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THE NATIONAL SAMPLE SURVEY

GENERAL REPORT NO. 1

FIRST ROUND : OCTOBER 1950—MARCH 1951

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STANDARD INDIAN UNITS

lakh = 100,000 = 10^5 — *crore* = 100,00,000 = 10^7

1 mile = 1.6093 kilometers — 1 acre = 0.4047 hectares

1 *tola* = 11.66368 grains

1 *chhatak* = 5 *tolas* = 2.0571 ozs = 58.3184 gms.

1 *seer* = 16 *chhataks* = 2.0571 lbs. = 933.0944 gms.

1 *maund* = 40 *seers* = 82.2857 lbs. = 0.0367347 tons = 0.0373238 metric tons

100 Indian *rupees* = Rs. 100 = £7.5 sterling = $21.00 U.S. dollars.

Note : Conversion factors are given in Table (Z) on page 135.

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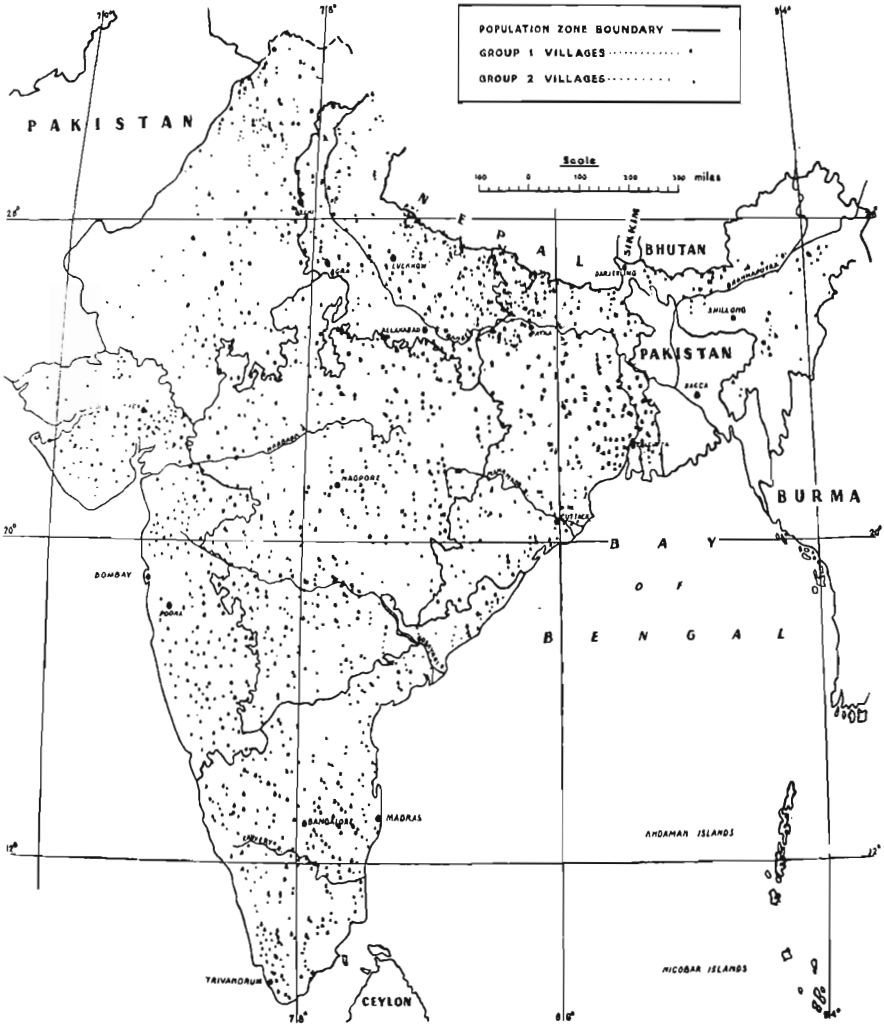

NATIONAL SAMPLE SURVEY: 1950-51.

GEOGRAPHICAL DISTRIBUTION OF SAMPLE VILLAGES.

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CHAPTER ONE

HOW THE PROJECT STARTED

1.1. The absence of reliable statistics relating to production, consumption and other aspects of economic and social life in India has been known for a long time. Since 1947 the development of statistics has, therefore, been a continuing concern of the Government of India. In 1948, at the instance of Prime Minister Jawaharlal Nehru, a review was made of the organisation of statistics in the Central Ministries and a Standing Committee of Departmental Statisticians was established for the co-ordination of statistical work. A small Central Statistical Unit was established in January 1949, and a few months later the National Income Committee was appointed with Professor P. C. Mahalanobis as Chairman and Professors D. R. Gadgil and V. K. R. V. Rao as members, to report on the national income and related estimates, to suggest measures for improving the quality of the available data and for the collection of further essential statistics and to recommend ways and means of promoting research in the field of national income.

1.2. The Standing Committee of Departmental Statisticians as well as the National Income Committee found large gaps in the statistical information, and by the end of 1949 it became clear that there was an urgent need of improving the quantity and quality of statistical information. On 18 December 1949, the Prime Minister desired that a sample survey should be organized covering the whole country to collect essential information. An abstract scheme for organizing a National Sample Survey (NSS) was immediately prepared by Professor Mahalanobis and was handed over on 25 December 1949 to Shri C. D. Deshmukh on whose advice it was approved in principle by the Government of India in January 1950. A little later, on 10 March 1950, the National Income Committee recommended the use of sampling methods to fill the gaps in information required for national income estimation.

Why sampling ?

2.1 The idea of using the sampling method for collecting economic data was not new. Professors A. L. Bowley and D. H. Robertson in their "Scheme for an Economic Census for India" had recommended in 1934 a survey in rural areas of British India using 1650 sample villages at an estimated cost, at that time, of about Rs. 22 lakhs, that is, over Rs. 90 lakhs at current prices. The scheme was, however, not implemented.

2.2 Sampling is, of course, the only possible approach if it is desired to know what is the value and volume of agricultural production and animal husbandry, cottage and household industries, transport and trading and professional services or what is the pattern of consumption and expenditure in rural households. It is not physically possible to collect the information for each one of roughly 6 crores (or 60 millions) of households. The only possibility is to send round investigators to collect the information from a comparatively small number of individual households. that is, from a sample of households. selected in such a way it would be possible to estimate, on the basis of the sample, the required information for the country as a whole. It will not do to select only the richest or the poorest households or households which are all engaged in agriculture or in weaving, or all households from one single State, and so on. That is, the sample households must not be chosen because they have certain special characteristics. In other words they must be selected in what is called a random manner. This ensures that the sample would be fully representative of the whole population and would include in the proper proportion both rich and poor households and those engaged in agriculture and in weaving and other occupations etc.; and, also, the sample households would have a proper geographical scatter over the whole country.

2.3. The method of sampling is being used in every day life although the technical words or the theoretical refinements of the subject are known only to scientists. For example, in purchasing a basket of mangoes one would take care to look at not merely the big fruits which are often arranged on the top but also to examine some of the mangoes which are in the middle or at the bottom of the basket. That is, the decision to purchase and the price would be settled not by looking at specially selected specimens but by trying to estimate the average size and quality based on a fair sample by the scrutiny of a few fruits which are taken up haphazardly from all over the basket This is exactly what is sought to be done by taking a random sample.

2.4. By sampling a small proportion of the households scattered all over India, one would be able to obtain a cross-section of the nature of economic activities and consumption habits of the population of the whole country. The survey of only a small proportion of the total households of the country would naturally bring in a certain amount of inaccuracy in the information. These inaccuracies would be of two different kinds one of which is peculiar to sample surveys and the other is common to all surveys including the so-called complete censuses.

2.5. There is, firstly, the sampling error. This arises because the information actually collected refers to only a small proportion of (and not all) the households. Thus, if two or more samples are taken and the required information is collected without any mistakes whatsoever even then the results based on the different samples would usually differ to some extent; and these differences constitute the errors due to sampling.

2.6. In actual fact, certain mistakes and inaccuracies are also bound to creep in during the process of collecting the information. These arise from the negligence or bias of the interviewers in asking the questions or in recording the answers or are

due to the negligence or bias or forgetfulness or lack of knowledge on the part of the informants giving their replies. These taken together constitute the non-sampling errors which occur in all surveys.

2.7. The sampling errors can be calculated mathematically and sometimes form a small part of the total inaccuracies. The non-sampling errors which arise from the human factor (at the stage of the conversation between the interviewer and the informant) are quite appreciable and are not peculiar to sample surveys only. Such inaccuracies also occur in complete enumerations.

2.8. In fact, chances of occurrence of inaccuracies arising at the time of the interview would be greater in the case of a complete enumeration because the number of field investigators would be much larger than that required for a sample survey. Also, the field investigators in a complete enumeration would usually receive lower pay and have less ability; and it would not be possible to give them the intensive training which can be given to the comparatively smaller number of investigators required for a sample survey of the same coverage. Because of the much larger scale of operations, difficulties of supervision and inspection would be greater in a complete enumeration. In consequence the general experience all over the world has been that a properly conducted sample survey can be relied upon to give more accurate results than a complete enumeration. A sample survey will also supply the results with greater speed and at much lower costs.

2.9. In regard to the advantage of sampling method as compared with the traditional method of exhaustive census, the position as summed up by Professor R. A. Fisher is quoted below:

> "I have made four claims for the sampling procedure. About the first three, adaptability, speed and economy, I need say nothing further. Too many examples are already available to show how much the new method has to give in these ways. But, why do I say that it is more scientific than the only procedure with which it may sometimes be in competition, the complete enumeration? The answer, in my view, lies in the primary process of designing and planning an enquiry by sampling. Rooted as it is in the mathematical theory of the errors of random sampling, the idea of precision is from the first in the forefront. The director of the survey plans from the first for a predetermined and known level of precision; it is a consideration of which he never loses sight; and the precision actually attained, subject to well understood precautions, is manifest from the results of the enquiry".[1]

2.10. Where the scope of a survey is wide and the territory to be covered is large, the sample survey is the only practical means for obtaining information at short intervals. From practical considerations, the choice is between organising sample surveys and having no information at all. The use of a random sampling method is thus the only commonsense way to collect information about a rural economy as a whole which is made up of the activities and the way of living of roughly 6 crores of individual households scattered over the vast area of 12.7 lakhs (1.27 millions) of square miles which is India.

[1] Presidential address on "The Sub-Commission on Statistical Sampling" at the session on Sampling at the meeting of the International Statistical Institute, Berne, September, 1949.

CHAPTER TWO

THE PLANNING OF THE SURVEY

3.1. It is, of course, necessary that the sample should be fully representative. In other words, it is essential to use a proper design of the survey which would enable estimates for the country as a whole being made in a valid manner in accordance with the theory of probability. The Indian Statistical Institute has been working on large scale sample surveys of different kinds since 1935 and has a technical staff with special knowledge and experience in the theory and organization of sample surveys. The Government of India, therefore, requested the Indian Statistical Institute to prepare the design with detailed plans and estimates for a comprehensive National Sample Survey covering the rural areas of India.

3.2. The Gokhale Institute of Politics and Economics in Poona under the direction of Professor D. R. Gadgil has been conducting economic and social surveys of various kinds for a long time, and it was decided to seek the help of the Poona Institute in preparing the design of the National Sample Survey.

3.3. The preparatory work for the design, the selection of sample villages and households, the drafting of schedules and instructions to field investigators was immediately started in the Indian Statistical Institute. This meant a period of intense activity for the workers of the Institute. The first thing attempted was to collect detailed maps for the whole country as it was thought that sample units of one or more villages would be selected directly from large-scale maps. There was, however, a serious difficulty; tehsil or village maps were not available in any one central place in a State. A number of people had to be sent out from the Indian Statistical Institute to the district headquarters in different States to collect the maps. After some time it was found that suitable maps were available only for certain parts of the country, and it became clear that sampling on the basis of village maps was not immediately practicable for the whole of India.

