THE USE OF STATISTICS IN THE FORMULATION AND EVALUATION OF SOCIAL PROGRAMMES

By: Octavio Cabello, Statistical Office of the United Nations*

1. Introduction

The role of statistics in guiding decisions regarding micro aspects of social programmes seems to be well established. But, the possibility of using statistics in formulating social programmes becomes uncertain as the scope of such aspects increases, and the question of whether and how statistics can be used in formulating social programmes at the national level has no obvious answer. As a result, while it may be assumed that minor decisions in the social field can be, and frequently are, based on scientific information, the major decisions regarding social policy and programmes - especially in under-developed countries - are mainly a matter of personal judgment based primarily on political expediency and traditional grounds.

The purpose of this paper is to explore the possibility of using social statistics in formulating national social programmes, to provoke wider dissemination of information on this subject in the under-developed countries and to stimulate further research on the methodology of formulating national social programmes.

The discussion here has been restricted in some cases to the field of housing, but it is hoped that similar applications may be found in other social fields.

2. Social Statistics and Social Programmes

The first problem that confronts anyone discussing social statistics is to decide what meaning to attach to the concept. In current usage the scope of social statistics ranges from a narrow coverage which includes only one aspect of social conditions, such as crime or the volume of work of welfare institutions, to the broadest possible range of subjects related to the description of the social structure, social institutions, human relations, environmental conditions, and government and private activities affecting living conditions. It seems that in spite of the attempts that have been made, social statistics cannot be identified as a unitary field by reference to common units of observation, or methods of collecting and analysing data. However, "social statistics" undefined have been the subject of continued attention in recent years, and this may be sufficient justification for preserving the expression (social statistics), defining in each case the meaning attached to it.

For the purpose of this discussion social statistics are defined as the statistics required for the formulation and evaluation of broad national social programmes. This definition focuses attention on the use or purpose of the statistics rather than on the nature of the units of observation or on the methods of collecting and analysing the data. Though non-rigorous, this definition is useful since it stresses the principle that statistics, and government statistics in particular, must always have a well defined purpose.

Little would be gained however, by defining social statistics as the statistics required for social programmes unless social programmes can be defined independently of social statistics. A social programme may be considered to be formed by the scheme of public and private activities which would contribute to maintain or improve some particular aspect of the living conditions. The aim of such a programme would be to raise the levels of living at the maximum practicable rate commensurate with long-term economic development and human resources, and in accordance with nationally and internationally accepted principles regarding human rights and responsibilities.

It may be recalled that, in 1953, a United Nations Committee of Experts on International Definition and Measurement of Standards and Levels of Living recommended the use of twelve separate components of the levels of living 1/, each component representing a well delimited aspect of the levels of living (i.e. of the actual living conditions). In view of this recommendation and of the fact that aims of social policy are usually stated with reference to particular fields, such as education, health, housing and nutrition, it will be assumed, for the purpose of this discussion, that a separate social programme will be formulated for each component of the levels of living. Such an assumption should be acceptable since the techniques and factors involved in improving living conditions in each field are different and separate authorities or government agencies are responsible for the conduct of the various programmes.

The activities involved in the various programmes are of a different nature and, therefore, the methods of formulating the programmes are also quite different. Housing programmes, for example, are concerned with maintaining an adequate supply and distribution of dwellings; education programmes with maintaining and adequate supply and distribution of teaching services and facilities; nutrition programmes with promoting adequate food consumption. Health programmes are conceptually more complex since the levels of health 2/ depend upon a great many factors including housing, education, nutrition and so forth. Some social programmes are concerned with the supply and distribution of certain essential goods or services; others with the prevalence of certain conditions such as social security or human freedoms. Statistics may be useful in connexion with every type of programme but the uses will differ according to the characteristics of each programme.

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Although it is expedient to consider each social programme separately, it must be recognized that they tend to be highly interrelated in the sense that the execution of one programme has direct implications for the living conditions in other social fields, e.g. malaria eradication, food supply and labour force; improvement of levels of education and housing conditions and levels of health; sanitation and nutrition, etc. Furthermore, there is an evident inter-action between social programmes and economic development. However, there is no mechanism for integrating social programmes in terms of activities and units of "well-being", such as is found in the economic area in the form of a system of national accounts, input-output tables and mathematical models, which aggregate and relate economic actions in terms of monetary units, and it is, therefore, necessary to deal with each social programme separately.

