IN QUEST OF
SYSTEM OF SOCIAL STATISTIC BASED ON THE LIVING STANDARD

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ABSTRACT

In this article we provide an ideal model of statistical system, it becomes essential to remove the obstacles like shortage, duplication, reliability of source, security and co-ordination of statistical data.

It is suggested that central statistics bureau should organize, consolidate and co-ordinate the data information provided by all other regional institution/ offices of the country. All other technicalities of the system should be left under the supervision of this central bureau and other institutes should work under its directions, guidance and supervision.

Furthemore it is also advisable that a consolidated and co-ordinated statistical data should be compared with the data of Education and nutritions etc.

INTRODUCTION

Development is a process of growth in the quantity and quality of the economic and social reality. It is a process in which both the economic and social elements are involved. Development policy and development planning must include both elements together, and it is difficult to speak of economic development planning and social development planning separately in planning development for the nation as whole, as the two elements

stand side by side and we cannot plan exclusively for economic development or social development.

In practice, the social elements are given a subordinate position compared to the economic variables. Only recently ample attention has been given to the analytical tools applicable to the social concepts of development to match the advanced tools available to the economic concepts.

This emphasizes the need for statistical data concerning social phenomena. The collection of such information is not by any means an easy task. We must remind ourselves that economic planning depends on a well established system of economic statistics. There is relatively ample information of economic statistics which gives evaluation to development in various economic processes and phenomena from one period to another, and it is relatively easy and convenient to perform economic analysis, conclusions, and forecasting. But there are aspects of the society which do not directly relate to economic statistics. These aspects belong to the field of social statistics which deal with societal statistics pertaining to social behaviour among groups or institutions e.g. education, health statistics etc.

Social statistics, just like statistics in any other field, are collected and analysed for three objectives:

i) For the understanding of the developmental changes in the society, and the factors affecting this development.
ii) For the formation of the data base on which concrete policy measures and decisions concerning the needed changes to the society are taken.

iii) For the measurement of the real state of the society against the internationally (or nationally) accepted norms and for comparison with the conditions of other societies. This will help policy makers to intervene in case of discrepancies and to take the necessary actions.

THE QUESTION OF A STATISTICAL SYSTEM

By a statistical system we mean all the statistical information and data; all activities, processes, organizations and institutions; and methods and procedures that regulate the work of the system. The system of social statistics aims to integrate and gather all various and separate statistical information about social phenomena in a uniform statistical system. This gathering of social information is in just the same manner as the system of National Accounts in economics. In building up SSS one should bear in mind the three objectives mentioned above. However, some difficulties may arise in the understanding of the third objective.

Now this system should have direct relationship with the available social statistics in the country. It should construct the framework for the collection of social development. However, some discrepancies may come to the surface in the sense that not all the data, suggested by the system, is easy to collect, specially in the developing countries; and that some data concerning some fields though available, is not required by the system.(1)

In economic statistics, the building of a system is not a difficulty by itself because of the presence of economic theories. The economic tools are so shopisticated that

building up a system is relatively easy. It is just the opposite in the case of social statistics. Till now, there is no central social theory that relates all theories in social phenomena together. The need is persistent for such theory to ease the building of SSS. It is true that recently much has been done to develop certain organized models concerning some scattered social fields. Each of these models stands alone and is rarely connected directly to any other. The approach in this case is to gather all these observations and models in a central theory. It is difficult task but not an impossible one.

To our mind, the core of building SSS rests in developing a theory concerning the level of living in a country. Such model will include most but not all of the necessary data concerning social phenomena. The starting point is an accepted model for level of living, at least for the present, till new developments appear in the field of social statistics. The issue of the measurement of the level of living itself is not an easy one. Contributors to this area have been writing and different opinions have been expressed. But it seems that there is some general agreement upon basic ideas, and some minor differences are there as well.