3.4. Attention was then given to the collection of lists of villages together with the geographical area and population figures of individual villages. Even this was not an easy matter, and after references had been made to all the States it was found that both population and area figures of individual villages were not available in many cases; and that either population or area figures were available for 78.6 per cent of the total area of India. For 15.8 per cent of the area neither the population nor the area figures were available but only the names of the villages could be secured. For the remaining 5.6 per cent of the area even the village names were not available, and lists of villages had to be prepared by the field staff at a later stage from information collected on the spot.

3.5. In the meantime, the planning of the survey (in regard to the design, schedules, field organisation and costs) was proceeded with. The responsibility was shouldered mainly by Jitendra Mohan Sen Gupta, Debabrata Lahiri, C. R. Rao, Ram Krishna Mukherjee, Nimaicharan Ghosh. Ambika Ghosh, H. K. Chaturvedi and other workers of the Indian Statistical Institute with the help of V. M. Dandekar. and the workers of the Gokhale Institute of Politics and Economics of Poona. As the experience and the fields of activity of the Calcutta and the Poona Institute had been very different, it was not unnatural that certain differences of opinion emerged at this stage between the two Institutes. However, as a result of joint discussions, a plan for the National Sample Survey for the year 1950-51 was submitted to the Government of India on 14 April 1950 and was approved by the Standing Finance Committee on 21 April 1950. The financial sanction for an expenditure of Rs. 25,00,000 was given in May 1950.

Organisation of the field branch

4.1. Although the Indian Statistical Institute could undertake with confidence the preparation of the design of the survey and also the statistical work of scrutiny, processing, tabulation and analysis of the statistical data, it was not possible for the Institute to organise the field survey on an all-India scale. It was decided, therefore, that the field branch of the survey would be organized under the direct control of the Department of Economic Affairs in the Ministry of Finance. The services of Shri S. P. Sinha (at that time Revenue Secretary to the Government of Bihar) were requisitioned for this purpose and he was entrusted, as the Chief Director of the Field Branch, with the difficult task of building up a field organization at short notice.

4.2. The Chief Director, after setting up his office in New Delhi, addressed the various State Governments for deputing suitable officers for the posts of Assistant Directors and Superintendents to take charge of the field work in different parts of India. Simultaneously, applications were invited through advertisements in newspapers for the posts of Assistant Superintendents, Inspectors and Investigators. The help of Government Employment Exchanges was also taken for finding men for the work. By the fourth week of July 1950, a number of gazetted and non-gazetted officers gathered together for training at the Indian Statistical Institute in Calcutta. The training (which lasted for three weeks) was completed in the third week of August, and the officers then proceeded to six different centres of India to give training to the investigators

4.3. While the training of officers was proceeding in Calcutta efforts were being made to recruit the junior staff. The first batch of applicants was interviewed at a number of places in different parts of the country in the latter part of June 1950; but an adequate number of persons could not be recruited immediately owing to the low pay in relation to the difficult and temporary nature of the job. It was, however, decided that the field work should not be delayed and although only about 40 per cent

of the staff had been recruited, they were given necessary training; and the first round of the survey started punctually on time on 1 October 1950, that is, within 4 months from the date of issue of financial sanction by Government. Interviews for recruiting the junior field staff were arranged at least 3 times in each centre and in course of 5 weeks from the start of the survey most of the remaining staff had been appointed. In the first round the sanctioned strength of the Field Branch was 607 consisting of 17 supervising and administrative officers, 94 executive officers, 336 investigators, 30 office staff and 130 peons.

4.4. One important task had been the preparation of a hand-book of detailed instructions to the field staff. This was completed in record time by Shri Nihar Chandra Chakravarti (of the Department of Agriculture, West Bengal) who had been collaborating on a part-time basis in the sampling work of the Indian Statistical Institute since 1935. The successful operation of the field investigations was due in a large measure to the great care and thoroughness with which this hand-book was prepared. The credit for building up the all-India field organization and making it function smoothly in a short time belongs to the first Chief Director, Shri Sinheswar Prasad Sinha.

CHAPTER THREE

GENERAL DESCRIPTION OF THE SURVEY

5.1. The plan for the NSS was drawn with the idea that repeated investigations, one round after another, will be carried out every year in a continuous manner. The first of these rounds was started in October 1950 and completed in March 1951. In this round a sample of 1833 villages (out of a total of about 560,000 for the whole of India) was selected for investigation. The sample villages were scattered all over the country and some were located in areas difficult of access. For instance, there were villages in the wild areas of Orissa such as Kalahandi where the investigators had to go through more than 20 miles of wild forests under the protection of armed guards. For another sample village in northern Uttar Pradesh an investigator had to wait for the snow to melt to go over the high passes of the Himalayas. Some villages of tribal areas also came within the sample.

5.2. The sample was divided into two groups of villages each of which was scattered throughout the country and two different sets of schedules were used in the two groups. One set (which was prepared in the Indian Statistical Institute) was employed for collecting information in the first group of 1189 villages[1] and the second set of schedules (prepared by the Gokhale Institute of Politics and Economics) was used in the second group of 644 villages. Some of the results of the survey in the first group of 1189 villages have been given in this report. The particulars obtained from the second group of 644 villages will be given in a separate report.

5.3. The schedules used in the first group of 1189 sample villages may be classified into four types. Firstly, there were the village schedules which were used for listing all households of a sample village for collecting information on land utilisation and for collecting prices of selected commodities such as cereals, pulses, oil, vegetables etc., and rates of daily wages of various types of skilled and unskilled workers. Secondly, household schedules were used for collecting general particulars on demographic and economic conditions such as age, sex, marital status, economic and employment status of the members of the households as well as information on the holding and use of land under various categories. Thirdly, another set of household schedules for a smaller number of sample households was used for collecting detailed information on household enterprises and activities such as agriculture and animal husbandry, industry, crafts, trade, services and profession. Fourthly, a third

[1] The geographical position of the first group of 1189 sample vilages has been shown in red dots and the position of the second group of 644 sample villages in green dots in the accompanying map. Each set of the sample villages is scattered in a random manner over the whole country and can, therefore, be expected to supply a representative picture of rural conditions as a whole.

set of household schedules for a small number of sample households was used for collecting detailed information on consumption in value and wherever possible in quantities, of food, beverages, fuel and light, rent, clothing and various other items. The first set of schedules are given in a facsimile form at the end of this report.

5.4. The schedules used in the second group of 644 villages were prepared at the Poona Institute. These schedules also covered comprehensively the demographic and economic characteristics of the households but with somewhat lesser details. There was however an important difference in regard to the period of time for which the particulars were to be collected. Most of the information collected in the schedules drawn up by the Indian Statistical Institute related to the one-year period, July 1949 to June 1950. The reference period in the schedules prepared by the Poona Institute was shorter and was mostly either a month or a week preceding the date of enquiry depending on the nature of the item. The use of these two different sets of schedules had this advantage that in the very first round of the survey it was possible to obtain all-India data for two different periods, firstly, for the period July 1949 to June 1950; and secondly, for the period September 1950 to February 1951.

5.5. For the field work, India was divided into 16 parts each called a block. A block consisted either of a single large State like the Uttar Pradesh or a number of smaller States grouped together, as for example, Assam, Tripura and Manipur. The 1833 villages were then assigned to different blocks in proportion to their 1941 populations. Each of these blocks was further sub-divided into smaller areas (not necessarily of equal size) in such a way that a multiple of three villages (usually six villages) could be assigned to different areas keeping the population proportion the same. An investigator was given a group of six such villages to survey, out of which four villages would have the Calcutta schedules and the other two villages the Poona schedules.

5.6. All the households living in a selected village were first listed by the investigators and sample households were drawn at random after suitable occupational stratification. The required information was then collected by an investigator by interviewing a member or members of a sample household. Since the questions asked referred to personal habits, economic activities, incomes and expenditures, the interviewers had to do their work with tact and patience. Books containing detailed instructions as to how to approach the respondents and what was meant by the various questions in the schedules were supplied to each investigator. The unwillingness of the householders to furnish information was negligible, but there was no way to ensure that all the particulars given by the householders were correct, specially when the investigators were at the job for the first time. This question of accuracy in response is not a problem peculiar to sample surveys only but is common to all surveys including complete enumerations. The advantage of a sample survey is that the size of the enquiry can be decided according to the resources available and hence the investigators may be given better training and guidance. In addition, by using a suitable design the quality of the data may be judged on the basis of internal consistency.

5.7. There were naturally many difficulties in carrying out a survey covering the whole rural area of India. Although the information would be recorded in English the interview with the householder would be conducted in the vernacular language of the informant. This means that only such investigators can be employed as can speak the vernacular language of the locality in which they would work. In actual fact more than 15 local languages have to be used in collecting the information and great care has to be taken that the terms used in the different languages convey exactly the same meaning. Another serious difficulty was the occurrence of local systems of weights and measures. In the first round more than 140 local systems of measurements of weight were discovered and the quantities had to be converted into standard weights and measures.

Arrangements for statistical tabulation and analysis

6.1 There was also the problem of setting up a suitable statistical organisation to tabulate the data collected by the field staff. In fact the preparatory work necessary for starting the survey was not inconsiderable. It consisted not only of preparing the design and the schedules and drafting detailed instructions for investigators but also employing men for selecting samples from re-arranged names of some 560,000 villages.

6.2. Once the field work had started, the field staff began to send questions for the clarification of the difficulties which were arising in the course of the actual work in the field. These questions ranged from the concepts and definitions of the various terms used in the questionnaire to the practical difficulties of locating villages and sample households. When nearly 350 investigators were working for the first time in the different parts of India with different languages and having many local peculiarities, the volume of work required to attend to all the questions was indeed considerable.

6.3. To make suitable arrangements for the work of tabulation and analysis of the primary data, more than 100 additional computing clerks were appointed and given training in the Indian Statistical Institute. As much of the work was to be done by tabulating machines, training was also given to a large number of punchers and verifiers in the Institute both in Calcutta and at its branch at Giridih in Bihar. Arrangements were made to hire the latest types of tabulating machines from the International Business Machine Corporation (IBM) of New York; and by the latter part of 1951 the Institute had 2 new models of IBM tabulators, a new multiplier and several sorters, reproducers, etc. in addition to some of the machines of the British Tabulating Machine Co. which the Institute had been using for some considerable time. An Electronic Statistical Machine (a high powered combined sorter-tabulator) was also rented from the IBM. This expansion in staff and machines called for a large increase in office and storage space and a new office building with a floor space of about 20,000 sq. feet was constructed by the Institute in 1951 mainly for the work of the National Sample Survey.

6.4. The field work started on the 1st of October 1950; and by the 19th of October, the Institute started receiving completed schedules in small batches. The volume increased as the field work got into its stride. The completed schedules as they were received from the field were first scrutinised to see if the entries were properly made, and the figures relating to selected items were then checked and coded. After this the schedules were sent to the punching section for transferring the information to punched cards for machine tabulation, and the cards after verification were sent to the machines for sorting, summary punching, and tabulation. The tables obtained from the tabulating machines were scrutinised again before the final tables were prepared.

6.5. A rough idea of the volume of work of the various stages of computation can be given in terms of man-months. A man-month means the volume of work which one man can do in a month. Roughly, 1700 man-months were required to do the work in 1951. In other words, about 140 persons would have to be engaged just to do the job of primary processing and tabulation if the flow of work were even throughout the year. In addition, statisticians and supervisory staff were required to do the technical, administrative, and supervisory work. The total number of persons of all grades including office and establishment staff connected with the National Sample Survey on the statistical side was a little over 300 in 1951.