3. Uses of Statistics in Formulating a Social Programme

The task of formulating a national social programme does not consist in solving a system of equations. Mathematical models describing the effect of social measures on the levels of living, the cost of such measures and the physical inputs involved have not been established. Such models would be useful, even if based solely on non-tested hypotheses and informed estimates, since they would set forth in an explicit form the "laws" or the assumptions involved in formulating the programmes. Unfortunately they are not used in actual practice and the formulation of national programmes is largely a matter of judgement and common sense. However, carefully selected statistics can materially enlighten the bases for the decisions by providing the factual information required to ensure compatibility between social needs and resources, and the statistics recording the experience of previous years will provide perhaps the most valuable guide to planners.

From a practical point of view, estimates of the economic resources, i.e. expenditure and investment by the public and private sectors, provide a suitable point of departure for the formulation of short term programmes in a particular social field. As a next step, the volume of public and private activities needed in order to maintain or improve the levels of living might be estimated and the total value calculated by using unit costs. The cost of the national programme could then be compared with the resources. If the resources appear to be insufficient to maintain or moderately raise the levels of living of a particular component, a revision of the resource allocation would need to be considered, together with the possibility of improving the efficiency and productivity of the agencies and industries involved by introducing new methods or procedures. After all possibilities are explored - and statistics would be essential for such an examination - a social programme could be outlined which would indicate the volume of activities that would be likely to be performed and the probable consequences of the programme upon the levels of living.

It is true that there are other limiting factors of social programmes, besides the economic resources, which must also be duly considered, but the system of economic statistics provides a partial linkage of great operational significance between economic development and social programmes. In effect, for practical purposes and considering only short term programmes, capitalist and socialist countries alike consider social development as a by-product of economic development, and resources for social programmes are estimated or allocated on the assumption that adequate provision is made for ensuring - as a matter of first priority - an adequate rate of economic development 3/ and a proper balance between consumption and production, in order to avoid inflationary pressures.

On the assumption that the process broadly outlined above would be followed in formulating a social programme, statistics would be required for the following major aspects of the programming operation:

a. To estimate the economic resources expected to be available for the social programme.

b. To measure living conditions by means of indicators of the levels of living.

c. To estimate the social needs, i.e. the supply and distribution of "social units", required for maintaining or improving the levels of living.

d. To test the compatibility of the estimated social needs with the expected economic and human resources.

e. To select the most convenient combination of activities, i.e. a social programme.

3.1 Uses of statistics to estimate economic resources expected to be available for the social programme

Considerable attention has been given to the application of statistics in connexion with problems of economic planning and development. Principal sources of information regarding expenditure and investment in previous years are the national accounts 4/ and the government accounts 5/ when these systems provide separate data for the several social programmes. It is not, however, an easy task to separate out the data for various categories and eventually obtain separate totals for the country as a whole. For example, the apportionment of certain items of public expenditure among related social fields involves problems of interpretation, such as the allocation of school feeding programmes to health or to education; the allocation of urban water supply projects to health, housing, or other programmes; the allocation of the cost of marsh clearance to health or to agriculture, and so forth. Some of the statistical data commonly used in evaluating the economic resources devoted to housing programmes, are the following 6/:

a. Expenditure for dwelling construction. This item, from the National Accounts includes all expenditure on new dwelling construction and major alterations to

residential buildings including the value of the change in work in progress, the cost of painting and all permanent fixtures, but excluding the value of the land before improvement.

b. Rent and water charges. This item of private consumption expenditure includes all gross rent (actual and imputed gross rent on owner-occupied houses as well as actual and imputed grounds rents payable) including water charges and local rates.

These items provide information about the order of magnitude of the economic resources devoted to housing in the past. When related to the national income and other national aggregates they provide ratios which are useful in estimating future resources, on the assumption that past patterns of expenditure and allocation would prevail or change in a foreseeable direction. The following ratios may be used for this purpose:

a. Expenditure on dwelling construction as a percentage of gross domestic product.

b. Expenditure on dwelling construction as a percentage of gross fixed capital formation.

c. Rent as a percentage of private consumption expenditure.

