

Main paper for Theme 1: Demand for Better Statistics and Use of Data¹

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List of acronyms

NSSO: National Sample Survey Organization

CSO: Central Statistical Organization

COCSSO: Committee of Central and State Statistical Organizations

IMF: International Monetary Fund

GDDS: General Data Dissemination System

MfDR: International Roundtable on Managing for Development Results

NSS: National sample surveys

SDDS: Special Data Dissemination System

UN-SNA: United Nations' System of National Accounts

I. Demand for Statistics: Possible Interpretations

The term “demand for statistics” can be interpreted in at least two possible senses.

One, demand for statistics can be interpreted in its role as a ‘*key technology*’ as it was described by Professor P. C. Mahalanobis, Fellow of the Royal Society and one of the pioneers of the theory of statistical inference in the first half of the Twentieth century³. Professor Mahalanobis perceived and used statistics as *fundamental to all applied sciences because statistics provides the basic tool-box for evaluating the validity of any scientific hypothesis – be it in natural or social sciences – with the help of rigorous analysis of quantitative evidence – generated either experimentally or collected through observations of basic primary units over time, space or both*. In this sense, demand for statistics is for **reliable techniques of statistical inference** from appropriately drawn sample observations by social or natural scientists and researchers whose efforts in unraveling the regularities in natural and social phenomena have had far reaching consequences for the lives of the people through their applications in science-based inventions and innovations.

The second sense in which demand for statistics can be interpreted is the demand for statistics as numerical facts collected either by private entities or by public agencies and used to represent the factual position. Economists regard information – numerical or otherwise – put in public domain as a *public good* like, for example, roads, bridges and other public infrastructure. This is because once *information is put in public domain*, it has the properties of what economists call *public good*, namely, *non-rivalry in use* (use of information by one person does not preclude others from using it) and *non-excludability in consumption* (same information can be used by several persons simultaneously without affecting its content) which characterize public (in contrast to private) goods. For economists, *private goods* (like, for example, a fountain pen) are *rival in use* (my using the pen precludes its use by others) and *excludable* in consumption because of individual property rights over them. Official statistics generated from censuses or representative sample surveys or from administrative records maintained in public administration provide valuable information about the quantifiable facets that reflect the healthy (or otherwise) state of the society as well as the economy. This information is important not only for the formulation of social or economic policy of the government but also for the better-informed public debates and discussions. Hence, official economic and social statistics which enable factual assessment of the problems and prospects for the economy as well as society, there is a **strong argument for treating official statistics as public good** on par with physical and social infrastructure (rail, road and waterways network, bridges, education and health services) that is essential for the smooth functioning of the society and economy. It is from this perspective that we examine the uses of official statistics.

II. Official Statistics: Ingredients and Importance of Primary Reporting

Official statistics are defined to be collated numerical facts published by the government agencies or other public bodies such as international organizations. They are expected to describe or represent *summary characteristics* about the population (or its sub-groups), the economy (or its sub-sectors), the society (or its specific segments) or natural, physical or climatic environment over space and time. They result from the collection and processing of the *primary data* collected from the basic units of observations (individuals, households, enterprises, statutory entities or

³ Professor Mahalanobis founded the Indian Statistical Institute in 1930 and is the father of the Indian National Statistical System in post-Independence India.

ground level measurements by technical apparatuses) in decennial population censuses, recurring representative sample surveys or censuses of specific segments or from administrative records maintained in the process of public administration by national or local or international public bodies. They are expected to provide (mostly) quantitative or qualitative *summary indicators* usually exhibited in tables, charts or maps and enable tracking over time, space and across national or regional entities, as many areas of citizen's lives as the coverage of the statistical system permits, such as changing condition of the economy or its segments over time, societal characteristics, recurring demographic events such as births and deaths, living conditions, health status, educational achievements and environmental characteristics.