The question of approach

7.1. A sample survey covering the whole country would necessarily require a good deal of time to be properly organized. In principle, there are two possible approaches. One would be to start the work in two or three local areas and gradually expand the work until it covers the whole country. The other approach is to establish a general frame-work of the survey covering the whole country at the very beginning and then gradually improve the operational arrangements. In a country like India with big differences in physical characteristics, language, and social and economic patterns of life it was thought that the small scale approach would not really solve the problem because even if small local surveys can be successfully organised in say, West Bengal or in Bombay in the first instance, practically the whole work may have to be done over again in the other States. It was also apprehended that the nature of the difficulties would differ from one region to another and the experience gained in one region to overcome the difficulties would not be necessarily transferable to other States. The second approach was, therefore, deliberately adopted after a good deal of discussion. It was thought that the quickest progress would be made by setting up the survey at one stroke all over the country and then overcoming the difficulties as they arose in the different States.

7.2. The time factor was also an over-riding consideration. The small scale or local approach would inevitably mean a delay of 3 or 4 years or even more before a survey on a national scale could begin to function properly. Because of

the pressing needs of economic planning and development it was thought that the wisest course would be to begin the work on an all-India scale.

7.3. Naturally, the difficulties faced were many. Adequate material was not available for preparing an efficient design of the survey. As for data collection, almost all the investigators were new for this kind of work. Then there were problems relating to concepts and definitions; and also it would take time to ensure that a question put by all the investigators conveyed the same idea to all the respondents. These shortcomings should be kept in mind in studying the results of the first survey.

CHAPTER FOUR

SOME SAMPLE RESULTS

8.1. A large number of results[1] based on the first round of the survey is given in Tables 1-96 of Appendix 1 to this report, and has been discussed in the text of the Appendix. These results are provisional and subject to modification as more data become available, and are being presented here to give a general idea of the large variety of information which is being collected through the National Sample Survey.

8.2. The chief object of the NSS is to supply estimates for the whole of India (excluding Kashmir and Jammu). The sample villages were, however, allocated in such a way that it is possible to prepare separate estimates for each of the 6 zones into which the country has been divided for census purposes. The demarcation of these 6 zones of India (namely, North, East, South, West, Central, and North-West) is shown in Table (I). In certain cases, separate figures have been given for the different zones. However, it must be remembered that the zonal figures have a much larger margin of sampling error than all-India estimates and should be used with caution.

TABLE (I) : DEMARCATION OF POPULATION ZONES

Population Zones	States included
1. North India	Uttar Pradesh
2. East India	Bihar, Orissa, West Bengal, Assam, Manipur, Tripura, Andaman & Nicobar Islands, Sikkim (omitted in this survey)
3. South India	Madras, Mysore, Travancore-Cochin, Coorg
4. West India	Bombay, Saurashtra, Kutch
5. Central India	Madhya Pradesh, Madhya Bharat, Hyderabad, Bhopal, Vindhya Pradesh
6. North-West India	Rajasthan, Patiala and East Punjab States Union, Jammu & Kashmir (omitted in this survey), Ajmer, Delhi, Punjab, Bilaspur, Himachal Pradesh

8.3. The variations between zones are, however, often quite suggestive and are sometimes in accordance with previous knowledge. A number of selected items is being given in the present section which provide for the first time information of considerable economic interest relating to the whole of India.

Size of rural households

9.1. The survey of rural households shows that on an average (based on 16,264 sample households in 1,091 sample villages) each household consists of 5.21 persons of whom a little over one-fourth (28.1 per cent) are earners, about one-sixth

[1] The results in the summary tables and in the Tables 1--96 attached to Appendix 1 have been given to two decimal places for purposes of arithmetic calculations and there is no suggestion that the figures have significance to this order of accuracy. Some idea of the relative order of accuracy will be obtained when some of the errors of sampling become available.

(16.6 per cent) are earning dependents and more than half (55.3 per cent) are non-earning dependents. It is interesting to note that according to the 1941 Census[1] the average size of household in rural areas (now included in the Republic of India) was 5.0 in 1941. The definition of the term "household", however, differed in the present survey from that adopted in the 1941 Census. The 1941 Census counted all persons living in a household on a given day whereas in the present survey all persons living in a household for more than one month during the year July 1949 to June 1950 were included as members. The size of a household is therefore likely to be a little higher in the present survey and this seems to have been reflected in the figure. The result of the 1951 census was not available at the time of writing this report.

TABLE (II) : AVERAGE NUMBER OF PERSONS PER HOUSEHOLD : 1950
RURAL AREAS ONLY

population zones	number of sample		average size of household	percentage distribution of members in class of			
	villages	households		earners	earning dependents	non-earning dependents	total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. North India	155	2,367	5.27	29.2	11.9	58.9	100
2. East India	242	3,550	5.36	27.3	12.7	60.0	100
3. South India	200	3,020	4.98	25.5	18.7	55.8	100
4. West India	130	1,971	5.47	27.0	21.5	51.5	100
5. Central India	226	3,284	4.98	30.4	21.8	47.8	100
6. North-West India	138	2,072	5.27	30.9	16.8	52.3	100
India total :	1,091	16,264	5.21	28.1	16.6	55.3	100

9.2. As between the population zones, the average size of household is found to vary from 5.47 in West India to 4.98 in South and Central India. The percentage of earners shows large variations as between the zones, the highest (30.92) being in North-West India and the lowest in South India (25.49). Non-earning dependents are proportionally largest in East India (59.99) and smallest in Central India (47.82).

Per capita consumer expenditure in rural areas

10.1. The consumer expenditure in rural areas was about Rs. 220 per person per year in 1949–50 according to the present sample survey. It will be remembered that in the first report of the National Income Committee (issued in April 1951) it was estimated that the net national income in 1948-49 was about Rs. 255 per person per year; or, making adjustments for changes in prices, about Rs. 265 in 1949-50 prices. The National Sample Survey estimate, however, refers only to rural households and

[1] Census of India, Paper no. 2, 1949.

cannot, therefore, be directly compared to the estimate made by the National Income Committee (NIC) which refers to the whole country including both rural and urban areas. The average household expenditure is likely to be somewhat higher in urban areas. In addition, there is a margin between national income and the sum total of personal consumer expenditure. In fact, national income at factor cost is identically equal to personal consumer expenditure at market prices *plus* government expenditure on goods and services *plus* net investment of the nation *less* indirect taxes net of subsidies. While the exact relation between the magnitude of the personal consumer expenditure and national income will depend on the actual estimates of the items mentioned above, it is obvious that under the present conditions in India the over-all per capita income must be appreciably larger than the per capita consumer expenditure. The point to be stressed, therefore, is that the NSS estimate of a per capita consumer expenditure of Rs. 220 in rural areas in 1949-50 is not inconsistent with the NIC estimate of a per capita national income of about Rs. 265 in 1948-49 at 1949-50 prices.[1]

10.2. The per capita expenditure varied a good deal from one zone to another. The average consumer expenditure per person was highest, about Rs. 314, in North-West India and appreciably smaller but still quite high, Rs. 253, in West India. It was roughly of the same order in the remaining 4 zones,namely Rs. 210 in East India, Rs. 205 in North India, Rs. 203 in South India and Rs. 198 in Central India. These results are broadly in accordance with the general impression that the people in the North-West and the West of India have the highest level of living.

10.3. For the whole of India, two-thirds of the household expenditure (66.3 per cent) went to food, and roughly one-tenth (9.7 per cent) to clothing so that the remaining one-fourth (24.0 per cent) accounted for all other items of expenditure. Among these, the expenditure on education and newspapers and books was Rs. 1.6 per person per year (which was about 0.7 per cent or less than one per cent of the per capita expenditure). The expenditure on medical services and medicine was a little higher, about Rs. 2.8 per person per year (1.27 per cent). The share of education and health services was thus a little less than 2 per cent of the total expenditure. Fuel and light required 3.25 per cent and ceremonials 7.21 per cent. Everything else had to be managed within about one-eighth of the total expenditure.

Expenditure on food

11.1. The value of food items consumed was highest, about Rs. 213 in North-West India, and varied appreciably in the other zones, and was about Rs. 150 in East India, Rs. 143 in North India, Rs. 137 in South and in West India, and Rs. 124 in Central India. The corresponding share of food items (as a percentage of total consumer expenditure) showed less variation and was 71 per cent in East India, 70

[1] It is true that the two estimates refer to two different years, 1948–49 and 1949–50 respectively but this is not a matter of serious difficulty as it is generally accepted that there has not been any large change in the real national income in these two years

per cent in North India, 68 per cent in North-West India, 67 per cent in South India which are all broadly at the same level; the proportion fell to 63 per cent in Central India and was lowest, about 54 per cent. in West India.

11.2. The expenditure on particular items of food shows interesting regional variations. For example the value of consumption of milk and milk-products per person was nearly Rs. 60 in North-West India, Rs. 25 in West India, Rs. 18 in North India. Rs. 14 in Central India, Rs. 9 in South India and only about Rs. 7 in East India. The share of total expenditure was roughly 19 per cent in North-West India, 10 per cent in West India, 9 per cent in North India, 7 per cent in Central India, 4.5 per cent in South India and 3.3 per cent in East India.

11.3. The quantity of milk consumed per person also varied widely from one zone to another. The all-India average was 21.9 seers of milk per person per year (or less than 2 seers per month). The consumption was highest, 66.1 seers per person per year in North-West India. The figures were much lower in the other zones, namely, 30.1 seers per person in West India and 24.2 in North India; and was still lower, 18.1 seers in Central India, 13.1 seers in South India, and 11.7 seers per person (less than one seer per month per person) in East India. It will be noticed that the pattern of variation is broadly similar to that of the total expenditure on food. Regions where the total expenditure on food is high are also regions in which proportionally more money is spent on milk and milk-products.

11.4. Regional variations were again large in the case of the consumption of *pan* (betel leaves). The estimated expenditure per person per year was highest, Rs. 3.80, in South India; and moderately high in 3 zones, namely, Rs. 1.76 in West India, Rs. 1.73 in East India, and Rs. 1.45 in Central India. It was appreciably lower, only Rs. 0.70 per person in North India, and negligibly small in North-West India. Chewing of betel leaves is believed to be most widely practised in the South and moderately so in the Central zones and more rare in the North and the North-West. The results of the National Sample Survey are in accordance with these impressions.

11.5. In contrast, the consumption of tobacco shows comparatively small variations from one zone to another. The proportionate expenditure on tobacco (as a percentage of total expenditure) was 2.3 per cent in South India, 2.1 per cent in West India, 1.8 per cent in North India, 1.7 per cent in Central India, 1.5 per cent in East India, and 1.4 per cent in North-West India.

11.6. The expenditure on salt was also quite steady and was just below one rupee (Rs. 0.93) per person per year for the whole of India. The variation is comparatively small from one zone to another. The expenditure was slightly over one rupee per person in South India and in East India and was lowest, Rs. 0.69 per person in West India.

TABLE (III) CONSUMER EXPENDITURE PER PERSON IN THE RURAL AREAS BY POPULATION ZONES : JULY 1949-JUNE 1950

	Items	All India	North India	East India	South India	West India	Central India	North-West India
	(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	number of sample villages	1085	154	242	199	127	226*	137*
2.	number of sample households	3141*	447	717*	569*	373	640*	395*
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
3.	foodgrains	85.03	86.72	103.52	73.91	58.40	68.64	115.89
4.	milk and products	17.06	18.32	6.98	9.08	24.67	14.23	59.71
5.	salt	0.93	0.80	1.01	1.01	0.69	1.00	0.87
6.	other food items	42.64	37.04	38.20	52.63	52.86	40.22	36.74
7.	total food	145.66	142.88	149.44	136.63	136.62	124.09	213.21
8.	*pan* (betel leaf)	1.76	0.70	1.73	3.80	1.76	1.45	0.04
9.	tobacco	3.93	3.67	3.22	4.63	5.25	3.42	4.35
10.	fuel and light	7.14	7.64	6.04	6.33	9.32	5.81	11.09
11.	clothing	20.97	19.25	15.47	19.55	31.40	20.77	31.33
12.	foot wear	1.86	1.84	0.94	0.56	3.18	2.14	3.39
13.	education & educational services	1.51	0.73	0.81	1.62	1.88	3.47	0.84
14.	newspapers, periodicals etc.	0.10	0.00	0.10	0.16	0.18	0.08	0.06
15.	medical expenses & services	2.80	1.42	3.97	3.01	3.28	1.89	2.39
16.	ceremonials	16.84	13.45	10.91	8.46	39.40	16.27	20.28
17.	house rent and taxes	1.25	1.66	1.02	0.52	1.57	1.85	1.20
18.	miscellaneous	16.90	11.87	16.79	17.55	19.17	16.49	23.79
19.	total expenditure	219.72	205.11	210.44	202.82	253.01	197.73	313.88

*The number of sample-units (households or villages) is slightly smaller in the case of some of the items. Further details and percentage figures are given in Tables (1—96) attached to Appendix 1.

