well-defined interests, as well as a residual set of concerns that, by consensus, are left to the federal level: for example, foreign trade and payments can be managed only at the national level.

189. The problem posed to the central statistical agency is how, without compromising reliability or thoroughness, to meet the requirements for information for geographical areas that are substantially smaller than the nation. Different countries respond to this challenge in various ways. For example, in some countries the national statistic is essentially the sum of the statistics estimated by the offices of each of its politically defined regions, except in matters explicitly of federal concern. In other countries, an understanding is reached whereby the national statistical agency agrees to supply local offices with core statistics of equal merit⁴⁴ for each subject area, to be supplemented with information collected by each local statistical agency.

190. Whereas discussions with specialized ministries often involve meetings with experts, discussions with local or regional authorities are more likely to be policy-oriented and to involve the chief statistician. The reason for this is simple. Most statistical agencies are equipped to make effective use of censuses at the local level (their usual purpose), but they are not positioned to provide a wide range of reliable non-census data at the local level. Widespread over-sampling of businesses and households intended to meet particular requirements of regional authorities would deplete both the budgets of central agencies and, perhaps more importantly, the goodwill of respondents.

191. Part of the dialogue between central statistical agencies and regional and local Governments assesses what useful statistical information can be squeezed out of existing administrative records, as well as ways to persuade the collectors of administrative records to take into account possible regional requirements. In those situations where there is access to these records, their coverage is usually adequate for small areas. The outcome of this dialogue, if successful, is a mixture of national and regional statistical estimates with local area information derived from administrative records.

192. Managing the requirements of government agencies - local, regional and specialized - is a matter that requires great delicacy. The chief statistician can err by being too far removed from the centres where the requirements are formulated, too quick

⁴³ See "Regional statistics: proceedings of a meeting" (Neuchatel, Swiss Federal Statistical Office, 2000).

⁴⁴ The word "merit" as used here, is meant to encompass both equal detail and equal reliability for those details that are preserved at the local level.

to create precedents that the budget of his agency will not allow to be generalized, or insufficiently forthcoming. The sum total of these errors may lead to the creation of alternative data collection agencies, making overall coordination much more difficult.

193. With this in mind, a chief statistician is well advised to create permanent contacts with prospective public-sector users to keep abreast of the way requirements are evolving and of the quality of the service that the agency provides. The form those contacts will take and the level of the designated liaisons will be dictated by efficiency concerns. Ultimately, the chief statistician will have to articulate a policy with a number of necessary elements:

- Statistics that are compiled nationally but accompanied by regional breakdowns;
- Ways to ensure the reliability of regional statistics;⁴⁵
- Conditions of access to the regional database;
- Support for regional agencies that wish to supplement their own databases with resources available at the national level;
- Consultation on geographic classifications.

194. The chief statistician should keep lines of communication open to local and regional bodies at all times and bestow authority upon someone in whom he or she has total confidence. Few situations can escalate as rapidly as a centre-periphery misunderstanding, with mutual recriminations arising from a failure to communicate openly.

195. In general, allowing representatives from peripheral bodies to see a statistical agency from the inside is the best possible way of demonstrating its inherent limitations. Thus, it might be advisable for the central agency to accommodate trainees from the regional organizations. Where no group ethos of statisticians exists, one might institute surrogate measures to develop one. In the end, the creation of a national community of statisticians bound by common professional interests (e.g., through a professional association that recognizes professional standing irrespective of level of Government), may turn out to be a more potent device to preserve harmony between the centre and the regions than the introduction of purely organizational measures.

B. The needs of the public

1. The community at large

196. The public keeps a watchful eye on regular statistics such as the CPI and the unemployment rate, as well as on overall economic performance. The statistical agency

⁴⁵ It is best to negotiate these attributes so that interlocutors can become aware of the difficulties involved in providing geographical breakdowns. The reliability features referred to would include timeliness, the best measure of error possible and supplementary detail.

should be able to address these concerns. At the same time, it should capitalize on the public's ongoing interest and ensure that its name is automatically associated with the publication of data with which the public is most concerned. The statistical agency should also strive to inspire confidence in its efforts to maximize the quality of these key measurements.

197. The public also has requirements that are not so substantial, permanent or well defined. The difficulty lies in the inchoate state of these requirements and in the fact that a particular interest may flare up at any moment in response to a particular situation, most often an unforeseen event of a threatening nature (e.g., What was the value of the housing destroyed by last week's hurricane? How much in savings has been wiped out by the latest bout of inflation? How many illegal immigrants are there in a particular city? How large is the underground economy?). One way to address these concerns directly is to maintain a small ad hoc survey capacity characterized by a very quick turnaround.