Three basic sequential stages of official statistics are (a) primary data collection, (b) statistical processing of primary data, and (c) dissemination of processed data among the potential users. Credibility of official statistics in the eyes of the users clearly depends on the sanctity and integrity of primary data collection methods which Professor Mahalanobis described as '*statistical crafts*' (as distinct from techniques used in processing and dissemination). These statistical crafts aim at ensuring adequacy in coverage, accuracy of recording and consistency and comparability of collected observations at the primary/basic/ground level of enumeration or what can be described as primary data collection processes. They consist of (i) preparation of format for keeping primary records in public administration or scientific observatories or questionnaire for recording data from primary units of observations in censuses or surveys, (ii) training of primary data collecting agents in concepts, definition and recording/interviewing methods, (iii) scrutiny of collected primary data on the basis of scientifically devised sample validation checks, and (iv) organizing (preferably computer-compatible) storage and retrieval procedures as well as statistical processing of recorded primary data. Professor Mahalanobis insisted on paying minute attention to these mundane and elementary *statistical crafts* as much as to the *statistical processing* of data and preparation of tables, charts and statements (so as to minimize the scope for incorrect interpretation and comparisons) and to the *public dissemination* of processed data among the potential users in easily accessible forms. **It is important to emphasize these statistical crafts at the outset because they determine the quality of official statistics at the ground level and consequently of the summary statements and collated information based on them.** With mostly ready availability of electronic computers with large storage capacity and the associated ready-to-use processing packages, the focus appears to have shifted to the *production* of large data sets *without* paying adequate attention to the underlying statistical crafts. Speedy electronic computers and tabulation techniques are indeed important for accelerating the processing time but it is necessary to emphasize the basic truth that they cannot make the final statistical product any more reliable than the ground level attention to statistical crafts. In other words, **sound foundation of ground level human and material capital infrastructure of primary data collection is absolutely indispensable for the efficient use of soft e-infrastructure.** In order to enhance credibility, several governments have started releasing primary unit level observations (after hiding the identity of primary informants so as to ensure confidentiality) for public scrutiny of published results from the processed data or from different angles from those incorporated in official statistics. Some other government, as we note later, have also started the process of establishing an arms-length relationship with the official statistical system so as to ensure independence of the statistical agency and professionalism of methods and procedures used in data collection as well as objectivity in processing and storage and impartiality in presentation and access of official statistics. It is important to emphasize these aspects at the outset from the **public good perspective of official statistics** we have adopted because social and economic progress of any society depends critically on the adequacy of provision of physical and human infrastructural facilities and quality and accessibility of services generated from them. **Measurement of development efforts aimed at social and economic progress – the major focus of the Paris21 Consortium – requires adequate official statistical**

infrastructure of which primary data form the basic foundation. Unlike physical infrastructure, heavy human capital investment plays a dominant role in the statistical infrastructure so that *motivational factors and inducement mechanisms* need to be taken into account along with the possibility (unlike physical infrastructure) that *under-utilization may lead to demoralization and deterioration in quality as much as overloading it may also end up in the same disastrous situation.* By implication, adequate human, material and financial resources need to be devoted to the generation and provision of official statistics and the Department of Statistics in the government needs to be accorded its due primacy in public administration as a nodal ministry for collection and processing of official statistics in an internally (vertically as well as horizontally) coordinated and consistent fashion.

III. Does Supply create its own Demand?

At one level, it can be argued, following the Say's Law in economics, that supply of statistics creates its own demand in the sense that ready availability of relevant statistics enable initial description or recognition of important issues to be focused by public debates and public policy. Consequently, public policy makers have been the main users of official statistics. In the context of discussing the development policy in Latin America in the 1950s, development economist Albert Hirschman had observed an interesting interaction between understanding of a problem and policy action to deal with it. Need for policy action on a social or economic problem is revealed by social agitation by affected/interested parties or political compulsions or media campaigns. However, appropriate policy action requires an analytical understanding of the diagnosis and causes underlying the problem. It is in understanding of a problem that ready availability of quantitative or qualitative official data becomes indispensable. Hirschman gave instances that often wrong or inadequate policy action emerged when understanding lagged behind the policy action while better policy was formulated in the presence of correct understanding of the problem when adequate data or analysis of the problem had already been undertaken. Diagnostic analysis of a problem could be undertaken either by technocrats employed in the government departments or by outside private researchers and consultants. However, supply of good and adequate statistics is only a necessary condition for good design of public policy. Capacity to absorb numerical details, technical expertise for relating numerical facts to policy formulation and developmental motivation⁴ on the part of political policy-makers are indispensable ingredients in this context as Scott [4] argued.