Estimates of the gross domestic product, private consumption expenditure and fixed capital formation, over the period to be covered by the programme, will usually be obtained by the agencies forecasting economic development. On the basis of these estimates it would be possible, by applying assumed ratios based on past experience and other factors, to derive estimates of the order of magnitude of the national resources that are likely to be devoted to housing in the next few years. Such estimates, would of course need to be revised every year, in the light of new

Table 1. Expenditure for Dwelling Construction as a Percentage of Gross Domestic Product and Gross Fixed Capital Formation, and Rent as a Percentage of Private Consumption Expenditure*. Selected countries. 1956 or 1957.

Country	Year	Expenditure for dwelling construction		Rent as a
		% of GDP	% of GFCF	% of PCE
Australia	1957	...	...	8.4
Austria	1957	...	...	4.8
Belgium	1957	4.1	25.3	13.0
Canada	1957	4.5	16.7	15.4
Ceylon	1957	...	...	2.7
Denmark	1957	2.9	16.8	6.4
Dominican Republic	1957	...	...	11.1
Ecuador	1956	2.6	19.0	10.5
Finland	1957	...	...	6.4
France	1957	4.9	26.1	4.6
Ghana	1957	...	...	2.0
Greece	1957	4.8	30.5	...
Ireland	1957	2.2	16.9	4.0
Israel	1956	7.1	29.7	...
Italy	1957	5.9	27.4	3.1
Japan	1957	2.1	7.9	9.0
Korea, Rep. of	1957	0.5	4.1	7.9
Luxembourg	1957	4.0	17.2	...
Mauritius	1957	3.0	23.1	...
Morocco	1956	3.0	24.5	...
Netherlands	1957	5.5	22.0	6.9
New Zealand	1957	4.8	21.7	...
Nigeria, Fed. of	1956	2.1	20.7	...
Norway	1957	4.4	15.7	7.6
Panama	1956	...	...	16.4
Peru	1956	...	...	20.3
Philippines	1957	1.6	18.4	...
Portugal	1957	4.1	25.7	...
Puerto Rico	1957	4.2	19.1	10.5
Sweden	1957	4.8	24.2	9.2
United Kingdom	1957	2.9	18.2	8.6
United States	1957	4.2	23.7	12.6

* At current market prices.

Source: United Nations. Administrative Committee on Co-ordination. Statistical Indicators of Housing Levels of Living. Document No. ACC/WPSSP/I/4/Add.6, 6 August 1959.

information. This procedure is a very crude one but as crude as it is it may be considered too elaborate for many under-developed countries.

As an additional guide in estimating resources it may be useful to compare the situation or patterns of expenditure in various countries. Table 1 shows the values of the three ratios described above for 32 countries, in 1957 or 1956. The variation among countries is considerable and apparently there is no relation between the ratios and the state or rate of development of the countries. Also, the ratios in the countries with long historical data available show long term and cyclical variations as well as irregular changes. International comparisons, therefore, show only the range of variation of these ratios but would be rather unhelpful for the purposes of selecting suitable rates of expenditure investment in housing. But long national series would be extremely useful guides in determining the resources that are likely to become available, over a period of a few years, for housing as well as for other social programmes.

An important factor in connexion with estimating the economic resources available for social programmes is the distribution of resources between the public and private sectors. In some countries it has been found to be more efficient to finance important aspects of social programmes through government agencies, while in others the direct purchasing of essential goods and services by the individual households is considered possible and satisfactory. The general situation may be considered to be a mixed arrangement by which programmes are financed through both the public and private sectors. It is important, therefore, to have information about the extent to which the various programmes are financed by each of the two sectors. This question was discussed in a paper 7/ presented to the fifth session of the ECAFE Working Party on Economic Development and Planning, held in Bangkok, in September 1959. Table 2, which was taken from this paper, illustrates how data on resources would need to be broken down by sectors for educational programmes. A similar table could be prepared for other programmes.