2. Schools and high schools

198. The introduction of statistics in school curricula is a means of instilling respect for quantitative information and analysis. Both primary and secondary schools offer a variety of courses in which statistics play a visible role. The following are examples of basic questions that appear in the curricula of many schools at both the primary and secondary levels: What is the population density? How many people live within the country's borders? How wealthy are they? What do they do in their leisure time? How are they employed? How many of them are poor and need help? Do they have access to educational and health facilities?

199. The names of the relevant courses vary from country to country, but the subject matter is more consistent than the terminology suggests. Several statistical agencies have a special programme to support initiatives by the educational system to promote the use of quantitative data at an early age.⁴⁶ In Poland, there is an active high school competition for the best essay in which extensive use is made of official statistics. In other countries, schools are granted premium access to the national database of the statistical agency.

3. The press

200. The press and other mass media play a special intermediary role in the relay of statistical information, whether it is the subject of national or local interest. For this reason, the statistical agency is responsible for ensuring, not only that the right information gets into the right hands at the right time, but also that it is properly described and imparted in the appropriate form to those who most need it.

201. No statistical agency has the power to ensure, for example, that all those whose lives are affected by a change in the measured level of consumer prices become aware of

⁴⁶ More ambitious courses can easily be envisaged to prepare young people for a university education. For example, an introductory programme in macroeconomics for high school children might use national accounting data, and programmes in applied mathematics or statistics might use live statistical series to illustrate techniques of time series analysis.

that fact exclusively by consulting a statistical bulletin. Even in countries where the population is measured in tens of millions, statistical bulletins are seldom published in quantities of more than a few thousand (with the possible exception of the occasional prestige publication, which may be issued in quantities of two or three times the average circulation).

202. For these reasons, the agency will have to rely on the press to ensure that statistical news reaches all interested parties. This creates several challenges, which will have to be addressed through a liaison organization:

- Ensuring that newspapers, television, radio and magazines all become aware of the latest statistical information at the right time;
- Ensuring that the statistical office is responsive, even outside of normal office hours, to the deadlines of the press;
- Providing, along with the latest numbers, the necessary amount of explanation so that press reports are balanced and accurate;
- Periodically reviewing with the press the arrangements made to ensure efficient dissemination;
- Making all possible efforts to present statistical news in a manner that minimizes misinterpretation and enhances clarity;
- Holding seminars for members of the press to highlight simple analytical techniques for interpreting and assessing current data.

A number of statistical offices have made permanent arrangements to meet these challenges and maximize the value of the press to the statistical agency.

Box 5. Colouring statistical news

This heading is not meant to suggest impropriety. Ensuring that the news gets interpreted properly does not imply manipulation of the subjective views of the press. Rather, it implies that everyone should be aware of the pitfalls of interpretation. For example, if toy imports escalate significantly in the month of November (in a country where a large proportion of the population celebrates Christmas), this is not necessarily a harbinger of disastrous news for the national balance of payments. Rather, it may mean that domestic toyshops are preparing for Christmas, and the relevant comparison is not with the previous month but with the same month one year earlier. Such is the situation with unique events - e.g., the leasing of three jumbo jets for the national airline or the effects of a strike or a natural disaster - which may distort the expected figures and play a major role in their interpretation.

Recognition

The statistical agency should be recognized when statistical headlines are broadcast. Often, the mass media make references such as this: "Government officials claim that this month's production of cement is well above expectations, leading to an optimistic outlook for the construction industry....". Correcting the failure to single out the statistical agency responsible for the estimation should be a matter of priority. Giving the agency credit not only reminds the population of its existence, role and responsibilities, but also reinforces its imprimatur on the release of key figures and impresses upon users that those figures have a special character of reliability.

203. In most countries and in most political systems, Governments can be elected or their tenure of power can be ratified on the basis of promises made to the electorate. Promises range from the general ("we shall make this country secure for our children") to the very specific ("we shall keep the rate of unemployment below 5 per cent"). Political accountability in the latter example can take place only in the light of an objective measure (official statistics) that informs public opinion about whether or not the Government has kept its promise. In this instance, opinion is formed in two ways: the public may decide that the Government was or was not faithful to its electoral platform, or it may decide that the standard of measurement - the official statistic - was unreliable and therefore of no consequence in its ultimate judgement of Government performance. The press can play a constructive role in ensuring that the judgement of performance does not get mixed up with the reliability of the statistics.