IV. Scott on Inter-dependence of Demand and Supply Functions for Data

Christopher Scott [4] suggested an interesting typology of countries in the context of making a strong and persuasive case for what he called evidence-based policy making involving continuing interaction between data generators and data users so that demand for and supply of data are taken to be realistically inter-dependent and mutually interactive in character. Much as data generators have to 'measure up' to the expectations and needs of demanding and motivated data users needed for policy-making, the latter too, have to 'measure up' to appreciating the former's efforts and difficulties with intelligent interpretation and uses of data giving data providers their due credit, rewards, infrastructure and resources. If both the data generators and data users 'measure up' in this fashion, this situation ends up in a happy state of what Scott terms as good and stable equilibrium involving a virtuous circle in which the interaction between data

⁴ As correctly pointed out by one referee, what is put in public domain by way of numerical facts is fundamentally a political decision of those in power. It is well recognized that not all those in power are driven by developmental motivation. Political power can be sustained by appealing to emotive non-developmental goals as well and official statistics cannot escape being influenced by political processes.

generators and data users turns out to be mutually reinforcing in a positive way to the benefit of the general population. If either party falls short in 'measuring up', that is, either side is insensitive to the needs, difficulties and expectations of the other, the situation may end up in a bad and stable equilibrium of vicious circle at the other extreme in which the mutual interaction ends up in being mutually demoralizing in a negative fashion. Positive interaction involves both sides to be receptive to each other's needs, efforts and difficulties which have to be backed by adequate resources to be allocated and efficiently used for the generation of better statistics in existing as well as new areas. Our judgment is that most developing countries are in the intermediate range between the two extremes of good and bad equilibria traveling in either direction generally in a flip-flop fashion. The objective of PARIS21 should be to induce most of them to travel in the direction of good equilibrium as fast as feasible. Clearly, the initial placement of each country in the intermediate range according to two broad categories suggested by Scott [4], namely, (a) data-supply-constrained countries (existing potential demand in excess of existing capacity in the short-run) and (b) data demand-constrained countries (underutilization of existing capacity) would be convenient where returns from international efforts are likely to be higher in the set (a) than (b) as supply constraints are relatively easier to relax with additional external resources and technical assistance than demand constraints. This is, however, easier said than done because of the inter-dependent nature of demand and supply functions for data. Nevertheless, the broad categories are indeed useful and attempts need to be made on those lines. A joint meeting of data generators and existing data users putting on agenda existing statistical products would possibly be a good starting point for this purpose. My best guess is that technical capacity on the supply side as well as developmental motivation on the part of data users on the demand side are both functions of the pace of economic development and **if developmental efforts can be induced, supported and accelerated by international cooperation among the donors and recipients, it is important for donors to set aside resources for supporting statistical infrastructure which could boost economic development as much as physical and social infrastructure.**

V. Evolution of Indian Statistical System

It is perhaps instructive to start with a brief history of the evolution of the Indian national statistical system. Historically, the government departments of the British colonial administration in India used to maintain records as part of carrying out (mostly revenue-centric) public administration and used to compile statistics culled from those records periodically sometimes through the attached statistical cells. These statistics were used for the purpose of reporting their performance to the colonial power in London. As early as 1862, the British Administration constituted the Statistical Committee for the preparation of forms for primary data collection. This was followed by the publication of the first Statistical Abstract of British India (1840-1865) by collating the past administrative records. The first decennial complete (in terms of geographical coverage) Population Census was conducted in 1881 whose scope was gradually expanded to cover broad socio-economic parameters of the population. The Directorate of Statistics was established in Calcutta in 1914 that later became the Directorate of Commercial Intelligence and Statistics which was entrusted with the compilation of international trade statistics. During the period between the two World Wars, price fluctuations started affecting the lives of the subjects as well as costs of carrying out colonial administration. This gave rise to the tariff-protected expansion of the indigenous production for supply enhancement. The initiation and the release of wholesale price index with 1939 as base was driven by the considerations of cost of inputs. As manufacturing activity took roots in the major urban centres, industry-specific labour legislation gave rise to localized price collection activity in factory towns and the consequent compilation of the consumer price indices for industrial workers in different industrial centres and for different industries as required by the statutes. The Inter-War period was marked