To sum up: by analogy to the National Accounts we want to develop a SSS depending on the scattered theories and models concerning the social phenomena.

NEED FOR ESTABLISHING SSS

It is very obvious that recently the subject matter of statistics has gained much importance, and that transformation is taking place in statistical system. Many factors have contributed to the necessity of developing system of social statistics. We point out some of these:

a) The new understanding and strategy for social planning and decision making. As mentioned above, a new methodology of social planning is taking place and the concentration in most country's development plans is on social development as a final aim with economic development as an intermediary process. For this widening in the field of development, and for the achievement of these goals, a lot of statistical data about social phenomena is needed and consequently a system to organize this information is a must.

b) The creation of new social services and the intensification of other services due to the urbanization process which is taking place all over the world demands new systems of social registers and social statistics.

c) The increase in the number of users of statistical data, whether private Government institutions or otherwise. This development in the collection processing and analysis of data stems from the importance of statistics themselves for different purposes.

Further, the interrelationship between these services, and intrastructure in a country all contribute, to the urgent need for a system of social statistics.

OBJECTIVES OF THE SYSTEM

For the system to be efficient in its role, it must seek to achieve certain aims among a very wide variety of objectives. In brief:

1) The system should concentrate on the mass collection of statistical information concerning all social aspects if possible. That is, detailed statistical data should be collected for health, housing education etc.

2) Stabilization of data collection and data processing is one of the major objectives. All statistical activity being under one system it is possible to arrive at efficient decision making about the collection of data, for what purpose, from whom, how, and when. This will avoid duplication of effort and results.

3) Ability to analyse and compare time-series data between different periods and different regions of one country, and even between different countries.

4) Readiness of the system to give statistical information for users. That is, the system should serve as a data-bank and data storage.(2)

THE METHOD

The basic objective of this part is to develop a systematic model for social statistics in developing countries. The approach is to make use of the existing data and models and try to derive a system which comprehends all in a logically satisfying manner. However, some of the available data may appear to be redundant and, on the other hand, new statistical information may be needed. Eventually the system will integrate the following:

a) The available data;
b) The new information e.g. from government offices which is not utilized yet; and
c) The new collection of statistical information for new fields.

The method discussed here is the method of social indicators. This method embodies some elements relevant to social phenomena. These are supposed to give the true picture of the society e.g. education, health. These, referred to as components, are themselves not quantifiable. An indirect method of quantifying the components is to be adopted. This method can be summarized as the selection of number of elements indicators which are taken to represent the original components, and which are directly measurable. These indicators are facts relating to the satisfaction of peoples needs and are used to measure some aspects of the components. For example, the component nutrition can be measured by the calories intake or protein intake.

Some sort of functional relationship whether linear or not, exists between each component and its indicators; e.g. there is a positive relation between protein and nutrition. Each component is composed of a large number of indicators. It is clear that introducing a large number of indicators to measure any one component results in some problems of collecting statistical information and make the system more complex. The availability of the necessary data about the indicators is important. Indicators should not only measure the quantity of the component, but also its quantity. For example, in measuring the level of health in a country, it is not enough to measure the number of doctors and hospitals in that country; but the quality of the doctors and the efficiency of the hospital should also be considered as another measure. The selection of the indicators is governed by some prior conditions in the sense that these indicators should represent the component, cover all aspects, avoid double inclusion; and that statistical data be available.

THE MODEL

The main objective of this paper is not to determine what to include in the system, but rather the idea of the establishment of the system itself. Still we can suggest some of the information needed for inclusion in the system:

1) Population, vital events, and migration,
2) Labour consideration, manpower and employment.

The components and indicators suggested for the model under consideration are even components each with its indicators as follows:

1. Nutrition

i) Calorie intake per person per day.
ii) Protein intake per person per day.
iii) Percentage of non-starchy calories.