204. Many statistical agencies have earned the public trust in their word and in their institutional guarantee. Clearly, this situation is desirable for every statistical institution. Since the press can be a valuable ally in this task, investing in a press liaison is worthwhile.

C. The needs of business

205. Ultimately, all business users share similar interests in quantitative information. The fundamental questions are: How many businesses like ours exist? How do they compare to us? What are the prospects for our business and for those with similar attributes? Other interests are essentially variations on these fundamental questions.

206. To provide an answer, the statistical agency must first define “us”. From the statistical agency’s point of view, the definition should be as wide as possible, so that sampling techniques can be used effectively and the seemingly insoluble problems of accurate coding can be overcome. From the point of view of the potential user, “us” should be as narrowly defined as possible, to account for the large number of idiosyncrasies in what is being compared.

207. Once the scope of “us” has been defined, the next challenge is to select the attributes that must be compared to satisfy the interests of business. In principle, all economic variables are potential subjects of comparison. Thus, examples of important attributes include the number of employed per unit of revenue and per unit of profit; the structure of costs; the size of the market measured in number of customers and in gross revenue; the composition of the market in terms of purchasers at home and abroad; the return on capital invested; the rate of product innovation; and the prices quoted.

208. Of all these variables, and in most lines of business, the two that appear to be of greatest interest are the rate at which prices are adjusted to conditions of overall and specific demand and the rate at which the products or services of a business are influenced by technical and organizational innovation.⁴⁷

1. Large businesses

209. There is a degree of similarity between the interests of large businesses and those of a ministry of finance and its respective specialized sectors. Obviously, if businesses cater to national markets and possess multiple lines of specialization, the only useful point of comparison is the rest of the economy. Their questions will resemble those of the ministry of finance, with an emphasis on cost structures for activities of special interest; cost structures of competitors abroad; information on barriers to their activities abroad (both tariff and non-tariff); and financial information on investment at home and abroad.

210. In many countries, big business represents a disproportionately large share of GDP, and therefore neither its requirements for information nor the accuracy and promptness of its responses can be ignored. For this reason, a number of statistical agencies have instituted a special unit with the exclusive function of managing relations with large businesses. Not surprisingly, the first agencies to institute such units were in those countries with the highest concentration of large businesses. However, the payoff has been so significant that others have followed suit. Today, there are examples of big business units in large and small statistical offices, and in industrially advanced as well as emerging industrialized countries.

211. A large business unit has a multiple roles. Therefore, it stands out as an exception to the simple rules of organization along the statistical production process. Its responsibilities include the following:

⁴⁷ The timeliness constraints on these data are usually not as stringent as those on general-purpose data such as the CPI or GDP.

- Keeping a current record of the boundaries and structure of large businesses (these businesses change configuration very quickly, so what is reported in one period may not be significantly comparable with the previous period);
- Keeping track of the businesses' accounting practices to distinguish between internal transfer pricing and arm's length market pricing;
- Deciding, in communication with designated business contacts, the statistical questions that can be answered directly by using account information, and those that require estimation;
- Making sure that each business is required to answer each question only once and that the answer is used in all databases for which that information is required;
- Communicating with the research department of the business enterprise regarding its needs for information and the most convenient medium in which to provide the data;
- Gathering, from discussions with the research department, information as to the intentions of the business regarding innovation, investment and acquisitions abroad as well as general confidence in the domestic market.

The larger the business, the more explicit and articulated will be each of these responsibilities.⁴⁸

2. Small businesses

212. Satisfying the information needs of small business is the greatest challenge for business statistics for a number of reasons. In the first place, the ratio of effort deployed in answering requests for information, both regulatory and statistical, from the Government to the economic size of businesses is much higher for small than for medium-sized and large businesses. The ratio is almost as high as that for households. In addition, even when the need for information is well formulated, the specifications tend to be so detailed - in terms of what the business does, where it is located, and with whom it wishes to be compared - that the statistical agency finds it difficult to comply with such requests to any professionally acceptable degree of reliability. The third reason relates to the nature of small business needs for information; even though they tend to require highly specific statistics, small businesses may be reluctant to comply with all of the Government's demands for detailed information because devoting the necessary time and resources would significantly add to their overall costs. The statistical agency will find it very difficult to accommodate small business needs if it does not have access to key administrative records and the ability to use them for statistical purposes.

⁴⁸ There is at least one example of a publication of big business statistics. In Argentina, the Instituto Nacional de Estadística y Censos (INDEC) not only has a unit in charge of large businesses, but also uses a separate survey for them and publishes a statistical bulletin reporting the results for the principal economic variables.