by the appointment of (a) the Indian Industrial Commission (1916-1918) leading to the creation of Departments of Industries at the Centre and in the major provinces; (b) the Economic Enquiry Committee (1925) to examine adequacy of economic data which recommended establishment of the Central and Provincial Statistical Bureaus; and (c) the Royal Commission on Agriculture (1925-26). The Royal Commissions were also appointed from time to time to enquire into the causes and remedies after major disasters such as famines and epidemics affecting large segments of the population. The reports of these Commissions constituted yet another source of compilation of disaster-related *ad hoc* official statistics for which the demand came from the discussions in the British Parliament. Interestingly, the Committee headed by well-known statisticians Bowley and Robertson had recommended, as early as in 1934 that there should be in each major province, a *whole-time statistician* who would cooperate with the Central Directorate of Statistics and who would *be as nearly independent of departmental control as administrative requirements permitted*. [1]

After attaining independence from the colonial regime in 1947, Professor P. C. Mahalanobis was appointed the Honorary Statistical Adviser to the Central Cabinet in January 1949 while another well-known statistician Professor P. V. Sukhatme (who had made seminal contributions to the large sample survey theory and methodology along with Professor Mahalanobis) became the Statistical Adviser to the Ministry of Agriculture. The Central Statistical Unit was established in the Ministry of Finance in the same year that later became the Central Statistical Organization in 1951 and the Department of Statistics of the Government of India and which continues to be the central coordinating agency in matters related to statistics to this date.

The sovereign government appointed the National Income Committee in 1949 with Professor Mahalanobis as chairman and Professors Richard Stone and Simon Kuznets (who pioneered compilation of national income accounts in Great Britain and the United States respectively) and Dr. J. B. D. Derksen of the United Nations Statistical Office as advisors. The political leadership of the newly independent nation was acutely aware of the need for data-based policy-making as is reflected in the Government of India Resolution dated 4th August 1949 appointing the Committee. It said :

“The Government of India have been giving consideration for some time to the inadequacy of factual data for the formulation of economic policies. One important gap is the absence of authoritative estimates of the national income and its various components. The Government of India have accordingly decided to set up a committee to advise how best this gap could be filled up...” ([2], para 1.1)

The National Income Committee interestingly hinted at, as early as in their First Report submitted in April 1951, an inextricable link between physical and statistical infrastructure when it observed

“We must emphasize that accumulation of adequate data and analysis for national income estimation is part and parcel of the accumulation of intellectual and technical capital which is so necessary a condition for both the accumulation and utilization of material capital. Basic changes in economic functioning and in economic intelligence are closely interrelated; and if there is to be economic development, efforts to carry it through must be made simultaneously both at the level of material capital and of that of economic and other intelligence.” ([2]. Para 3.11)

The National Income Committee evaluated in detail the existing data sources and pointed out several data deficiencies in the process of working out the initial estimates of national income for the financial year (April 01 to March 31) 1948-49.

The demand for statistics underwent a quantum jump with the establishment of the standing National Planning Commission for undertaking planned socio-economic development and industrial investment planning in 1950. The immediate upshot was the establishment of the National Sample Survey Unit at the Indian Statistical Institute in 1950. It was mandated to make up for the deficiencies in administrative statistics by undertaking repetitive socio-economic and enterprise-level national sample surveys (NSS). The technical aspects of national sample survey planning were handled by the Indian Statistical Institute while regional units were established at the field level consisting of investigators and other statistical technical staff who were in the employment of the Government of India. Carrying out such multi-subject surveys in a multi-cultural, multi-lingual and multi-religious society and geographically diverse country of continental dimensions was a major challenge and a unique experiment in a low-income country. Large Sample Survey theory and methodology developed by the Indian statisticians came handy in this enterprise although many more problems had to be handled in the actual conduct of the surveys including methodological experiments and evolving a national level network of field organizations.