One hundred Indian rupee = Rs. 100 = 21.00 U.S. dollars = £ 7.50 sterling.

Expenditure on clothing and head and foot wear

12.1. The average expenditure on clothing was about Rs. 21 for the country as a whole. It was highest in West India (Rs. 31.4) and North-West India (Rs. 31.3) and was slightly lower than the all-India average in Central India (Rs. 20.8). South India (Rs. 19.6) and North India (Rs. 19.3); and was only Rs. 15.5 in East India (which was less than half of the expenditure incurred on this item in North-West and West India).

12.2 The distribution of expenditure on different types of products (mill-made. hand-loom, *khaddar*, woollen and other types) are of considerable interest. Out of the total expenditure on clothing nearly three-fourths (74 per cent) went to mill-made products, one-fifth (20.4 per cent) to hand-loom, only 2.81 per cent to *khaddar* and 2.74 to woollen and other products. The relative expenditure on mill-made clothing was fairly steady in 5 of the zones and varied between 84 per cent in North India and 72.5 per cent in Central India; the lowest proportion was in South India, namely, 55 per cent.

12.3. Hand-loom products on the other hand were most popular in South India and accounted for no less than 43.7 per cent of the total expenditure on clothing. The proportionate expenditure was roughly of the same order as the all-India average in Central India (23.6 per cent), East India (19.4 per cent) and West India (16.8 per cent), but was appreciably lower in North-West India (8.0 per cent), and North India (6.2 per cent).

12.4. *Khaddar* also showed wide variations in its popularity and accounted for 10.2 per cent of the total expenditure on clothing in North-West India, and 5.4 per cent in North India. Its share was much less in West India (1.84 per cent) and in Central India (1.42 per cent), and still smaller in East India (0.45 per cent) and almost negligibly small only 0.05 per cent, in South India.

12.5. As one would expect, the relative expenditure on woollen and other types of clothes showed a close relationship with climatic conditions. The proportionate expenditure was highest, 5.07 per cent in North-West India and 4.18 per cent in North India, the two zones which usually have fairly cold winters. It was appreciably smaller in the central zones; 2.65 per cent in West India, 2.63 per cent in Central India, and 1.92 per cent in East India which all have milder winters. The share of woollen and other types of clothes was only 1.13 per cent in South India which does not have any real cold season in the year.

12.6. Regional variations in expenditure on turbans and headgear were also large depending on local social customs. The average expenditure per person on turbans and headgear was highest, Rs. 3.99 per person, in North-West India and quite high, Rs. 1.95, in West India. It was moderately high, Rs. 1.26 in Central India; and much lower Rs. 0.42 per person in North India. It was very low, Rs. 0.13 in South India and was least in East India, Rs. 0.06 per person. It is well known that turbans are extensively used in the North-West, West, and Central India while a large number of people do not use turbans or any headgear (in such regions as West Bengal or Malabar) in East and South India.

12.7. The expenditure on foot-wear also showed large variations. It was highest, Rs. 5.39 per person in North-West India followed by West India with an average expenditure of Rs. 3.18 per person. It was appreciably lower, Rs. 2.14 per person in Central India, and Rs. 1.84 in North India. The expenditure was still lower, Rs.0.94 per person in East India, and was lowest Rs. 0.56 per person in South India.

The expenditure on turbans and headgear on one hand and on foot-wear on the other hand thus show similar variations from one zone to another.

Medical and ceremonial expenses

13.1 Among miscellaneous items the expenditure on medicine and medical services was proportionately highest in East India with an average of Rs. 3.97 per person. It was moderately high. Rs. 3.28 in West India, Rs. 3.01 in South India and Rs. 2.39 in North-West India but appreciably smaller, Rs. 1.89 in Central India and Rs. 1.42 in North India. The relative scale of expenditure on medical services and medicines cannot be however interpreted as an index of good or bad health as differences in the habit of spending for care of health are also likely to be factors of importance.

13.2. For India as a whole the expenditure on ceremonials was Rs. 15.8 per person (or 7.21 per cent of the total expenditure) but there were wide variations from one zone to another. It was highest, Rs. 39.4 per person (15.6 per cent) in West India, and moderately high Rs. 20.28 per person (6.47 per cent) in North-West India, and Rs. 16.3 (8.2 per cent) in Central India. It was below average or Rs. 13.5 (6.6 per cent) in North India and Rs. 10.9 (5.2 per cent) in East India, and had the lowest value, Rs. 8.46 (4.17 per cent) in South India. It has to be remembered that the ceremonials in India are not only obligatory from a social point of view but are also partial substitutes for amusements and recreation.

13.3. Figures on many aspects of rural life have been obtained on a national scale for the first time. In most cases similar data are not available from other sources for purposes of direct comparison. In some cases, however, the results of some regional studies are available, and comparisons have been made with such results in the case of the consumption of salt and of foodgrains in the next chapter. For the rest, the quality of the data can only be judged at this stage by general impressions and the quality of internal consistency. Looking from this angle, some of the figures will seem satisfactory while others may cause some surprise. The great advantage of a continuing sample survey is, however, that more and more detailed information would become available every year so that by comparing and putting together the information collected in one round after another it would be possible to build up a full picture of the changing pattern of economic conditions in the country. Gradually it would be also possible to use external checks and cross-checks and in this way improve the reliability of the information.

Chapter Five

CONSUMPTION OF SALT AND OF FOODGRAINS

14. It is, fortunately, possible to make some rough checks on the accuracy of the NSS estimates of the consumption of salt and of foodgrains by comparing them with data derived from independent sources of information. Details of the calculations and references to sources will be found in Appendix 1, sections 7 and 8.

Consumption of salt

15.1 It will be seen from Table (58) that the amount of salt consumed as human food was 7.51 seers (15.4 lbs) per person per year, on an average for the whole of India, during the year July 1949—June 1950. This figure relates to rural areas, and no recent information is available about consumption in urban areas. However, in an enquiry conducted by the Indian Statistical Institute it was found that the average consumption of salt among middle class families in Calcutta[1] was 17.3 lbs or 8.41 seers per person per year in 1939. In an enquiry made by the same Institute in 1941, the average consumption of salt was found to be 15.9 lbs. or 7.73 seers per person per year among working class families at Jagaddal[2], an industrial town about 22 miles from Calcutta. Prices had not yet risen appreciably and the supply was more or less normal although India was heavily dependent on foreign imports at that time. Owing to shipping difficulties under increasing deteriorating war conditions the supply became much restricted and control had to be soon established over the distribution of salt. In 1945 the Indian Statistical Institute made re-surveys among the same two groups and it was found that the average consumption of salt had dropped appreciably to 12 lbs. or 5.83 seers and 11.8 lbs. or 5.74 seers per person per year among the Jagaddal working class households and the Calcutta middle class families[1] respectively. This reduction was no doubt due to the rationing of salt.

15.2 The general average consumption of salt in various enquiries conducted in Bengal during the period 1936 to 1942 was 15.3 lbs. or 7.43 seers per person per year. This is of the same order as the NSS estimate of 7.51 seers per person per year but the two figures are not strictly comparable as one relates to (undivided) Bengal and the other to the present Union of India.

15.3 Since 1947 a vigorous policy of increasing the domestic production of salt has been pursued, and imports have steadily decreased in recent years. By 1949-50 there were no shortages and consumption had probably again become more or less normal. In the absence of any recent figure of consumption of salt in urban areas it is, therefore, not unreasonable to assume that the average consumption is same in both urban and rural areas. Multiplying the all-India average, 7.51 seers

[1] Recent Experiments in Statistical Sampling in the Indian Statistical Institute: *Journal of the Royal Statistical Society*, Vol. CIX, 1946, Table 21, page 353.

[2] *Ibid*, Table 25, page 356.

person per year, by the total reference period population of 351.51 millions[1], the estimated total consumption of salt comes to 2.424 million tons during the period July 1949 to June 1950. A more rigorous estimate is obtained by adding the estimated consumption in the six population zones. This comes to 2.434 million tons[2] against 2.424 million tons obtained directly from the all-India average. It is possible, therefore, to adopt 2.43 million tons as a reasonable estimate of the consumption of salt in India in the reference year, July 1949—June 1950.

Supply of salt

16.1. It is also possible to make some approximate estimates of the amount of salt available for consumption in India during the same period July 1949-June 1950. As already mentioned, large developments have taken place in the domestic production of salt under the control of the Salt Organization. As a cess is levied on salt, fairly reliable figures are available about the total issues of locally manufactured salt. The relevant figures, as given in the *Statistical Abstract of India*, 1950, p. 865, are 60,749 000 maunds or 2.231 million tons in 1949, and 63,951,000 maunds or 2.349 million tons in 1950. Taking the average of these two figures the total issue during the reference period (July 1949-June 1950) may be estimated at 2.29 million tons. This estimate may be compared with the estimated production of 2.33 million tons[3] during the same reference period, July 1949-June 1950.

16.2. Figures are also available about the imports and exports of salt. Net imports of salt by sea amounted to about 0.22 million tons and net exports by land to about 0.05 million tons leaving a net import balance of about 0.17 million tons during the period April 1949 to March 1950[4]. If a time lag of three months is allowed in the case of imports, then the total estimated supply available for consumption during the period July 1949 to June 1950 would be made up of the estimated total issues of 2.29 million tons *plus* net imports of 0.17 million tons or 2.46 million tons in all[5] The estimated consumption during the same period is 2.43 million tons. The changes in stock at the beginning and end of the year are not accurately known. Also, the estimated supply of salt was available for consumption not only as human food but also for industrial purposes and for animal food. Finally, the NSS estimate of consumption has its own (not yet calculated) margin of error. Taking these uncertainities into consideration the agreement between the estimated supply of 2.46 million tons and the estimated consumption, only as human food, of 2.43 million tons seems to be quite satisfactory.

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[1] Appendix 1, Table (0.2).
[2] Appendix 1, Table (Q).
[3] Appendix 1, para 7.7.
[4] Appendix 1, para 7.8.

[5] In the *Annual Administration Report of the Salt Organization under the Salt Controller for the years* 1947-48; 1948-49; 1949-50; 1950-51, page 7, the total import of foreign salt in 1950 is given as 77.7 lakh maunds and export as 27.1 lakh maunds leaving a balance of net import of 50.6 lakh maunds or about 0.19 million tons which is a slightly higher figure. Using this import figure, an alternative estimate of the total supply would be 2.48 million tons.

16.3. It is of interest to quote in the present connexion the following observation from page 7 of the *Annual Administration Report of the Salt Organization*[1];

> "....the demand in India in 1949—1950 was 14 lbs. *per capita* only, except in Madras where it was 20 lbs. On this basis, the demand of India was 648 lakh maunds in 1949; 684 lakh maunds in 1950; and 713 lakh maunds in 1951".

Taking the average of the demand in 1949 (2.380 million tons) and that in 1950 (2.513 million tons) one gets 2.45 million tons as the demand in the reference year which, again, compares favourably with the NSS estimate of consumption of 2.43 million tons.