Box 6. Examples of administrative records of use for small business statistics

However, under most circumstances, the high level of corporate income tax information limits its usefulness in deriving small business statistics. In addition, the apparatus required for collecting direct taxes is unevenly developed, so income tax records are of little help in many of the countries where the activities of small business and their relationships to the informal sector are of special interest, even where access is granted.

Conversely, indirect taxation is a virtually universal source of information. In recent years, Governments in many countries have made special efforts to ensure that such taxes, particularly value added taxes, are levied and faithfully reported to the proper authorities. They have also made special efforts to ensure that social security records are complete and accessible. While access to and use of these records is only useful to measure and describe the organized sectors of the economy - at times leaving a large swathe of informal economic activities nearly untouched - nevertheless, the information that can be gathered from the records is more substantial than any information the statistical agency could collect unaided. If it relies on indirect tax records, the agency is free to concentrate its efforts on household and related activities that may for a time resist the effects of taxation and social security reforms.

213. Despite all these difficulties, small businesses are of undeniable importance. They are numerous;⁴⁹ play a key role in the service sector; are widely recognized for their innovation, particularly in the dynamic activities that characterize a modern economy; and, according to some analysts, play a key role in job creation, particularly in the early phases of a cyclical upswing. For these reasons, their wishes must factor into the dissemination programme of a statistical agency.

214. There are two aspects to meeting the information needs of small businesses, both of which affect the organization of the statistical agency - the collection and dissemination of the information itself and the training of small-business employees to use the information to their advantage.⁵⁰ One of the most significant barriers to the survival of small businesses is gaining access to credit on affordable terms, and to do so, they must demonstrate how their costs and gross profits compare with those of their competitors. Thus, what is of prime interest to them is not averages and totals but rather the distribution of key ratios and how they compare with other businesses in their category. Examples of such ratios are advertising costs to total cost; equity to credit; and accounts receivable to total revenue.

215. Using a table with distributions of key ratios may be intimidating at first, particularly for some entrepreneurs who are apt to trust their intuition or salesmanship more than unfamiliar arrays of numbers. For this reason, the statistical agency may wish to offer seminars for small-business managers and take advantage of trade fairs and similar events to display its relevant products.

⁴⁹ In Canada, according to the *Business Register* (Ottawa, Statistics Canada, regularly updated), small businesses (defined conservatively) accounted for 95 per cent of all businesses with one or more employees. Taking into account zero-employee businesses, the proportion should rise to approximately 98 per cent. Other countries of comparable size and development have a similar makeup.

⁵⁰ Some imaginative approaches along these lines can be used to establish a dialogue with business enterprises in the informal sector - for example, showing them, free of charge and of commitment, how they can analyse their performance by using statistical tables.

216. The demographic characteristics of markets are also of interest to businesses of any size, particularly those who cater to the final consumers or to freelancers who work from home. The age, gender, family and income attributes of the population in very small areas are of the utmost importance to them, but they may not have the knowledge or the confidence to approach a statistical agency and request cross-tabulations derived from the population census. In order to cater to those wishes, statistical agencies may have to utilize specialized consultants who can estimate potential sales of a wide range of articles on the basis of a combination of small-area census variables and the results of the latest survey of family expenditure.

217. In any case, maintaining a unit within the statistical agency that specializes in small-business concerns is valuable. Its responsibilities should include the following:

- Maintaining expertise in the handling of administrative records so as to satisfy current demands, either exclusively or primarily with the information they contain;
- Organizing events of interest to small business and using them as opportunities to disseminate extracts of existing databases and to assist small businesses in the effective use of statistical publications;
- Championing small-business claims for limitations on the paperwork burden generated by Government in general;
- Serving as permanent liaison between the statistical agency and such agencies as social security, indirect taxation, and customs.

D. Research and other needs

1. The academic world

218. The academic world can place burdensome demands on a statistical agency, but it can also be the most important ally in defining research and action programmes, in evaluating the quality of the statistics produced and in helping explain to laymen the underlying strengths and weaknesses of official statistics. Therefore, contacts with members of academic institutions are a strategic resource and should be as extensive as possible.

219. The needs of the academic world cannot be summarized as easily as those of other sectors. In theory, they encompass all activities of a statistical agency. Any research in the social sciences⁵¹ that is conducted in an academic institution and requires testing places demands on statistical agencies. However, academic needs may differ from the needs of other sectors in at least one fundamental respect. All other sectors require statistics for formulating policy, examining options, and ultimately making decisions, and are therefore less prone to worry about how the data are generated. The reverse is true for

⁵¹ Increasingly, the state of the environment and the condition of a country's natural resources have become subjects of statistical activities and, of course, are of interest to academic researchers.

the academic community. For example, in testing a particular economic theorem, it may be crucial to distinguish between data as they are observed and data altered by standard editing processes. In addition, academic researchers are far more likely to dispense with the statistical agencies' analyses in favour of their own. For these reasons, the statistical agency should establish a liaison with academic researchers, but a distinct unit is not required.