A further breakdown of data on resources according to investment or current expenditure would also be of interest. The Manual for Economic and Functional Classification of Government Transactions 8/ contains a full discussion of this aspect.

Table 2. Provision and Financing of Educational Services
(in millions of national currency)

Financed by: / Provided by:		Public sector		Private sector		Total
		Central government	Provincial and local governments	Households	Enterprises	Expenditure for providing educational services
Public sector	Central government	a	---	b	---	
	Provincial and local governments	a	a	b	---	
Private sector	Non-profit institutions	b	b	a	---	
	Enterprises	---	---	b	b	
Total	Expenditure for financing educational services					

a - likely to be significant)
b - moderate significance) Notes applicable to ECAFE countries.
--- negligible)

Source: United Nations. Economic Commission for Asia and the Far East. Working Party on Economic Development and Planning. Planning the Pattern of Public Social Expenditures. Document No. E/CN.11/DPWP.5/L.7, 4 August 1959.

3.2 Use of statistics to measure living conditions by means of indicators of the levels of living

The purpose of social programmes is to raise the levels of living, and, in order to translate this purpose into positive action, it is necessary to express levels of living in statistical terms. The United Nations Committee of Experts, mentioned above, proposed in 1953, that the levels of living should be measured by reference to twelve components by means of a series of statistical indicators for each component. Recently, in 1959, an inter-agency Working Party on Statistics for Social Programmes 9/ reviewed the components and indicators in the light of information that had become available since 1953, reduced the twelve components to nine, and proposed the following priority indicators:

Component Health:

1. Expectation of life at birth.
2. Infant mortality rate.
3. Crude annual death rate.

Component Food Consumption and Nutrition:

1. National average food supplied, in terms of calories at the retail level, compared with estimated calories requirement.
2. National average food supplied, in terms of total proteins at the retail level.
3. National average food supplied, in terms of animal protein at the retail level.
4. Percent of total calories derived from cereals, roots, tubers and sugars.

Component Education:

1. Adult literacy rate.
2. Total school enrolment ratio.
3. Higher education enrolment ratio.

Component Employment and Labour Conditions:

1. Proportion of persons employed in the total labour force.
2. Ratio of male labour force in agriculture to total labour force.
3. Relative real wages in selected occupations.

Component Housing:

1. Percent of the population living in "dwellings".
2. Percent of occupied dwellings with three or more persons per room (overcrowding).
3. Percent of occupied urban dwellings with piped water.

Component Social Security:

/No indicators proposed as yet./

Component Clothing:

/No indicators proposed as yet./

Component Recreation:

/No indicators proposed as yet./

Component Human Freedoms:

/No indicators proposed as yet./

The indicators are of various classes; some reflect achievement or ultimate aims of social programmes in very broad terms, as in the case of the expectation of life at birth; others are more directly related to the activities in the respective social programme, as in the case of the total school enrolment ratio. The indicators of housing levels of living belong to the first class. They are operational indicators which define aims of social programmes and they can also be utilized for estimating the order of magnitude of the programme needed in order to improve the living conditions in respect of housing. Some of the other indicators are not so useful for formulating programmes because, though reflecting certain aspects of living conditions, their relationship to the possible actions in a particular social field are not well established. This seems to be the case with respect to the indicators of health which are not directly related to actions in the medical fields. For example, at present it appears impossible to determine what type of medical or health activities would be necessary in order to increase the expectation of life at birth by one year or reduce the infant mortality rate by five units, or the crude death rate by one unit. On the other hand, the relationship between indicators of housing or education conditions and actions in these fields are understood and can be utilized in formulating relevant programmes. There is much to be done in developing methods of measuring levels of living and particularly in developing "operational" indicators, i.e. those which can be used in formulating national or local social programmes.

3.3 Use of statistics to estimate the social needs, i.e. the supply and distribution of "social units" required for maintaining or improving the levels of living

The indicators discussed above reflect the aims of social programmes by defining in statistical terms commonly accepted aspirations in each field. The next question that may have to be answered by the policy maker or programming officer is: what is the magnitude of the job to be done, in terms of dwellings to be built, food to be supplied and distributed, medical and educational services to be made available, by the public and private sectors, in order to maintain or improve prevailing living conditions? The methodological problems involved in estimating social needs have been explored but not settled. It must be mentioned

in this connexion that the Twentieth Century Fund Surveys 10/, which include estimates for the United States for 1960, contain an impressive amount of information on this subject.

