

# SAMPLING IN FAMILY BUDGET ENQUIRIES

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## INTRODUCTION

In socio-economic fields, family budget enquiries serve as a valuable guide to the living conditions of the working people. They are also immensely useful in determining the weights to be assigned to different articles in the construction of cost-of-living indices.

As early as the close of the 17th century, George King had become interested in the living conditions of the people. His work, however, was the outgrowth of studies relating to investigations of a purely demographic kind. Nearly half a century later Arthur Young made a serious study of the subject and his work was published in 1767. The work of Edouard Duepeliaux was a valuable contribution to the subject in that he made a study of the actual income and expenditure of certain working class families in Belgium. The investigation of Le Play<sup>1</sup> from 1829-79 was a typical intensive survey because he conducted successive enquiries on a uniform plan into the economic and other conditions of working class families "by living in or near them for some weeks". He laid special stress on actual household accounts of a small number of families and then drew conclusions as to the living conditions of the working classes of the entire country. During the latter part of the 19th century questions were often raised in different countries regarding the standard of living of different sections of the community, particularly of the working classes. Investigations were conducted by private individuals and the results obtained were almost always biased in accordance with their outlook and choice of the sphere of investigation. Gradually, budget enquiry came to be recognised as the most satisfactory method of forming an accurate idea of the standard of living of any class of the community. This alone throws light on the earning of the families, their composition and the nature of articles bought and the price paid for them.

## METHOD OF CONDUCTING FAMILY BUDGET ENQUIRIES

The early method of studying a few families in detail, known as the *intensive* or *monographic* method, is open to serious criticism on the ground that investigations conducted under this method are not representative of the population and, as such, do not provide a wide basis for drawing general conclusions. The *extensive* method of investigation was therefore favoured by the First International Statistical Congress held in Brussels in 1854 under the stimulus of Quetelet. Since then the attention of the investigators has been directed towards devising suitable methods of conducting these extensive surveys.

The use of representative method has long been recognised in the domain of Statistics and it has now reached a stage when its application is becoming almost universal in the field of socio-economic investigations. It must be admitted here that the work of the International Statistical Institute and the personal achievements of Prof. A. L. Bowley<sup>2</sup> in this direction, are responsible for making the representative method a highly popular and an elegant tool in the hands of expert statisticians of different countries.

The International Labour Office has applied the representative method in various types of labour investigations with quite a fair degree of success. But a general international survey of family budgets by means of representative sampling methods was never attempted before the Third International Conference of Labour Statisticians was held.<sup>4</sup>

It is well-known that there are essentially two different methods of obtaining representative samples from a given population, the method of *random sampling* and the method of *purposive selection*.<sup>5</sup> In random sampling, which may be either of the unrestricted or of the stratified type, a given population is divided up into a very large number of small groups (*e.g.*, families, blocks, residents of single houses, etc.) and a mechanical principle unconnected with the subject and purpose of the proposed enquiry is used for the selection of individual units. In "purposive" selection, however, the same population is split up into a small number of groups of large size and each of these typical groups is purposely selected so as to yield nearly the same characteristics as the given population. The theoretical and practical aspects of these two methods have been discussed at length by Jensen, Bowley, Neyman, Gini and Galvani, Sukhatme and other writers on sampling technique.

It has been generally found that the method of "purposive" selection is wholly unsatisfactory and that the method of unrestricted or stratified random sampling is the only sound and appropriate one to adopt. In family budget enquiries, many practical difficulties, such as the complex economic behaviour of men, the varied and peculiar composition of the various families with widely different incomes, the natural unwillingness of people (particularly of the illiterate) to supply correct information on income and expenditure, the widely divergent tastes in the matter of consuming different articles included in the budget enquiry etc., have to be encountered. In such investigations, therefore, the most judicious sampling method to adopt is that of unrestricted or stratified random sampling, supplemented at times by the method of "purposive" selection.

We now proceed to advert briefly to some of the important family budget enquiries conducted by Governments and private organizations in India, Japan, the United Kingdom, France, Germany and the U. S. A. For want of space, however, it is not possible to describe any of these in full detail.

In 1921-22 an extensive enquiry into working class budgets was conducted by the Bombay Labour Office and in all 3,076 budgets were tabulated of which 2,473 were family budgets and 603 were budgets of men living without their families. Considering the heterogeneity of the working classes in regard to religion, race and caste it was found necessary to collect a greater number of budgets than would have been necessary had the composition been homogeneous. Data were collected with regard to size and earnings of a family, cost and consumption of food, fuel and lighting, clothing and miscellaneous items and the cost of house rent, together with information as to the housing conditions. Separate forms were prepared for family budgets and for budgets of men living single. It was necessary to collect budget of workers in full employment; the budgets being classified by income and occupation. The second enquiry by the same authorities was conducted between May, 1932 and June, 1933.

An elaborate enquiry was undertaken in 1926-27 by the Labour Statistics Bureau, Rangoon, into the consumption of the working classes of Rangoon. Altogether 4,309 budgets were tabulated. The working classes had been classified as (a) the skilled and unskilled labourers in factories, (b) miscellaneous industrial labourers employed outside factories, (c) casual workers, and (d) independent workmen. Budgets were mainly

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classified according to income and size of family. The *Lusk Coefficients* based on food requirements were used to measure the size of the family.