Consumption of foodgrains

17. Information has also been collected by interviewing the householders about the consumption of foodgrains comprising rice, wheat, barley, maize, jowar, bajra, ragi, small millets and that part of gram which is consumed as human food; in the Malabar coast a little tapioca is taken as human food and has been included. From attached Table (57) it is seen that the average rate of consumption of foodgrains over the whole of India, during the year July 1949—June 1950, was 26.4 maunds (or 2163 lbs.) per household per year, that is, 8.9 chhataks (or 18.3 oz) per person per day. There is considerable variation from one zone to another. The per capita consumption was highest, about 282 seers (580 lbs) per year, in North-West India; and appreciably lower, 204 seers (420 lbs) per year, in East India; 183 seers (376 lbs) per year in Central India and in South India; and was only 161 seers (331 lbs) per year in West India. The above figures all relate to the rural area and strictly comparable data are not available for the whole of India. The results of a number of surveys have been reviewed in Appendix 1, section 8; and are reproduced in Table (IV).

Previous economic surveys

18.1. Two surveys nos. 1 and 3 of Table (IV) conducted by the Indian Statistical Institute among middle-class households in Calcutta, showed an average per capita consumption of foodgrains of 6.5 chhataks (13.4 oz) per day before the war in 1939; and 6.7 chhataks (13.8 oz) per day in 1945 in the midst of the war and after the introduction of food rationing in 1944. In a very recent survey (no. 4) of middle-class households in Calcutta (with earnings between Rs. 100 and Rs. 350 per month) conducted by the West Bengal State Statistical Bureau in 1950-51, the average consumption was 6.4 chhataks (13.2 oz) per person per day. In an earlier survey of middle-clas household (no. 2) in a large number of urban areas in Bengal, conducted by the Indian Statistical Institute during the earlier part of the war in 1942, the average intake was 6.3 chhataks (13.0 oz) per person per day. The consumption of foodgrains in middle-class households in Bengal was thus more or less stable at the level of from

[1] *Under the Salt Controller, Ministry of Works, Production and Supply for the years* 1947-48; 1948-49; 1949-50; 1950-51.

6.3 to 6.7 chhataks (13.0 oz-13.8 oz) per person per day both before and after the war, and was not affected by the introduction of food rationing in 1944.

TABLE (IV): CONSUMPTION OF FOODGRAINS PER PERSON PER DAY

survey[1]	no. of sample households	consumption per person per day	
		chhataks	ounces
(1)	(2)	(3)	(4)
URBAN			
middle class			
1. Calcutta middle class : 1939	1151	6.5	13.4
2. Bengal urban middle class : 1942	981	6.3	13.0
3. Calcutta middle class : 1945	610	6.7	13.8
4. Calcutta middle class : 1950-51	774	6.4	13.2
working class			
5. Jagaddal working class : 1941	641	8.6	17.7
6. Jagaddal working class : 1942	740	8.2	16.9
7. Jagaddal working class : 1945	755	6.8	14.0
RURAL			
8. Bengal Weaving Survey : 1936	9038	8.4	17.3
9. West Bengal Bolpur Survey : 1936-37	659	7.0	14.4
10. NSS, West Bengal : 1949-50	181	8.4	17.3
11. Uttar Pradesh, 16 villages : 1948-49			
with conversion factor=0.80		10.2	21.0
with conversion factor=0.75		9.6	19.7
12. NSS, Uttar Pradesh : 1949-50	450	10.2	21.0
13. ICMR Diet Studies in 8 States : 1944-48	(61)*		
with conversion factor=0.80		8.4	17.3
with conversion factor=0.75		7.9	16.3
14. NSS average for these 8 States : 1949-50	1881	8.3	17.1
15. NSS average, all-India : 1949-50	3177	8.9	18.3

* 61 groups of studies covering 2126 families altogether.

[1] Survey nos. 1, 2, 3, 5, 6 and 7 were carried out by the Indian Statistical Institute; no 4 by the West Bengal State Statistical Bureau ; no. 8 by the Bengal Board of Economic Enquiry (which had been set up by the Government of Bengal and was a quasi-governmental body) ; no. 9 by the Visva-bharati Institute of Rural Reconstruction ; no. 11 by the Government of Uttar Pradesh ; and no. 13 is based on diet studies made by Department of Public Health in various States.

18.2. In a survey (no. 5) conducted by the Indian Statistical Institute among working class households at Jagaddal, an industrial town about 22 miles from Calcutta the average consumption of cereals was 8.6 chhataks (17.7 oz) in 1941 at a time when overseas supplies had not been affected and prices had not risen appreciably. This probably represented what may broadly be called the normal pre-war level of consumption. In a re-survey (no. 6) conducted by the same Institute in 1942 the intake was slightly lower, 8.2 chhataks (16.9 oz) per person per day. Shortages had already developed and prices had started rising by this time. A little later occured a great famine in Bengal in 1943; and the rationing of foodgrains was started in 1944. A third survey (no. 8) of working class households at Jagaddal conducted by the Institute in 1945 showed a large drop in the consumption to 6.8 chhataks (14.0 oz) per person per day, no doubt due to rationing. The intake of foodgrains among the working class was appreciably greater than that among the middle-class in Bengal before the introduction of food rationing but declined to about the same quantity under rationing.

18.3. In the rural area, in an extensive survey (no. 8) of more than 9,000 rural households in 8 districts of undivided Bengal, conducted by the Bengal Board of Economic Enquiry in 1936, the average consumption of foodgrains was 8.4 chhataks (17.3 oz) per person per day. It is quite remarkable that this is exactly the same figure that was obtained in the present NSS survey for the consumption of foodgrains in the rural area of West Bengal during July 1949-June 1950. The precise agreement is no doubt accidental but it clearly indicates that the per capita intake of foodgrains has remained practically stationary in the rural area. A more restricted survey (no. 9) in a cluster of 12 villages near Bolpur in Birbhum district in 1936-37 had given a smaller intake of 7 chhataks (14.4 oz) of foodgrains per person per day which perhaps is not surprising as Bolpur is generally believed to be a very poor area.

18.4. A survey (no. 11) of 16 villages in Uttar Pradesh, conducted by the U.P. Government in 1948-49, showed an intake of 12.75 chhataks (26.2 oz) per day per "consumption unit" which is supposed to be equivalent to the average consumption of one adult male. In India, according to a number of standard scales of consumption, 100 persons of both sexes and all ages would be equivalent to some thing between 75 and 80 adult males.[1] The equivalent consumption in the U.P. village survey in 1948-49 would thus lie between 9.6 chhataks (19.7 oz) and 10.2 chhataks (21.0 oz) per person per day. In the NSS survey in the U.P., the per capita intake was 10.2 chhataks (21.0 oz) per day in 1949-50 which thus agrees quite well with the result of the previous survey.

18.5. It is worth noting that, in the rural area, the rate of consumption of foodgrains in U.P. (10.2 chhataks per day) is larger than that in West Bengal (8.4 chhataks). The NSS results given in Table (57) and in paragraph 17 also show a good deal of variations in the daily intake of foodgrains in different parts of the country.

Diet studies

19.1. Besides the economic surveys mentioned above, a large number of diet studies have also been made in India. Comparable data are, however, somewhat

[1] Appendix 1, para 8.12.

meagre as the diet surveys were often undertaken as type studies of special groups of people who were not representative of the general population. The results of 841 such studies have been published by the Indian Council of Medical Research in the form of a report in 1951 and have been reviewed in Appendix I, paragraphs 8.6—8.15. Out of 841 studies, 338 related to units of a family type which alone are comparable with the NSS survey. The average intake in 146 surveys in rural areas, carried out before 1944, was 8.50 chhataks (17.48 oz) per person per day (using a conversion factor of 0.80). This was just about the same as 8.55 chhataks (17.58 oz), the average of 61 surveys in rural areas carried out in and after 1944. The results of the diet surveys corroborate the view that the consumption of foodgrains has remained practically the same in rural areas before and after the introduction of food rationing. In urban areas, on the other hand, the average per capita consumption, in 71 surveys carried out before 1944, was found to be 6.96 chhataks (14.31 oz) per day; but it had declined to 5.47 chhataks (11.25 oz) per day in 60 surveys carried out in and after 1944. The decrease of intake was evidently due to the introduction of rationing in 1944.

19.2. It is of interest to consider in greater detail the 61 surveys of rural groups of a family type conducted in and after 1944 in 8 States. The unweighted average of those 61 studies, using a conversion factor of 0.75, is 7.92 chhataks (16.30 oz) per person per day; or, using a conversion factor of 0.80, is 8.45 chhataks (17.38 oz) per person per day. The corresponding NSS estimate for these 8 States is 8.35 chhataks (17.18 oz) per person per day which is quite consistent with the results of the diet surveys in rural areas mentioned above.

19.3. The results quoted above are based on surveys of many different types conducted by a large number of different agencies in different parts of India and they cover a good range of years before, during, and after the war. The consumption of foodgrains in rural areas all over India and among middle-class households, at least in Bengal, appears to have remained more or less the same before and after the introduction of food rationing. The intake of foodgrains by working class families, on the other hand, has fallen appreciably in urban areas due no doubt to food rationing. The agreement between the NSS estimates and the results of previous economic surveys and of diet studies about the intake of foodgrains appears, on the whole, to be quite satisfactory.

Crop survey estimates of production in West Bengal

20. A more reliable objective check is also available in the case of West Bengal. Sampling surveys of food crops are being conducted in West Bengal every year since 1943 by a semi-permanent whole-time field staff exclusively engaged in this work. In this method the sown area is determined by a physical observation of the crops on the ground and the yield is determined by crop-cutting work at harvest time. The total quantity of foodgrains which was produced in West Bengal and which became available for consumption was estimated in this way to be 3.534 million tons in 1949, and 3.860 million tons in 1950. Taking the average, the quantity available for consumption during the reference year, July 1949-June 1950 was 3.697 or, say,

3.70 million tons. The net supply released during the same period out of imports into West Bengal was 0.39 million tons, so that the total supply available for consumption during July 1949-June 1950 may be estimated at 3.70 *plus* 0.39 or 4.09 million tons[1].

Consumption in West Bengal

21. It is also possible to make a rough estimate of the total consumption. According to the NSS, the per capita consumption in the rural area during July 1949-June 1950 was 8.4 chhataks (17.3 oz) per day. On this basis, the consumption in the rural areas would come to 3.22 million tons for an estimated rural population of 18.38 millions during the reference period[2]. The most recent figure of the consumption in the urban area, according to the survey conducted by the West Bengal Statistical Bureau in 1950-51, was 6.4 chhataks (13.2 oz) per person per day. The estimated total consumption in urban areas would, therefore, be 0.81 million tons[3] on the basis of an urban population of 6.06 million persons. Adding 3.22 and 0.81, the total estimated consumption in West Bengal during the year July 1949-June 1950 was 4.03 million tons against an estimated supply of 4.09 million tons. Such a close agreement (with a difference of only about 1.5 per cent) is, of course, fortuitous. Keeping in mind the approximations used in the comparisons and also the sampling error of the NSS estimates, an appreciably bigger difference would not have been at all surprising. However, the present check is encouraging, and it is reasonable to think that, even in its first round, the NSS is supplying fairly reliable estimates of consumption.

Household statements of production in West Bengal

22. In the present survey questions were asked about the consumption of foodgrains whether or not the sample household was concerned with agricultural production. In addition, some of the agricultural households were asked questions about the quantity of production of foodgrains. The results are, however, far from satisfactory in the case of the estimates of production based on the information supplied by the householders themselves. For example, on the basis of the replies received from the sample households, the production of foodgrains including gram was 16.69 maunds per household or 3.35 maunds per person in West Bengal during the reference year July 1949-June 1950. For a rural population of 18.38 millions the estimated production, based on the replies of the householders themselves, comes to only 2.26 million tons which is 1.44 million tons less than the estimated production of 3.70 million tons based on a sample survey by direct observation of crops. The discrepancy is thus about 40 per cent of the objective estimate.