Social needs must be related either to a point of time (e.g. a certain date), as in the case of estimates of the housing shortage, or to a certain time period, as in the case of food supplies. The volume of work to be done, i.e. the social programmes, however, can only be related to a period of time which may be one year, three, five or other number of years. A housing programme, for example, may be designed to absorb the existing housing shortage during a 5, 10, or 20 year period and, consequently, the magnitude of the annual job to be done will change in accordance with the length of the programme. The following discussion is concerned with estimates of needs in terms of goods or services to be provided by the programme over a period of several years.

The possibility of making objective estimates of social needs may be illustrated with reference to the field of housing. In this case the question is: how many dwellings and housing units of other classes 11/ would need to be built in a country or major geographic division, during a given period, in order to ensure that the percentage of people living in dwellings remains stable, or increases, and that both the density of occupation (persons per room) and the percentage of dwellings with 3 or more persons per room remain stable or decrease? Questions of this type have been answered for many countries at various periods; among others for Australia, Belgium, Chile, Colombia, Denmark, France, Japan, Netherlands, Peru, Sweden, United Kingdom, United States and Venezuela, and a review of the assumptions and methods used is being prepared in the United Nations Statistical Office. In making such estimates, statistics have been used in connexion with the following aspects of the problem:

a. To estimate the number of dwellings that would be needed to house the population currently living in housing units considered unacceptable from a structural point of view, e.g. huts, caves, "viviendas callampas", etc., or who are without shelter of any kind.

b. To estimate the number of dwellings required to reduce the density of occupation.

c. To estimate the number of dwellings required to eliminate undesirable and involuntary doubling-up of families and households.

d. To estimate the number of regular dwellings that need to be repaired or replaced because of their state of maintenance.

e. To estimate the number of dwellings that will need to be replaced because of obsolescence, disaster or conversion to non-residential use, etc.

f. To estimate the number of dwellings required to house the future population increase, and the potential new households, over a period.

Estimates of total needs have been obtained by combining the partial estimates indicated above or by other means.

In the case of housing programmes the essential "goods" is the dwelling, and in this discussion only one type of dwelling has been considered. Other programmes are concerned not with one type of goods or services but with the supply and distribution of several or many goods and services, separately or in alternative combinations. In order to estimate social needs it would be necessary to define which are the essential units in each case. For primary education programmes the essential units in each case. For primary education programmes the essential unit may be the teacher, for health programmes there would be several units and the doctor might be one of them. The determination of which are the basic social units to be supplied or made available to the population in the case of each programme is an essential question which must be settled in order to estimate the volume or number of units needed and whether such needs could be satisfied with the available resources.

3.4 Use of statistics to test the compatibility of the estimated social needs with the expected economic and human resources

It would be of little use to estimate the volume of activities necessary to maintain or raise the levels of living without verifying whether such a programme is feasible from the point of view of resources available. Such verification would need to be conducted in respect of financial resources; human resources (such as doctors, engineers or labourers); expected availability of material elements (such as drugs, vaccines, books, foods or building materials); and the capacity of the agencies and industries concerned to undertake their share of the programme. The compatibility of social needs and resources is tested by comparing the estimated needs with the corresponding resources. Information on the following three aspects would be necessary, with respect to each programme, in order to conduct such tests:

a. What are the goods and services, i.e. the "social units" which need to be supplied to the population in order to maintain or raise the levels of living.

b. How many "social units" are needed to produce a certain effect on the statistical indicators of the levels of living.

c. What is the average cost of the "social units" involved in each programme.

Information on these three aspects can be obtained in the case of housing programmes but it may be more difficult to obtain in the case of other programmes. The "social units" would change

from country to country according to circumstances, social organization and technical knowledge prevailing at the time the programme is formulated. The problem involved in obtaining the information described in b is complicated by the fact that the same changes on certain indicators of the levels of living (e.g. crude death rate) may be obtained by the effect of different "social units", or combinations of them, and that in the social field it is not normally possible to isolate the results of specific actions. However, this complication is essentially peculiar to health programmes whose objectives are vaguely defined by the indicators of the levels of health (see part 3.2). The solution might be facilitated by narrowing down the field of health to aspects directly and primarily related to medical or sanitary actions, or by conceptually sub-dividing the health component of the levels of living into "sub-components".