Professor Mahalanobis, on his appointment as Honorary Statistical Adviser to the Government of India in 1949, went about converting the Central Statistical Unit set up in 1949 into the Central Statistical Organization (CSO) in 1951 to undertake national income compilation, evolve national level standards, definitions and protocols and co-ordination of statistical activities in various central ministries. Statistical coordination activity was strengthened with the establishment of the standing Conference of Central and State Statistical Organizations (COCSSO) with CSO at the apex and the state (provincial) statistical bureaus and other statistical units in the government departments as members. Some of the state statistical bureaus existed even before independence in the major provinces while others were established with the help of the central government. The formulation of the periodical national Five Year Plans provided the first stimulus to national income compilation on a regular basis for the purpose of working out a macro-economic forecasting framework for planning while the formulation and assessment of planning led to the continuing and increasing demands on the NSSO. The scope of national income compilation was gradually expanded to cover full-fledged national accounts consistent, as far as possible, with the United Nations' System of National Accounts (UN-SNA – 1968) while the NSSO explored newer themes (such physical and mental disabilities) with newer problems associated with national socio-economic development. In the year 1992, 73rd and 74th amendments to the Indian Constitution were passed to bring into existence the third tier of self-governance below the states at the level of groups of villages (called panchayati raj institutions). This has given rise to local level data requirements for development. The institutional arrangements for this purpose are being firmed up. India also subscribed to the IMF's Special Data Dissemination System in the mid-nineteen-nineties and its compliance requirements.

VI. Beyond Policy Formulation: Monitoring and Evaluation for Development Outcomes

Initially the focus of official statistics was almost solely on formulation of national plans and policy. As subsequent development practitioners have experienced and which is also being highlighted by the new institutional economics, formulation of policy on the basis of prior understanding is merely the first step. The subsequent stages are equally if not more important for the success of any policy action and plan. They are (i) choice among available alternative policy instruments differing in terms of the involvement of the government and reliance on the markets, (ii) allocation of resources for implementation of chosen policy instrument, (iii) monitoring of implementation, (iv) evaluation of impact in terms of outcomes and (v) shift to another policy instrument if the chosen one did not achieve the desired goals. As national

governments and international donor agencies have progressively realized the wastage/misallocation of resources and higher transaction costs involved in project-tied and even sector-tied loans, there has been a greater reliance on untied general development assistance by aligning it with national development strategy which also results in the indigenous ownership of the development schemes and hence found to be more effective. It is being recognized that appropriate policy design, by itself, does not ensure bringing about intended successful outcomes of development policy that make a tangible difference to the lives of the people which is the major motivating force behind public policy. This was highlighted at the International Conference on Financing of Development in Monterrey, Mexico in 2002 organized by the international development financing institutions. It was recognized at this conference that providing for more financing for development was, while indeed important and necessary but not sufficient. What was more important was to make sure if foreign aid was used effectively and, in fact, making a *demonstrable* difference to the lives of the people which required going beyond financing into *managing for development results*. This formed the major theme of discussion at the first International Roundtable on Measuring, Monitoring and Managing for Results (2002) convened by the World Bank which focused on evolving concepts, approaches and practical issues in assessing result-oriented development efforts. This was followed up at the second International Roundtable on Managing for Development Results (MfDR) in Marrakech, Morocco (2004) where bilateral and multilateral development agencies endorsed a set of core principles on how best to support partner countries' efforts to manage for results. This required establishing baseline data base without which progress could not be measured and brought into prominence the need for comparable national and international statistics and the necessity of using development assistance for this purpose as resources currently devoted to the collection and dissemination of official statistics by the national governments have been found to be inadequate in relation to demands on the quality and quantity of official statistics for international comparisons needed by their national and international users. This logical result of MfDR efforts forms the theme of the present Consortium meeting of the Paris21 Group jointly with the Government of Senegal.