2. Shelter

i) Services from dwellings.
ii) Density of occupancy (No. of persons per room).
iii) Independent use of dwellings.
iv) Type of building materials.
v) Age of building.
vi) Type of sanitary facilities.
vii) Dwellings with piped water as percentage of total dwellings.
viii) Dwellings with electricity as percentage of total dwellings.

3. Health

i) Access to medical care in hospitals.
ii) Percentage of deaths due to infection diseases.
iii) Proportional mortality ratio.
iv) Life expectation at birth and selected other ages.
v) Infant mortality rate.
vi) Inhabitants per physician and per hospital bed.
vii) Crude birth rate.
viii) Dependency ratio-under 15 and above 60 years of age.

4. Education

i) School enrolment.
ii) School output ratio.
iii) Pupil teacher ratio.
iv) Literacy and numeracy rates of population (by age & sex).
v) Distribution on population by type of schooling completed.
vi) Participation in informal education.
vii) Household expenditure on education.

5. Leisure

i) Leisure time.
ii) Daily newspaper circulation per 1000 population.
iii) Radio and TV sets in operation per 100 population.

6. Security

i) Maintenance of personal security.
ii) Maintenance of security of the way of life.

iii) Maintenance of security for provision of future.

7. Environment

i) Communication modes available.
ii) Travel: outlays on transportation, distance from and time required to reach services and place of work, existence of roads, and public transport.
iii) Cloting: Number of various items of clothing consumed per person per year; number of items of foot-wear consumed per person per year.
iv) Cultural activities: music, theatre, cinema, etc.
v) Sports participation.
vi) Physical environment.

Data concerning (1) and (2) above, and all their seven components should be collected indirectly through indicators given below each component. The indicators given are some of the important ones for the system to work. The are, by no means, all the indicators needed. Many can be added.(3)

We note that some components are measured by a larger or a smaller number of indicators. The number of indicators need not to be the same for all components. However the smaller the number of indicators for each component, the easier is the computation of results and implementation of the system.

For our model to work smoothly, we consider the first three indicators (i, ii, iii) for each component, and leave the rest, if any. The model we are discussing here is for the measurement of the standard of living. As we mentioned earlier, information about the standard of living gives a starting point of establishing a social statistical

system. An index of standard of living can be done as follows. Each component is expressed as a function (linear or not) of its indicators, i.e. IF 'C_r' stands for components (r) and I stands for an indicator we have:

$$C_r = I_i + I_{ii} + I_{iii} \qquad r = 1,2 \ldots\ldots 6.$$

and

$$C_7 = I_i + I_{ii} + I_{iii} + I_{iv} + I_v + I_{vi}$$

That is, each component is measured by three indicators except component seven which is represented by six indicators as given above.

Now the overall index of standard of living is expressed in terms of components i.e.

$$IN = C_1 + C_2 + C_3 + C_4 + C_5 + C_6 + C_7.$$

Where IN is the overall index.

To compute the overall index. We first of all find the index of each indicator. Each indicator is assigned a value (i), usually lies between two acceptable limits, the 0 level and the 100 level that is the minimum and the maximum acceptable values of any indicator. This value depends on and measures the degree to which the indicator is satisfied. Its assignment differs according to the manner in which each indicator is measured in real terms. For example, for the indicator total protein intake per person per day, the minimum value '0' level is 40 grams, and the maximum '100' level is 90 grams. For indicator density of occupancy, the limits are four persons per room and one person per room respectively for the '0' level and the '100' level.(4)

Now after finding the value (i) for each indicator this value is transformed into an indicator index by the formula:

$$In = \frac{100\,(i - i_0)\,e}{i_{100} - i_0}$$

Where In is the indicator index.
i_0 is '0' level of the indicator.
'100' is the '100' level of the indicator.

I - is the empirical average value of the indicator for which the index is to be determined.

e - is the coefficient of equal distribution. Also we have the constraint that

i '100' is taken to be $i = i_{100}$ for a 1 indicators.