The testing of the compatibility of social needs and physical resources implies a knowledge of the physical inputs of various kinds that constitute a certain "social unit". In the field of housing for example, it would be necessary to know how much of each class of basic materials, how many hours or months of work of non-skilled, skilled and professional manpower, etc., go into the construction of an average dwelling of a certain type. These inputs when multiplied by the number of dwellings needed to obtain the desired effect on the housing levels of living would yield estimates of physical needs for housing programmes which could then be compared with the available resources.

The capacity to produce or import certain essential elements (for example building materials in the case of housing programmes, vaccines and drugs in the case of health programmes, books in the case of education programmes, basic foods, etc.), as well as the availability of professional and skilled personnel, are essential limiting factors for social programmes, just as essential as the financial resources. The case of countries which could finance an adequate social programme but do not have enough teachers, doctors, engineers, nurses, or statisticians is not unusual. A much more frequent case is, of course, that in which both financial and physical resources are scarce.

The availability of professional personnel has especial importance for social programmes, as can be illustrated by the following example taken from "The Approach of Operational Research to Planning in India" by P. C. Mahalanobis: "There are, at present, about 65,000 fully qualified (six-year trained) doctors in India ... About two thousand six-year trained doctors are turned out in India every year, and the cost of training each doctor is about forty or fifty thousand rupees. Under existing conditions it may take 60 or 70 years to provide one doctor for every two thousand persons in the rural areas on an average ... I have thought it desirable, therefore, to include in the Draft Planframe a proposal to bring some health service to every home in the country within a reasonable time, possibly in 10 or 15 years ..., by establishing two new cadres of 2-year and 4-year trained health assistants as a first step to a national health service throughout the country ... One 6-year trained physician would be in charge of a group of 5 or 6 health assistants; ..." 12/

The testing of needs and economic resources in monetary terms can be made with respect to the total resources of the country or with respect to the households' income. The use of statistics for testing the consistency of national resources with the magnitude of social programmes is of great importance, since social programmes must be realistic but sufficiently adequate to ensure a gradual improvement of living conditions. The total economic resources needed for a social programme would be determined by relating to the number of "social units" needed their unitary cost. The aggregate cost of a national programme may then be compared with the resources estimated to be available for that programme (see part 3.1).

The following example taken from the field of housing will serve as an illustration: In a report on housing in Peru 13/ it is estimated that it would be necessary to construct 2,339,700 dwellings

Table 3. Cost of 30-year Housing Programme, Beginning 31 December 1956.

Areas	New dwellings to be constructed			Existing dwellings to be repaired		
	Number of dwellings	Cost per dwelling (Soles 1956)	Total investment (Soles 1956)	Number of dwellings	Cost per dwelling (Soles 1956)	Total cost of repairs (Soles 1956)
Metropolitan	657,200	40,000	26,288	68,100	10,000	681.0
Urban	669,400	30,000	20,082	255,800	7,500	1,918.5
Rural	1,013,100	10,000	10,131	687,600	2,000	1,375.2
Total	2,339,700		56,501	1,011,500		3,947.7

Source: Perú. Comisión para la Reforma Agraria y la Vivienda. Informe sobre la vivienda en el Perú. Imprenta Casa Nacional de Moneda, Lima, 1958.

and to repair some 1,011,500 over a 30-year period, beginning on 31 December 1956, in order to improve the housing conditions to certain levels now considered acceptable in that country. This would represent an investment of approximately 60,000 million soles at 1956 prices, as indicated in Table 3.

The total cost of the programme is related to the national income as follows: 14/ "The cost of the housing programme, excluding communal services, has been estimated to be 60,000 million soles, to be invested in 30 years. Since the national income and, parallel with it, the capacity for dwelling construction will increase during this period, the most convenient form of distributing such investment over the 30-year period is by equating it to a fixed proportion of the national income.