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[1] Appendix 1, paragraph 8.25.

[2] Appendix 1, paragraph 7.2.

[3] It may be pointed out in this connexion that most of the urban area was rationed and that the gross offtake for rationing in West Bengal was about 0.84 million tons (Appendix 1 paragraph 8.25) which include rations supplied to certain non-urban areas such as plantations, hill districts etc. The estimated urban consumption of 0.81 million tons is thus quite consistent with the gross rationing offtake of 0.84 million tons.

Comparison of All-India consumption and production

23.1. Based on the replies received from the householders, the estimated production of all foodgrains including gram[1] is seen from Table (57) to be 19.86 maunds (0.73 tons) per household. On the other hand, also based on replies given by the householders, the consumption of foodgrains was 26.38 maunds (0.97)tons per household which is higher than the production figure by 6.52 maunds (0.24 tons) per household. This is palpably absurd and shows that the production figures based on information given by the growers must be serious under-estimates. The discrepancy becomes even larger if the consumption in the urban areas is taken into consideration.

23.2. The total estimated consumption of foodgrains in India, on the basis of the consumption in the different zones, comes to 63.17 million tons[2]. The net supply[3] of foodgrains out of foreign imports is estimated at 3.01 million tons during the period July 1949-June 1950. Subtracting 3.01 from 63.17, one obtains 60.16 or say, 60 million tons in round numbers as the quantity of foodgrains which was consumed out of the home production.

23.3. The NSS estimates can also be compared with the official statistics of production . For the whole of India (excluding Jammu and Kashmir), according to the official statistics, the total production[4] of all foodgrains, including gram, was 46.95 million tons during the crop year July 1948-June 1949, and 49.35 million tons in 1949-50. Excluding gram, the corresponding figures were 42.42 and 45.68 million tons respectively. Taking the average of the two figures, the estimated supply from home production available for consumption during the reference period, July 1949-June 1950, was thus about 48 million tons including gram and 44 million tons excluding gram, against an estimated consumption (of home grown foodgrains) of say 60 million tons. It is known, however, that only a part and not the whole of the gram is used as human food. The discrepancy thus lies between roughly 12 and 16 million tons. The official statistics, therefore, seem to be under-estimates by some thing between roughly 20 and 25 per cent in round numbers.

SUMMARY OF RESULTS

24.1 The above review covers five different types of data on foodgrains relating respectively to:

(*a*) sample surveys of consumption by the interview method carried out by various agencies;

(*b*) diet studies of consumption conducted by the Department of Public Health in various States;

[1] Small millets (which, according to official estimates, constitute 4 per cent of the total cereal production) were not included as the figures have not yet been analysed.

[2] Appendix 1, paragraph 8.22, Table (X).

[3] Appendix 1, paragraph 8.21.

[4] Appendix 1, paragraph 8.20.

(c) NSS estimates of consumption in 1949-50 obtained by interviewing the sample householders;

(d) NSS estimates of food production based on information supplied by growers; and

(e) official statistics of food production.

24.2. In the case of only one State, namely, West Bengal, the production figures are based on scientifically designed sample surveys in which the sown crop is physically observed on the ground and the yield is determined by crop-cutting work at the time of harvest. It will be noticed that this is an objective method in which the crop information is secured quite independently of the farmers.

24.3. A comparative study of the different series of results leads to certain general conclusions which are summarised below.

(1). The sample surveys and diet studies both indicate that the per capita consumption of foodgrains in the rural areas has remained practically the same before and after the war, and has not been affected by the introduction of food rationing. This is also true of middle-class urban families, at least, in Bengal. There has been, however, a definite fall in the intake of foodgrains among working class families in urban areas who, before the war, used to consume appreciably larger quantities of foodgrains than the middle-class but who, under food rationing, consume at present roughly the same rationed quantities as the middle class.

(2). The NSS estimates of consumption in rural areas in West Bengal and in U.P. are in good agreement with the corresponding results of previous sample surveys in these two States. The NSS estimate of intake for the rural areas of India as a whole is also consistent with the results of the diet studies on rural households of a family type.

(3). Both the NSS and the results of previous economic surveys and diet studies reveal a good deal of variation in the intake of foodgrains in different parts of of the country due, no doubt, to differences in climatic conditions and the food habits of the people residing in different regions.

(4). On the basis of the NSS, the total consumption of foodgrains in West Bengal during the year July 1949-June 1950 comes out as something like 4.03 million tons. The estimated total supply during the same period is 4.09 million tons, made up of an estimated production of 3.70 million tons based on objective sample surveys of crops *plus* a net rationing offtake of 0.39 million tons out of Government stock from imports into West Bengal. This striking agreement between two entirely independent estimates one of production and the other of consumption, gives support to the view that the NSS estimates of consumption are fairly reliable.

(5). The NSS estimate of production of foodgrains in West Bengal, based on enquiries from householders is, however, only 2.26 million tons which is very much lower than both (a) the NSS estimate of consumption of foodgrains and (b) the objective sample estimate of production of 3.70 million tons based on the direct observation of crops. The estimate based on enquiries from growers thus falls short by 1.44

million tons or by about 40 per cent of the objective estimate of production of 3.70 million tons.

(6). This is also true of the all-India estimates. The estimated production of 19.86 maunds (0.73 tons) per household, based on the replies of householders, is much less than the estimated consumption of 26.38 maunds (0.97 tons) per household also based on enquiries from householders.

(7). On the basis of the NSS, the total consumption of foodgrains grown in India is estimated at about 60 million tons for the whole country during the year July 1949-June 1950. The official statistics of the production of foodgrains was about 48 million tons inclusive of gram and 44 million tons excuding gram. As the whole of the gram is not consumed as human food, the discrepancy lies between 12 and 16 million tons. The official statistics of food production are thus probably under-estimates by some thing of the order of 20 or 25 per cent for India as a whole.

(8.) It has been also noted in an earlier section that the NSS estimate of the consumption of salt in India of 2.43 million tons in 1949-50 is in striking agreement with the estimated supply of 2.46 million tons made up of a reliable estimate of 2.29 million tons of supplies from home production *plus* 0.17 million tons of net imports.

(9). It would seem reasonable to infer from the above comparisons that NSS estimates of consumption are probably of the right order, but the NSS estimates of production based on enquiries from householders (as also official statistics of food production) are serious under-estimates. Such under-estimation may arise from a desire, on the part of the growers, to sustain high prices by forecasts of a short supply, to retain foodgrains for black-market sales outside the Government system of procurement at controlled prices, or from a general tendency to give a conservative estimate in order to be on the safe side. Experience in other countries of the world has also been that growers almost always under-state the production of crops.

(10). To sum up, the above comparisons, although admittedly tentative, would seem to indicate that the actual home production of foodgrains may be substantially greater than the official estimate. It is scarcely necessary to point out that this does *not* mean that there is a surplus of (say, about 12 or 16 million tons of) foodgrains in the country. It simply means that official figures of *both* production and consumption may be under-estimates by something of the order of one-fifth or one-fourth of the true value. This question is of great importance in connexion with the food policy of the country; and there is clearly an urgent need of improving the estimates of both the production and the consumption of foodgrains in India.

(11). As already pointed out, the NSS estimate of consumption and the estimate of production based on the physical observation of crops in Bengal are in good agreement. It would, therefore seem desirable to extend the objective sample surveys of crops by direct physical observation to other parts of the country in order to secure independent and reliable estimates of the total production of foodgrains in India.

CHAPTER SIX

DEVELOPMENTS SINCE THE FIRST ROUND OF SURVEY

25.1. Many developments have occurred since the first round of survey. The second round, which again covered only the rural areas, was started in April and completed by the end of July 1951. The number of sample villages was 1160 and only one single set of schedules was used to collect information relating to the consumption and crop production for 10 sample households selected at random from each sample village. One important change was the reduction of the reference period from one year to one week or a month for many articles of consumption.

25.2. In the third round, which was started in August and completed in November 1951, the most important change was the extension of the survey to cover the 4 big cities of Calcutta, Bombay, Madras and Delhi, and 50 towns scattered over the whole country. The total number of sample villages was 920, and 12 sample households were selected at random from each sample village; and the number of households in the urban area varied between 40 and 336 depending on the population of the town or city. The schedules were extensively revised on the basis of the experience gained in the first round of the survey.

25.3. A rapid survey of the winter and spring crops grown in 920 sample villages was made in December 1951. In each village, 20 sample clusters each of 5 plots were selected with probability proportional to the total area of the cluster; and the field investigators examined each cluster separately and made a record of the crops grown on it. This survey is expected to supply useful information not only about agricultural production but also about developing suitable methods for direct crop surveys on an all-India scale.

25.4. The fourth round of the economic survey started in April 1952 and was generally completed in October 1952. It covered both rural and urban areas. The design for urban areas remained broadly the same as in the third round but the design for the rural areas was completely changed. The whole country was divided into 240 strata, and 2 sample tehsils were selected in each stratum, and 2 sample villages in each tehsil giving a total sample of 960 villages selected in a suitable random manner. An appropriate number of sample households was selected at random in each village in such a way that the over-all sampling fraction was equal.

25.5. An attempt has been made in this round to make a precise comparison of results based on two different periods of reference, namely, one week and one month for the consumption of foodgrains and other important commodities. In both rural and urban areas, half the households were investigated with the week as the period of reference and the other half with the month as the period of reference, and two investigators worked simultaneously with the two different forms. In this way it is hoped to secure critical data relating to the period of reference.

25.6. Attempts are being made continually to improve the quality of the information by giving the field staff more training, improving the forms and schedules, making better arrangements for inspection and supervision, improving the design of the survey, and introducing various checks and cross-checks in assessing the accuracy of the final estimates. In this way it is hoped that the NSS would gradually give more and more reliable information relating to economic conditions over the whole of India.

25.7. Shri S. P. Sinha, who organized the Field Branch as its first Chief Director, was recalled by the Government of Bihar in 1951. Shri Hari Charan Ghosh, whose services were secured on deputation from the Ministry of Commerce and Industry, took over charge of the post of the Chief Director in May 1951.

Arrangements for the statistical work

26.1. Many improvements have been made in the forms and schedules; concepts and definitions have been clarified; and the hand-book of instructions to the field staff has been revised on the basis of experience gained in the earlier rounds. Various changes have also been made to improve the scrutiny, editing, processing, and analysis of the statistical information which is continually coming in from the field.

26.2. Credit for these improvements is mainly due to Satyabrata Sen, an old worker of the Indian Statistical Institute, who had gone on deputation to the United Nations Statistical Office but who returned to the Institute in February 1951 to take charge of the Statistical Branch of the National Sample Survey. He has been ably assisted on the operational side by Nimaicharan Ghosh, Shyam Sundar Bose and other workers of the Institute. On the planning and technical side, Jitendra Mohan Sen Gupta, Debabrata Lahiri, and C. R. Rao have continued to give all possible help.

26.3. The present report gives a general account of the first round of the survey based on Calcutta schedules which were completed in March 1951. Appendix 1 which gives the detailed notes together with the attached Tables (1)—(96), was originally submitted to the Government of India in a provisional form in February 1952. The general report was written subsequently; and, as already mentioned, a separate report will be published on the first round based on the Poona schedules. It is intended gradually to prepare further reports and studies of a technical nature on the first round of the survey.

26.4. In the present report certain comparisons have been made between the NSS results and data based on other sources of information. It must be confessed, however, that only such material as happened to be readily available has been used for this purpose. It is realized that a great deal of miscellaneous information must be lying scattered in different parts of the country. Attempts are being made to build up a reference section of the results of sample surveys and of type studies of both regional and all-India coverage. It will be greatly appreciated if such results or references to both published and unpublished sources of information are kindly forwarded

to the Indian Statistical Institute for comparative studies. The Institute will welcome exchange of information. and will be also glad to arrange technical consultations and discussions in this field.