VII. Gradual Extension of Official Statistics

Historically, the traditional focus of the national statistical system in the developing countries had been narrowly confined at best to the incidental by-product of public administration and in a fewer number of countries with the addition of consumer price indices. During the post-second world war period, many countries undertook economic planning for development that prompted them to expand the scope of the statistical system to certain social phenomena such as levels of living surveys and surveys required for calculating rudimentary national income estimates. In the mid-nineteen sixties, major initiative was launched by the United Nations' Statistical Office to develop internationally comparable System of National Accounts in 1968 (UN-SNA-1968) which has been revised and expanded in the System of National Accounts in 1993 (UN-SNA-1993). The International Monetary Fund (IMF) initiated General Data Dissemination System (GDSS) in 1996 which is not obligatory to all the Fund members. Scott mentions that GDSS offers a framework in which countries can plan to improve the quality of macroeconomic and financial data in four dimensions, namely, (i) data coverage, periodicity and timeliness, (ii) data quality, (iii) integrity of data, and (iv) access to data by public. GDSS includes social indicators like poverty, health and education. Another IMF initiative, namely SDDS - Special Data Dissemination System (SDDS) excludes social indicators but is more exacting in compliance standards. There is a provision for technical assistance for these initiatives by the World Bank and the IMF. Christopher Scott (2005) notes as of November 2004, 77 countries participated in GDSS and 57 countries had subscribed to the SDDS. Since then 19 more member countries have subscribed to the GDSS and 7 more to the SDDS.

VIII. Statistics as Tool of Good Governance

The demand for statistics has been rising from another source. Transparency and accountability are the twin principles widely used in judging the governance of any organization. As many countries have been moving toward internationally more open and domestically more liberal market-oriented economies, they have been appointing independent and autonomous market regulators who insist on public disclosures of critical key characteristics of all participating entities relevant for assessing relative entity-level risks in the concerned markets to foster good governance and protect private investor interests. Similarly, whenever voters have been voting for parties/candidates known for their efficient and good governance practices and developmental efforts, governments have been using official statistics to publicize their achievements in general development efforts by announcing the financial resources spent, measuring physical inputs as well as outcomes generated. This has further strengthened the need for *improving social credibility of official statistics*. With cheaper and faster modes of transport and wide spread of audio-visual and internet-based communication media and 24 hour news, the distances as well as time of transmission of news and information about events are getting considerably short, converting the world into a virtual village. In this environment, print as well as audio-visual media, focusing often on sensationalizing news items often blow up particular events as if they are common occurrences that outrage and influence public opinion. The civil society organizations too, have been increasingly active in many societies in bringing out the unsatisfactory state of affairs in many specific areas. In order to counter these criticisms, credible official statistics bringing out the *average or representative* state of affairs as distinct from a particular instance being blown up become all the more important. In fact, reliable, timely and hence *socially credible or authentic official statistics* are being increasingly regarded as indispensable tool of effective governance in most societies – democratic or authoritarian – because even the authoritarian rulers are increasingly realizing the fact that they cannot sustain their rule without proving and gaining the legitimacy to rule derived from effective governance in a global village brought closer together as never before by the revolutionary developments in transport and communications.

The scope of publicly provided services has also been gradually expanding with the increased social acceptance of the welfare state ideology and with it the demand for greater information about their reach and effectiveness of delivery. In the case of publicly provided services at subsidized prices which are usually in short supply in most developing countries and some of which are partly funded by international developmental financial institutions require their , however, continuous monitoring as regards the operation of the supply chains which can be done with the routine administrative records if they are maintained up to date and in adequate details. Usually, *routine monitoring activity* is carried out by the implementing agency based on the administrative records maintained in government records consisting mostly of spending of financial outlays, availability of some physical inputs that go with the services and sometimes some crude outcome indicators for reporting to the people. In order to increase credibility, it is, however, desirable to elicit involvement of independent community of civil society organizations in tracking the financial outlays, monitoring the flow of physical inputs supplied by the government and check the validity of administrative records through sample spot checks. The *evaluation of the impact* of public services is, however, a more demanding activity and it is desirable to entrust it to an expert organization that would carefully assess the efficacy of the supplied services by objective criteria of effectiveness of access as well as subjective satisfaction of recipients by interviewing the receivers of public services as regards their reach, ease of access, adequacy, timeliness of supply and most important, the difference they made to their lives by comparing the composition and reactions of receivers with comparable sample of non-receivers.

The same chain of statistical activities is also involved in the design, operation, monitoring and evaluation of specially launched flagship welfare-oriented programmes of several governments such as poverty alleviation strategies and employment generation schemes.