"On this basis and on the assumption that both the population and the national income will increase following a geometric progression, with annual rates of 2.1 and 5 percent, respectively, the annual investment can be estimated.

"The investment for the first year would be 900 million soles, and this amount would be increased by 5% per year, that is, in the same proportion that the national income increases in constant prices. In this form 60,000 million soles would be invested over the 30-year period.

"Considering that the national income in 1957 was of the order of 25,000 million soles ... and that the available proportion for net investment was 16 percent (average for the last five years), the resources for investment would be 4,000 million soles. The 900 million investment needed for the first year of the housing programme represent approximately 3.6 percent of the national income and 22.5 percent of the net investment, which are evidently very high percentages. ..."

The use of statistics to determine the extent to which households are able to finance their essential social needs out of their regular income is quite common. The question to be answered may be proposed in the following form: Given a certain average level of income, a distribution of households by income groups and corresponding patterns of expenditure, what proportion of the households could, or could not, afford to purchase the "social units" considered in social programmes (housing, food, education, medical services, etc.) at current or expected prices? For example, the question of whether households can afford a type of minimum satisfactory dwelling is normally explored in the formulation of national housing programmes.

In a fairly recent study on the economic significance of housing in Central America and Panama, it is estimated that approximately 46 percent of the urban families in El Salvador could not pay more than 70-88 percent of a monthly rent equivalent to 1/100 of the average cost of a dwelling, such rent being considered adequate to finance the dwelling construction, ("economic rent") 15/. In another study dealing with the housing situation in Colombia, about 20 percent of urban families were found unable to pay a rent equivalent to the amount needed to finance the construction of a minimum acceptable dwelling in forty years 16/.

The form in which the information on household income and expenditure may be used in the formulation of social programmes deserves separate consideration, as indeed, do all the other major uses of statistics briefly examined here. It is not possible to go any further into this matter in this discussion.

3.5 Use of statistics to select the most convenient combination of activities, i.e. a social programme

After social needs are estimated and matched with the estimates of available resources, the next logical step would be to attempt to bring needs and resources into balance by adopting feasible targets or goals for social programmes. Such targets could not be entirely objective since they would be based on assumptions regarding future population growth 17/, national income and relationships between social measures and levels of living, and would be the result of compromise between desire for improvement of one aspect of the levels of living (e.g. housing), the need to maintain an even rate of improvement in other components and the need to maintain a sustained economic growth. The targets, furthermore, should be revised periodically as new information becomes available. The statistical bases on which the targets would be established would be known and could be examined by anybody interested in the subject, a fact that should have considerable political significance, especially in under-developed countries.

The resources may be found to be smaller or larger than the needs for a certain social programme. Normally the balance of needs and resources for any programme will vary depending on the type of resources. There may be sufficient labour and insufficient building materials, sufficient financial resources and insufficient professional personnel, and so forth. Whatever the situation may be, the use of statistics in exploring the possibilities of equating needs and resources would be essential.

If after exploring all the possibilities, the resources are insufficient even to maintain the existing levels of living, statistics can also be used to evaluate the consequences of such a situation. In the case of housing, to mention a very real example, statistics could be used to estimate the extent to which the housing shortage would increase in the event that an insufficient number of dwellings were built over a period of years. Statistics, however, would not be very helpful in judging the political and social consequences of allowing housing conditions to deteriorate consistently over a period of several years.

4. Use of Statistics for the Evaluation of Social Programmes

While the formulation of a social programme is an *a priori* operation, oriented to the future, the evaluation must be made *a posteriori*, and should, therefore, be based on past experience.

In this discussion a social programme has been considered to be composed of public and private activities, whether or not consciously oriented. When the programme has been established by a systematic procedure, such as the one broadly outlined in part 3 of this paper, it could be evaluated in the following ways:

a. By measuring the ultimate results of the programme by the observed changes in the indicators of the levels of living.

b. By testing the assumptions made in formulating the programme as regards the expected behaviour of the households, future population growth, national income and expected results of social measures in the light of observed facts.

c. By assessing the administrative efficiency of the agencies concerned.