In the formula, the indicator index is a result of two main factors.(5)

a) The indicator value (compared with the critical limits which also affect the index).

b) The coefficient of distribution.

The introduction of the second factor is logically accepted since an indicator average may have less meaning in measuring the level of living of the bulk of the people if the distribution of satisfaction among the people is un-equal. Except for difficulty of measuring the coefficient of distribution for practical purpose, the formula given above is very simple to understand and to use for the calculation of the indicator index. All that is needed after fixing 'e' is to find the simple differences, in the numerator and denominator, between the average value the '0' level, and the '1001' level. This formula, as it stands, irrespective of the positions of the limits accepted internationally, can be used for international comparisons, or even for the comparisons of indicator indices as between different re-

gions within a country.

Now, these indicator indices are transformed into cmponent indices, using the indicators (indices) of any one specific component to find its index, e.g. for C_1 we use the three indices of the three indicators of the component, as explained above. This is not all, we need also weights assigned to the indicators according to their relative importance in the component. The formula will be the summation of the indicator indices, each multiplied by its relative weight (equal weights or sliding weights may be used). The formula for the component index will be as follows:

$$I_e \; W_j \; I_{nj} = i, ii \ldots\ldots$$

where

I_c = is the component indices.

I_{nj} = is the corresponding indicator indices.

W_j = os the weights of indicator indices.

The new factor in this index is the weights assigned to indicators. These weights directly influence the components index.

In a similar manner, the overall index of the standard of living can now be obtained from the component indices after assigning a weight to each component according to its relative importance and participation in raising the standard of the people. For example, the participation of nutrition as a basic need is not the same as that of time or security. The index will be:[6]

$$IN = \frac{EW_r \; Crn}{EW_r} \qquad r = 1,2 \ldots\ldots .7$$

Where:

IN: is the over all index of living

C_{rn}: is the component 'r' - index
W_r: is the corresponding components 'weight'

CONCLUSION

On establishing a social statistical system we believe that the model for measuring the standard of living is an appropriate one. It does not mean that this is the ideal model for the system, but it is the nucleus for such a system. The model discussed above contains most of the statistical information needed for the system.

One of the problems of data collection is that there is either a shortage of data for some of the social aspects or there is a duplication of statistical information. Unfortunately, statistical data about the same aspect from two different offices or institutions are different and sometimes we never know which is the correct figure. The system discussed above will unify the source of information and organize the collection of data needed. It will establish a basis for collecting new information as well. This will partly solve the problem of shortage and duplication.

One of the advantages of SSS is that it tells us what information is needed, for what purposes, and who is to collect the information.

Consequently, only one central office should be responsible for the development of statistical standards, concepts. Classifications, and procedures; and for the handling of documentation and the security of data. We suggest that the existing department of Statistics should be the Central Statistical Bureau. All other scattered statistical offices in the different Ministries and istitutions should act as Branch offices, each being responsible for the collection

of data in its speciality, under the supervision and with the co-operation of the Central Statistical Bureau. For the time being, the technicalities of the system should be left to the Central Bureau, e.g. to decide what is needed and who to collect, etc. Other scattered offices should work under the direction and the advice of this office. By this, we will avoid many problems, and we will have some certainty in obtaining the data needed for the system, analysis and results can be done in the central office and this office should work as a data bank.

The model discussed above can be applied to the country as a whole and comparisons can be made with other similar countries as far as the standard of living is concerned, or as far as a part of the standard of living is concerned, e.g. comparisons can be made of the level of education, nutrition, etc. Furthermore, each region can apply the model and see where it stands as compared with other regions in the country and so on. The country as a whole can benefit from these comparisons and this can be reflected in national development plans and distribution of basic needs to the people.

Many more indicators can be added to the model, and more benefits can be obtained. the disadvantage of the model, which we have to mention, is that it gives a superficial picture of the social processes. In other words, the method depends on the choice of indicators, choice of weights, etc.

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