26.5. Good progress has been made with the preliminary tabulation of the data collected in the second and the third rounds of the survey, and arrangements are being made to expedite the writing of the reports. It is proposed to issue these reports in the form of two different series, one giving the results of general interest and the other dealing with technical matters of special interest to professional statisticians.

26.6. Although more than a hundred tables have been given in this report there is a very large amount of material which has not yet been tabulated. Some idea of the variety of information which it is possible to extract from the records can be obtained by looking at the field schedules which are given in Appendix 3. A great deal of primary information has been already transferred to punched cards and the remaining portion can be transferred and stored for future use if an additional expenditure of the order of Rs. 40,000 is incurred for the purpose. The cost of the mechanical sorting and tabulation is comparatively small and of the order of possibly 10 per cent or less of the total cost of an independent enquiry. If the whole of the information is once transferred to punched cards, it would be possible to secure a great deal of additional information in future at a small additional cost.

The future programme of the NSS

27.1. It has been already mentioned that the geographical coverage of the National Sample Survey has been extended to both rural and urban areas. On the side of industrial production, the fifth round of the survey, which is due to begin in December 1952, would cover all household and non-household enterprises in both rural and urban areas other than those employing a minimum of 10 or more workers with power, or, 20 or more without power on any day in the year. A sample survey of manufacturing establishments employing 20 or more with power was conducted in 1950-51 by the Directorate of Industrial Statistics. The scope has been extended to include all enterprises employing at least 10 or more with power, or, 20 or more without power on any day in the year and registered under Sections 2m(i) and 2m(ii) respectively of the Indian Factories Act of 1948; and the survey has been transferred to the NSS from this year. The coverage is thus practically complete in the sectors of household consumer expenditure and of industrial production.

27.2. As regards agricultural production, preliminary arrangements are being made to carry out a sample survey of agricultural holdings covering the whole of India by collaboration between the Ministry of Food and Agriculture and the National Sample Survey. Proposals are also under active consideration for the development of unified sample surveys to estimate the total food supply in the country. Transport, trading. and financial activities by household are being covered by the NSS

in both rural and urban areas. The scope and coverage of the NSS would thus appreciably increase in the near future; and the only serious gap that would still remain would be in what may be broadly called the non-household sectors of transport, trading, and financial establishments.

27.3. A great deal of experience has been gained in the course of the surveys which have been already completed. The sample design was radically changed in the fourth round, and such further changes would be made as may be considered desirable in the light of experience gained in this round. It is hoped that it would be possible in future to conduct three or four regular rounds of survey every year with a standard programme of work covering important sectors of information. These regular surveys would be designed with a view to supplying, from year to year, repeated or seasonal estimates of important economic factors to indicate economic trends. It is also proposed to conduct from time to time, may be once in each year, special surveys relating to particular subjects such as education, transport, health etc., in collaboration with the Ministries concerned. It is intended, in addition, to keep a certain amount of work-load (say, a month or so in the year) free for *ad hoc* enquiries at short notice. In this way, it is hoped, the National Sample Survey, would supply in future a continuing stream of essential information relating to the economic progress of the country for purposes of planning and of policy decisions.

CHAPTER SEVEN

GENERAL OBSERVATIONS ON THE SURVEY

28.1. The National Sample Survey is the biggest and most comprehensive sampling enquiry which has been so far undertaken in any country of the world, and it has attracted a great deal of notice among statisticians all over the world. At the request of the Government of India, the United Nations Sub-Commission on Statistical Sampling made a brief examination of the National Sample Survey and made the following observations in the report of its fifth session[1] held in December 1951

> "The Sub-Commission was asked by the Indian Government to review the methods used by the Indian Statistical Institute. The Sub-Commission has not had the opportunity to examine in detail the whole of the Institute's activities, nor would this be a proper task for the Sub-Commission to undertake. It has, however, given considerable attention to one side of the Institute's activities, namely the improvement of agricultural statistics on the acreages and yields of the various crops. The results of this examination are described in Chapter II. From that chapter it will be seen that the Institute has carried out a great deal of pioneer work in this field which has resulted in major improvements in the application of sampling techniques to the estimation of the acreages and yields of agricultural crops. The surveys conducted in the provinces and States of Bihar and West Bengal have enabled accurate estimates of the acreages and yields of jute and rice in these areas to be obtained for the first time. As a result of these activities and their stimulating effect on the work of other organisations, objective methods for the estimation of the yields of agricultural crops have reached a more advanced state of development in India than in any other country in the world.
>
> The Sub-Commission has also briefly examined the work being undertaken by the National Sample Survey. This Survey has been designed by the Institute and the necessary statistical analysis of the results are carried out by the Institute. The Sub-Commission is much impressed by the high promise of this survey and its potential value in providing data not only on national income but also on many other economic and sociological problems.
>
> In the opinion of the Sub-Commission, the Institute is making a major contribution to the development of the subject of statistics in India and to its practical application to the need of the modern state. Similar organisations are badly needed in many other parts of the world".

28.2. The Sub-Commission on Statistical Sampling in its previous reports had pointed out the advantages of collecting information on different sectors in the form of a combined survey. The potential value of the National Sample Survey in providing comprehensive information arises from its multi-purpose character. There are certain misapprehensions in this matter which deserve notice. It is sometimes claimed that the same investigator cannot collect information relating to agriculture,

[1] E/CN. 3/140 of 31 December 1951 ; Chapter XI.

cottage industries, labour, transport, and trading or financial enterprises; and that each sector would require a separate sample survey of its own. The answer can be given at different levels.

28.3. Experience has shown that the same investigator, when given suitable training, can often collect by the interview method information on a large variety of subjects of the type covered, for example, in the NSS schedules. It is true that serious conceptual and operational difficulties are involved in some of the items of information, for example, the contribution of household labour and its apportionment between different productive activities. Consider a well-to-do rural household with agricultural land which it cultivates partly with hired labour; which owns some cattle and also a bullock cart which it uses for household purposes of all kinds and also sometimes lets out on hire; which produces home made food articles, for example, puffed rice and ghee; and sells a part of the agricultural crops as well as some of the home produced food articles in the neighbouring market; and also suppose that the head of the household earns some interest by lending money to his neighbours for productive purposes. Such a household has to be treated as a unit of production in the sectors of agriculture and livestock, cottage industries, transport, trade, and finance. It is also a consumer unit which consumes a good deal of its own production. Admittedly there are serious difficulties in ascertaining the separate shares of the different economic sectors, but such difficulties would not be overcome by using, say, six separate sample surveys each covering a single subject field like agriculture, cottage industry, labour, transport, trade, and finance. On the contrary, the difficulties would become practically insuperable if information is sought to be collected by six independent investigators each working on a different sector under the control of a separate organization. In a combined survey there would be a much greater chance of collecting the information in a co-ordinated manner to yield a meaningful picture of the real situation.

28.4. It may be necessary in certain cases to employ investigators of a high calibre with specialised technical knowledge and experience in particular fields. A unified organization does not mean that all information must be collected by the same set of investigators. An additional staff of investigators with the required technical knowledge and experience can be easily employed in a co-ordinated manner in a multi-purpose survey. One advantage of this plan is that a good deal of the background information would be collected through the regular investigators at a smaller cost. Also, the general information collected in a multi-purpose survey is likely to supply valuable ancillary data for special enquiries.

28.5. It is quite true, of course, that specialized knowledge and experience would be needed at the stage of formulating the concepts and definitions, the field schedules, instructions to investigators, and the design of the survey. This can be secured by the active participation of statisticians and economists with special knowledge and experience of work in different subject fields like population, agriculture, labour, commerce and industry etc.

28.6 In any case, the great bulk of technical work relating to the sample design and the processing of the statistical material can be done by a unified staff of statisticians and computers irrespective of the particular subject fields covered by the field investigators. At the stage of scrutiny or of final analysis and interpretation there would be again the need of professional workers with specialized knowledge of particular subjects which can be easily secured, as already pointed out, by having a sufficient number of such persons on the staff of the National Sample Survey.

Criteria for the assessment of results

29.1. Information on many aspects of economic conditions in the rural areas of India has been obtained for the first time. In most cases similar data are not available for purposes of direct comparison. In a few cases results of regional surveys are available and attention has been drawn to the similarity or differnce between such results and the NSS figures.

29.2. In this situation, one may ask, what are the criteria by which the reliability of the NSS can be judged? There are three broad approaches which, of course, are complementary and must be used jointly and simultaneously. First, the great scientific merit of the sampling method, as already pointed out, is that, in a properly designed sample survey, it is possible to calculate the margin of error of the results from the sample data themselves. Such calculations have been started; and when the errors of sampling of some of the important economic factors become available these results would supply a powerful tool to judge the significance of comparisons based on the NSS estimates. If the difference between two results is (in a probabilistic sense) significantly less than the calculated margin of error, then it would be logical to consider the two sets of results to be in satisfactory agreement. Otherwise, the two sets of results must be considered as mutually contradictory.

29.3. In a properly designed sample survey it is also possible to study (for example, by using an inter-penetrating network of sub-samples), and sometimes to eliminate, the effect of non-sampling errors which arise from response bias, recording mistakes, and other disturbing factors operating at the stage of collection of the primary information. As already mentioned, this method has been used in the fourth round of the survey to investigate whether the reference-period (one week or one month) has any influence on the answer to questions on the consumption of food-grains and other commodities. The same method can be used (and has been used) to study differences in the 'personal equation' or 'personal bias' of the investigators.

29.4. Another possibility is to carry out special 'quality' checks by highly trained and experienced workers (including senior statisticians) who would themselves go out to the field and directly collect some of the critical primary data. By comparing the results of such quality checks with those based on the data collected by the regular investigators in the usual way it is possible to get a good idea of the reliability of the general information. Such quality checks are also useful in drawing

attention to ambiguities in concepts and definitions, defects in the field schedules, and other special difficulties which arise in practice in regard to particular items so that necessary improvements can be made in the technique of collecting the primary information. It will be noticed that the quality check itself may be a sample survey (of very small size and carried out by high ranking workers) which has the much bigger NSS sample as its field.

29.5. In a continuing sample survey like the NSS it is further possible to conduct type investigations for the intensive study of particular problems by technically qualified workers. Such type studies can be of great help in clearing up problems of concepts and definitions, estimability, and operational methods in the collection of information. Type studies on a small scale have been started in the NSS , and it is intended to organize them in a more systematic manner in future as technical workers become gradually trained up.

29.6. All the above methods are *internal* in the sense that information would be collected by the NSS itself in many different ways (interpenetrating sub-samples, quality checks, type studies etc.), with a view to improving the reliability of the results. A second broad approach is to use *external* checks by comparing the NSS results with data obtained from entirely independent sources. Comparisons have been already made of the NSS estimate of the consumption of salt in the whole country with external estimates of available supply; and of the NSS estimate of the consumption of foodgrains in West Bengal and in the whole of India with the corresponding official estimates of the supply. The results are quite reassuring. The figures obtained in the very first round of the National Sample Survey, on the whole, appear to be not unrealistic.

29.7. External checks are of great value; and it is intended to include test items in the NSS schedules, from time to time, with the deliberate intention of using such information for purposes of comparison with data obtained from independent sources. The fact that the NSS is a continuing survey is of advantage in this respect.

29.8. Sometimes the external checks may have to be made on the basis of qualitative impressions. For example, the comparatively large expenditure on turbans and headgear or of woollen clothing in North West India is in keeping with the previous knowledge that turbans and headgear are extensively used in North-West India and also that the winter is more severe there requiring a greater use of woollen clothes. On the other hand, the comparatively small income from household industries in the rural areas except in South India (Table 69) is certainly surprising and immediately raises a question whether some of the household industrial activities, being of a subsidiary character, have become merged with the agricultural sector, or have somehow escaped from the records. Naturally, it is necessary to wait for further information or undertake special quality checks or type studies. In the meantime the question has to be kept open.