The measurement of levels of living by means of statistical indicators has been discussed in part 3.2 and the evaluation of assumptions, "laws" and theories or of the administrative efficiency of agencies cannot be approached in a general way. Such evaluations can only be made with reference to the particular assumptions, laws etc. of individual programmes. In the final analysis, the only comprehensive yardsticks of the success or failure of social programmes are the statistical indicators of the levels of living.

5. Abstract

Social statistics are defined as the statistics required for social programmes, and a social programme as the scheme of public and private activities which have a direct bearing on a particular aspect of living conditions. It is assumed that there is a separate programme for each component of the levels of living, e.g. health, education, housing.

The uses of statistics for the following aspects of social programming are examined and illustrated with examples from the field of housing: estimating of economic resources for the programme; measurement of living conditions by statistical indicators; estimating of social needs, e.g. "dwellings", to maintain or improve the levels of living of growing populations; testing of the consistency of social needs and economic, human and material resources; and adoption of goals for social programmes consistent with expected resources.

Several forms of evaluation are briefly discussed, and the indicators of levels of living are considered to be the only comprehensive yardsticks of the success of failure of social programmes.

The purpose of the paper is to provoke dissemination of information on this subject among under-developed countries and to stimulate research on the uses of statistics for social programming.

Footnotes

1/ United Nations. Report on International Definition and Measurement of Standards and Levels of Living. Document No. E/CN.3/179-E/CN.5299. (Sales No. 1954.IV.5.)

2/ Health is defined in the constitution of the World Health Organization as follows: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". See: United Nations. Final Acts of the International Health Conference, held in New York from 19 June to 22 July 1946. Document No. E/155, October 1946.

3/ In capitalist countries by means of an adequate rate of investment in the means of production. In socialist economies by securing a rate of increase of the output of means of production greater than the rate of increase of the output of consumers' goods.

4/ United Nations. A System of National Accounts and Supporting Tables. Document No. ST/STAT/-Series F./No.2/Rev.1. (Sales No. 1959.XVII.-11.)

5/ United Nations. A Manual for Economic and Functional Classification of Government Transactions. Document No. ST/TAA/M/12 - ST/ECA/49. (Sales No. 58.XVI.2.)

6/ The evaluation of the economic significance of housing programmes is discussed in: United Nations. Administrative Committee on Co-ordination. Statistical Indicators of Housing Levels of Living, methodological study of a preliminary nature. Document No. ACC/WPSSP/I/4/Add.6, 6 August 1959.

7/ United Nations. Economic Commission for Asia and the Far East. Working Party on Economic Development and Planning. Planning the Pattern of Public Social Expenditures. Document No. E/CN.11/DPWP.5/L.7, 4 August 1959.

8/ Op. cit.

9/ United Nations. Administrative Committee on Co-ordination. First Technical Report of the Working Party on Statistics for Social Programmes. (Geneva, 16-22 September 1959). Document No. ACC/WPSSP/I/9/Rev.1, 22 October 1959.

10/ Dewhurst, J. Frederic and Associates. America's Needs and Resources, A New Survey. The Twentieth Century Fund, New York, 1955, 1,148 pages.

11/ The concepts of "dwellings" and "housing unit" used in this discussion are those defined in: United Nations. General Principles for a Housing Census. Document No. ST/STAT/SER.M/-28. (Sales No. 58.XVII.8.)

12/ Reprinted from Sankhyā, The Indian Journal of Statistics, Vol. 16, Parts 1 and 2, 1955. "Supplementary Consideration", chapter 5, para. 7.

13/ Perú. Comisión para la Reforma Agraria y la Vivienda. Informe sobre la vivienda en el Perú. Imprenta Casa Nacional de Moneda, Lima, 1958.

14/ Ibid., p. 57-58. (Unofficial translation.)

15/ United Nations. Economic Commission for Latin America. Significación económica de los programas de vivienda en Centro América y Panamá. Document No. E/CN.12/CCE/AC.6/5.

16/ Colombia. Corporación Nacional de Servicios Públicos. Departamento de Vivienda. Déficit y demanda de vivienda en Colombia. Series Estudios Socio-Económicos No. 3. Bogota, 1956.

17/ Implied in projections of national income as well as in the estimates of future needs.