IX. Beyond Official Users

We have so far confined to the uses of data mostly for judging the performance of governments in their *existing* activities where tracing of funds as well as outcomes are the major concerns in ensuring transparency and accountability and using statistics as a tool of good governance. These users comprised (a) designers of public policy, (b) public agencies vested with the implementation of policies, (c) public service providers, and (d) agencies implementing flagship development programmes at different levels of government. Often times, private researchers and analysts carry out micro-level studies of the existing programmes as well as other social problems arising out of the development process and bring out different facets of governance and throw up new problems for greater scrutiny which may suggest the mid-course modifications of the ongoing programmes as well as possibilities for better design. This is particularly so in large, diverse and continental size countries where regional differences in the nature of the same general problem as well as implementation capacities matter in determining the effectiveness of government interventions requiring experimentation in the modes of implementation. The demand for statistical data becomes more differentiated in this context for the purpose of judging the possibilities of replication on wider canvass within region as also across regions. Release of primary data relating the implementation and evaluation of the existing programmes to a wider scrutiny by private researchers and analysts may also reveal further problems for statistical scrutiny at a micro-level. However, reaching these users and newer demands require continuous efforts for institutionalization of interaction between the interested researchers and analysts and the policy and programme designing and implementing authorities as well as generators of primary data – and of course, an indispensable ingredient of open, responsible and responsive government willing and committed to allocating adequate resources to statistics. The same modality of joint forum is desirable in the case of information required by prospective private investors – domestic as well as foreign – who are being increasingly sought after by the state and central governments for supplementing the government efforts to boost economic growth which is widely recognized to be most effective instrument for the alleviation and removal of absolute poverty in most developing countries.

X. Role of Societal Credibility and Independence of Official Statistical System

In the entire discussion so far, societal credibility of processed official statistics based strictly on professional considerations and scientific principles, their dissemination practices and modes as well as ease of access to disaggregated unit level data for re-processing from different angles by social scientists require for the government to establish an arms-length relationship with the processes of data collection, processing and dissemination. This is being attempted currently by the Government of India. A comprehensive review of strengths and weaknesses of the entire official statistical system was undertaken by the *ad hoc* National Statistical Commission (2001) headed by Dr. C.Rangarajan, an eminent economist with long experience in government. This commission recommended a continuing institutional arrangement of establishing a standing National Statistical Commission with a fixed term and consisting of non-official technical experts and giving them a wide ranging mandate to supervise and certify the standards and processes of official statistics. The first standing National Statistical Commission was appointed in July 2006 with a fixed term of three years and the second one is being constituted presently. A process of giving the Commission a statutory status is also on the anvil. An annual Statistics Day has also been institutionalized on the birth anniversary of Professor Mahalanobis on June 29 which was

inaugurated and addressed by the current economist Prime Minister of India in 2008 where he emphasized the role of official statistics in governance and the importance of the autonomous National Statistical Commission in this context. These arrangements have complemented the Right to Information Act passed by the Indian Parliament earlier and for which rules and implementation machinery are being set up at the Centre and in various states and is being vigorously pursued by social activists to bring out crucial information to expose the alleged irregularities and individual grievances in government transactions and approaching the judiciary for recourse where required.

XI. International Frontiers

At the international level also, a large number of papers are appearing in the learned journals using inter-country data sets to test hypotheses suggested by endogenous growth theory and functioning of institutions for explaining inter-country differences in growth performance. International agencies like the United Nations' Statistical Office, World Bank, International Monetary Fund, International Labour Organization, United Nations' Development Programme, World Economic Forum, Transparency International etc have been bringing out world reports giving ranking of different countries based on available official statistics and focusing attention on new and emerging issues in economic development such as prevalence of absolute income poverty, food insecurity, malnutrition, climate change and financial crises which require international cooperation and coordination for their solutions and generating additional demands for new data and statistics. The global financial crisis following the collapse of Lehman Brothers in September 2008 and the ensuing deeper than expected recession that gripped the developed industrial world again underlined the role of internationally coordinated action for the emergence of the global economy out of this crisis and the increasing need for investment in the internationally comparable data to meet the requirements of advance detection of the crises. This is a unique opportunity that beckons the world statistical system to make efforts to persuade the member nations to invest in the national statistical system and make it more effective, transparent and socially credible tool of good governance.

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