220. Agencies that have a special methodological unit in charge of survey design and estimation may be tempted to locate the liaison with universities in such a unit, at least for researchers in applied sociology, demography, criminology and microeconomics. This should not preclude contacts with other parts of the agency.

221. Naturally, macroeconomists prefer to establish their liaison with the agency's national accountants and are less interested in the sampling aspects of the underlying statistics. However, much of the communication between the statistical agency and academia will be the result of individual circumstances. The essential point is to capitalize on the contribution to the statistical process that can be made by academic institutions. Many statistical agencies have programmes that allow for an interchange between university researchers and the more research-inclined members of the statistical agency. To carry out such an interchange, the university and statistical agency may each assign researchers to the other institution, or they may collaborate on projects of mutual interest.⁵²

2. International institutions

222. In many countries with advanced statistical systems, the programme requirements of international agencies⁵³ represent no more than a marginal addition to the statistical agencies' domestic programmes and can be treated as a by-product of current activities, but this is not always the case. Indeed, in some statistical agencies, apart from special large-scale initiatives such as the census of population, the requirements of international organizations dominate the current programme.

223. For many statistical agencies, international agencies remain the most important source of conceptual and methodological guidance, not only in improving their capacity for inter-country comparisons but also in structuring domestic programmes. The demands of international organizations impose a discipline without which inter-country comparisons would quickly become either unachievable or meaningless. Comparisons are possible largely due to the use of international classifications and standard accounting systems such as the System of National Accounts (SNA).

224. Despite the benefits the international agencies bring, their intervention also often creates significant problems. Since an international agency can furnish highly needed

⁵² Several papers address the subject of "blue-collar" and "white-collar" statisticians. See, for example, Martin B. Wilk, "Blue and white collar statisticians", in *Proceedings of the Statistical Society of Canada*, 1985.

⁵³ This refers to international agencies only. The demands placed by supranational agencies on member countries are of a different nature and magnitude, depending on the closeness of the relationship.

resources, it is difficult, if not impossible, for many developing countries to approach the offer from an international agency as an arm's length transaction. Moreover, the intervention of the agency may cause significant disruptions in the programme of the national statistical office. Situations have also arisen in which the data collected by the agency is published without any review by the country. Finally, too often, international agency programmes have not been accompanied by a transfer of technology from the agency to the country. Thus, while, valuable information has been collected, there has not often been a corresponding improvement in the statistical capacity of the country. Fortunately, this situation is changing and international agencies are increasingly committed to capacity-building. One of the important responsibilities of the chief statistician is to ensure the maximum amount of capacity-building while continuing the cooperation with the international agencies.

225. Chapter III has examined the need to create a specialized unit charged with particular function. Nevertheless, taking such a step should not be viewed as a panacea. A great deal depends on the size of the office, its stage of development and the weight of the problems it faces. In many instances, it is sufficient to assign one person to the task. In other cases, it is best to distribute responsibility throughout the agency. When the specialized position can broaden agency employees' experience by exposing them to keen, analytically minded users, it is favourable to distribute the responsibility.

Conclusions

Statistical agencies should create a programme that is as versatile as possible, in order to serve users with a wide range of questions and concerns. The remarks above illustrate the variety of those concerns and questions. However, a statistical agency cannot confidently predict the nature of future concerns and the types of questions that might be answered through the use of official statistics. Accordingly, it must invest in the ability to produce general purpose, versatile tabulations. A statistical agency can, and should, also invest in ensuring user access to techniques that allow for rearranging basic data to better conform to specific objectives. Yet this is only possible if there is a clear understanding of the nature of the questions.

However an agency is organized, consideration should be given to the assignment of specialized functions (in a distinct unit or not) with a dual mission:

- Detecting, through close contact with all sectors, upcoming matters of concern that may require statistical support;
- Following up with representatives of the various sectors to determine the adequacy of the service provided by the statistical agency.

Some functions would benefit from the cooperation of the relevant subject-matter experts. In a few special cases, specialized units may be created to address each function. Such cases include relations with large businesses; small businesses and their associations; and the press. In all instances it is imperative that the findings of these units be incorporated into the formulation of priorities and the corresponding plan of action.