The Madras budget enquiry of workers both in organized and unorganized industries was undertaken during the period 1935-36 to give effect to the recommendations of the Royal Commission on Labour in India. In all 1,828 budgets were collected, and in the absence of any other suitable scale the *Lusk scale* had again been applied in finding out the size of the family. It has also been found that *Engel's Law* fairly holds good in the case of the budgets of Madras labourers. Besides, an interesting study has been made in finding out the nutritive value of the diet of Madras labourers and comparing it with the adequate and well balanced diet suggested by Dr. Aykroyd in his Health Bulletin No. 23.

Since 1932 the Punjab Board of Economic Enquiry has been conducting every year intensive enquiries into the family budgets of half-a-dozen or so of tenant cultivators of the Government Agricultural Farm at Lyallpur. They are now being extended to rural families in other parts of the province.

Other budget enquiries have also been conducted in different parts of India such as the budget enquiry of the Central Provinces during 1914-18, Jharia and Jamshedpur budget enquiries in 1923, Ahmedabad budget enquiry in 1926 and Sholapur budget enquiry in 1925. At Cawnpur the family budgets were collected by a process of random sampling. Out of 729 family budgets there were 80.2 per cent. of Hindus, 18.2 per cent. of Mahomedans and 1.6 per cent. of Christians.

The representative character of all these budget enquiries except those conducted in Bombay, Cawnpur, Rangoon and Madras is highly doubtful. The Bombay budget enquiry (1932-35) has applied sampling method; but it is to be noted that random sampling method has been applied only in the case of the workers in organized industries in Madras budget enquiry. The whole approach of the Madras enquiry is scientific and every attempt has been made to apply modern statistical methods in the analysis and interpretation of the income and expenditure data. Economic and physiological considerations have also been made. The difficulties in budget enquiries and ways to overcome them have been clearly indicated in the Report.

Coming to enquiries conducted outside India, we may first mention the enquiry into the budgets of families representing both industrial and agricultural workers in Japan, undertaken by the Japanese Government in 1927, leading to a most interesting study of the economic position of agriculturists and enabling the cost-of-living index of Japanese agriculturists to be constructed.

In 1903 and the summer of 1904 the British Board of Trade initiated budget enquiries for the working classes but the information obtained was extremely inadequate. The results of the latter enquiry, supplemented by those obtained in an inquiry into rents, retail prices and wages conducted by the Board of Trade in 1912, have been used to provide the weights for the calculation of the British cost-of-living index numbers. In 1918 an enquiry was conducted by the working class cost-of-living committee. One of its main objects was to see the actual increase in the cost of living since 1914. Extensive enquiry was made to minimise error and to eliminate special peculiarities.

Due to constant clamour of the trade unions about the defective nature of the cost-of-living index based on the budget enquiry of 1918 the Government had to undertake another extensive budget enquiry in 1937. One special feature of the enquiry was that separate forms were distributed to agricultural families. The forms had to be filled up

by house-wives. The enquiry covered 25,000 families and its object was two-fold: firstly, to make the cost-of-living index up to date, and secondly, to study the composition of diet and to suggest any improvement in the light of the present day knowledge of nutrition.

To ascertain the conditions of living of home-workers in certain needle-work trade, 56 family budgets had been collected by the Ministry of Labour and Social Insurance, in France. Some unofficial enquiries were also conducted in 1923.

In 1907 an enquiry covering most of the chief industrial districts was undertaken by the German Statistical office in collaboration with the municipal offices. It covered the working class and also lower-grade officials and teachers. The data for these families were reduced to terms of 'adult man' by a special scale in which allowance was made for other groups as well as for food.

In 1918-19 the Department of Labour, U. S. A., through the Bureau of Labour Statistics working in co-operation with the National War Labour Board made a family budget investigation. The places were selected so as to get data, representative of all parts of the country. The total number of budgets collected was 2,096. Other enquiries into the family budgets were also made in 1923 by the Department of Agriculture in collaboration with State Colleges of Agriculture and Universities.

#### CONCLUSION

The growing importance of family budget enquiries not only of industrial but also agricultural and other workers, need scarcely be emphasised. India being a predominantly agricultural country, there is here an urgent need for family budget enquiries among agricultural classes in order to get a true picture of the economic conditions prevailing in rural areas. Economic planning and schemes for the betterment of industrial and agricultural masses can be of no practical value without adequate knowledge of their standard of living. Many practical difficulties have naturally to be encountered in carrying on budget enquiries among Indian agriculturists, e.g., uneven and scattered distribution of agricultural families over large areas, uncertain nature of the monetary income of a family, prevalence of the barter system of exchange, purchase of commodities on credit, etc. But these could be easily surmounted if Government were to take a bold lead and enquiries are designed by trained statisticians in accordance with the latest developments in sampling technique.

There is also imperative need for conducting budget enquiries among families where the head is unemployed. Finally, it is to be noted that all budget enquiries should be so designed as to give a clear idea of the nutritive value of food taken by the class of people under investigation. That would provide extensive material for valuable research in nutrition and dietetics—so vital to the well-being of society.

#### REFERENCES

1. LE PLAY: *Les Ouvriers européens*: Paris, 1879.
2. ELMA B. CARR: *The Use of Cost-of-Living Figures in Wage Adjustment*. United States Bureau of Labour Statistics, pp. 1-10.
3. A. L. BOWLEY: Working Class Households in Reading. *Jour. Roy. Stat. Soc.*, June, 1913.
4. The Third International Conference of Labour Statisticians: *Studies and Reports*, Series N. No. 12, Geneva, 1926, p. 15.
5. *Bull. Int. Stat. Inst.*, XXII, 1 Livr., p. 376.