29.9. General impressions based on previous knowledge can supply useful checks in a qualitative form but must be used with great caution and must not be con-

fused with pre-conceived notions of a subjective nature. The fact that a general impression is more or less universal cannot in itself be a guarantee of its validity. The real test is whether such general impressions are in accordance with a sound foundation of objective knowledge. As in the case of all scientific investigations, any new data must be carefully checked with the existing body of knowledge with the aim of fitting the two together in a harmonious whole. This process would call for a testing and re-testing of the new findings and sometimes of their rejection; and would sometimes require that some of the old notions be changed or even discarded. A sample survey like the NSS would be subject to the same process of a continuing adjustment of the new results with the old, and would thus exhibit all the features of the advancement of scientific knowledge. Each round of the survey would thus offer opportunities of experimentation and of the re-designing of the survey to improve its efficiency.

29.10. In the case of all scientific investigations there exists a final criterion, namely, the reliability of forecasts made on the basis of present knowledge. In the case of the NSS also, inferences drawn in a valid manner on available evidence will have to be judged by future events. For example, the first round of the survey has given indications of a much larger consumption and hence of a much larger supply of foodgrains in the country than official estimates. This result may be purely fortuitous, or due to some bias in collecting the information. A final verdict cannot be given immediately on the basis of the first round alone. The results of subsequent rounds (and of special studies and quality checks) would either gradually corroborate the above findings or tend to disprove them. In case the findings happen to be sustained by subsequent surveys, then policy decisions (for example, those relating to the control or decontrol of foodgrains) would necessarily have to be made on the basis of such findings; and ultimately the conflict between NSS estimates and official figures would have to be resolved by the logic of events. The indications given by the first round of the survey, in the meantime, point to the urgent need of a continuing study of the statistics of food supply.

Validity of the NSS results

30. The validity of the NSS results, thus, will have to be assessed by a piecing together of a large mass of evidence based partly on internal consistency, partly on external checks, and ultimately on the accuracy and social usefulness of the estimates and forecasts. The different strands of evidence can not be expected to be all concordant. Some of the results may be contradictory. It may easily happen, especially in the initial stages, that certain items of information are reliable while data on certain other items are still untrustworthy. Even in abstract principle, all the results can not be always accurate. The theory of probability demands that forecasts made on the basis of sampling must sometimes prove wrong. In the case of a big enterprise like the NSS some reasonable time must elapse before a proper assessment can be made of its performance. All that can be said at present is that the results of the first round of the National Sample Survey are definitely encouraging and provocative of thought.

APPENDIX 1

NOTES ON THE FIRST ROUND OF THE NATIONAL SAMPLE SURVEY

OCTOBER 1950—MARCH 1951

1. SCOPE OF THE SURVEY

1.1. It has been already explained in the General Report that two series of schedules were used in the first round of the National Sample Survey. One series was prepared in the Indian Statistical Institute, Calcutta, and was used in one set of 1189 villages; and the other series was prepared in the Gokhale Institute of Politics and Economics, Poona, and was used in a second set of 644 villages. The present report deals exclusively with the information collected through the first series of schedules prepared in Calcutta. As already mentioned, a separate report will be issued on the information collected through the second series of schedules prepared at Poona.

1.2. *Nature of information collected:* The schedules (prepared by the Indian Statistical Institute) which were used in 1189 villages may be grouped into four types, namely, (1) village schedules, (2) household schedules for general particulars on demographic and economic conditions, (3) household schedules for detailed information on household enterprises, and (4) household schedules for detailed information on consumer expenditure. A brief description of the schedules is given below.

(1) Village schedules.

Schedule 0: for listing of all households of the sample villages.

Schedule 0.1: for collecting information regarding the occupation of 80 households selected by a random process from the complete list of households of a village.

Schedules 4 & 5: for collecting information on the utilisation of lands on a sample basis and in regard to yield of crops.

Schedule 6: for collecting prices of certain selected commodities in sample villages such as cereals, pulses, oil, milk, vegetables, spices, fuel, tobacco, etc.; and rates of daily wages of various types of skilled and unskilled (male and female) workers, particularly in relation to agricultural operations.

(2) Household schedules for general particulars.

Schedule 1: for collecting information on the size of the family, age, sex, marital status, economic and employment status, and occupational particulars of individual members of the sample households; information on the holding and use of land under various categories; particulars on livestock, real assets, loans and savings and housing conditions.

(3) Household schedules for detailed information on household enterprises.

Schedule 2.1: for collecting information on agriculture and animal husbandry, particulars such as acreage and production of different crops; expenditure on materials and operations in agriculture and animal husbandry; source of finance, nature of disposal of produce and the value of livestock products; and an account of livestock, agricultural implements and accessories.

Schedule 2.2: for particulars on industry, crafts and trade, including fixed capital, machinery and tools, fuel, power, raw materials, quantity and value of production, type of labour used, source of finance and income from industrial servicings.

Schedule 2.3: for particulars on incomes and expenditures in services, profession, and financial operations of individual earners in sample households.

(4) Household schedules for detailed information on consumer expenditure.

Schedule 3.1: for particulars on consumption of food under various groups of items, beverages, intoxicants, fuel and light, in value and wherever possible in quantity.

Schedule 3.2: for particulars on expenditure on clothes with breakdowns into types; household articles of various categories; medicines, education, amusements, ceremonials, and services of various kinds.

1.3. The period to which most of the questions in all these schedules refer was a year from July 1949 to June 1950.

1.4. *Coverage of units:* It should be noted that the information on consumption and enterprises in rural areas was collected by interviewing the households. In consequence the information collected in the survey was confined to information which could be reached through the households living in villages.

1.5. Proprietory enterprises and those under partnership were covered but non-household enterprises were excluded from this survey. Consequently, all establishments were excluded which were operated by:

.1 joint stock companies;

.2 government agencies, central, state or local ; and

.3 other institutions which are distinct from households such as, co-operatives, or research and educational institutions not operated by households.

All (a) mines, (b) factories, (c) plantations, (d) shops, (e) banks, (f) insurance companies, (g) wholesale trading, imports, exports, (h) retail trading, (i) transport operations, (j) warehouses and godowns, etc. run by agencies of the above three categories were excluded. Particular care should, therefore, be taken to note that data collected through this survey will give the results for only a part of the total economic operations in rural areas. For instance, the value added in production calculated on the basis of the figures collected in the survey will cover only that part which relates to household enterprises and will exclude the part relating to non-household enterprises.

1.6. It should also be noted that the information was collected only from households which were residing in the villages during the time of the survey. If for instance, the members of a household living in a village had enterprises of some kind in urban areas, the enterprise particulars in regard to those urban establishments were covered in the survey. On the other hand, a household enterprise operating in rural areas but owned by a household living in a town was not included in this survey.

1.7. Lastly, in regard to particulars on services (as collected in schedule 2.3) the survey was not confined to household enterprises only but included employment in any establishment. Since the sample households were selected from those living in villages, the particulars collected were naturally limited to those employees or professional workers who were living in villages.

2. ORGANIZATION OF THE SURVEY

2.1. All data were collected by the interview method, and roughly 350 investigators were employed to collect the particulars. India was divided into 16 suitable areas and field operations in all areas except two blocks were in charge of a Chief Director under the direct control of the Department of Economic Affairs, Ministry of Finance, Government of India. The field organisation in the remaining two blocks, namely, (a) West Bengal and Andaman & Nicober Islands, and (b) 12 southern districts of Bombay were in charge of the Indian Statistical Institute, Calcutta and the Gokhale Institute of Politics and Economics, Poona, respectively. The general responsibility of giving training to the field staff, the technical guidance of the survey, and the general tabulation was entrusted to the Indian Statistical Institute. The Gokhale Institute of Politics and Economics also tabulated the information collected through the schedules prepared by that Institute, and prepared a report which would be issued separately.

2.2. It had been originally hoped that the survey would begin in July 1950 but this was not possible. Official sanction for the survey was given by the Government of India in May 1950, and it was decided to begin the field work in October. The time for preparatory work was thus very short. The first concern was to examine the nature of the material available for the construction of a suitable "frame" for selecting sample villages. Conditions varied from State to State. It was apparent that maps of districts, tehsils and villages, or even the village lists could not be collected without personal visits. A number of officers from the Indian Statistical Institute were, therefore, sent to different States to collect maps, village lists and similar materials. It turned out however that in many cases tehsil or village maps were not available. In many places all that could be gathered were only the lists of villages. Because of these difficulties the collection of preparatory material took more time than what had been expected at the beginning.

2.3. Shortly after Shri Sinheswar Prasad Sinha was appointed the Chief Director, he addressed the State Governments for suitable supervisory officers for the field organization. By the middle of July 1950 only 2 out of 3 posts of Assistant Direc-

tors and 7 out of 14 posts of Superintendents could be filled. The training of these 9 officers and 21 other assistant superintendents and inspectors commenced in the latter part of July in the Indian Statistical Institute, Calcutta and was concluded in the third week of August when they proceeded to six different centres in different parts of the country to start training centres for the investigators from the beginning of September 1950. It was a hard job to go to unknown places and make arrangements for training large numbers of field staff particularly when the project was entirely new and about which the State Governments had no experience.

2.4. The difficulties relating to recruitment also were many. Due to the low pay scales of the investigators, the difficult nature of the job and the new type of work, interviews for the recruitment of investigators and inspectors had to be arranged at least three times in the different States. When the field survey started at the beginning of October 1950 the actual field staff was only about 40 per cent of the total sanctioned strength.

2.5. Shortage of investigators presented difficulties practically throughout the whole period of the survey. The villages were widely scattered; some were located in remote areas with bad communications; and living conditions for the investigators in the villages were also often bad. In consequence, a large number of investigators resigned either due to sickness or the difficult nature of the work. These initial difficulties prolonged the period of the first round of the survey which took six months to be completed at the end of March 1951.

2.6. The fact that all interviews had to be conducted in the local language created great difficulties and made it quite impossible to move investigators from one linguistic area to another so that shortages in one State could not usually be met by transferring investigators from some other State. The field staff did a good job in spite of many difficulties, and great credit is due to Shri S. P. Sinha, who organized the field branch in a very short time right from the scratch. His report on the field work is given in Appendix 2.

3. LACK OF MATERIAL FOR AN ADEQUATE SAMPLING FRAME

3.1. To construct a "frame" for the selection of sample villages, attempts were first made to collect large scale detailed maps showing the village boundaries, but it was found that such detailed maps were not available for a large part of the country. Attention was then turned to collect lists of villages with individual figures of population and area. This was also not possible for the whole of India. Due to the partition of India in 1947 and the merging and reorganisation of the States during 1948, the position had become complicated and for certain districts or tehsils even the figures given in the 1941 Census Reports could not be used.

3.2. The idea of constructing a single uniform "frame" for the whole country had to be given up. The only possibility was to construct separate frames for different parts of the country, the nature of the frame depending upon the available information relating to individual villages. Tables 1 and 2 at the end of the appendix show in detail the nature of available information. The figures of total area and of population of the States shown in these tables relate to both urban and rural regions. The same information is given in a summary form for the whole of India in the following Table (A).

TABLE (A) : TYPE OF INFORMATION AVAILABLE BY AREA AND BY POPULATION

type of information available for individual localities	percentage to total of India	
	area	population
(1)	(2)	(3)
1. population (1941 census) figures but no area figures	56.7	58.6
2. area figures but no population figures	14.2	21.7
3. neither population nor area figures but the latter can be measured from thana or tehsil maps	7.7	4.9
4. neither population nor area figures nor maps; only village names available	15.8	12.2
5. not even village names nor thana nor tehsil maps available	5.6	2.6

4. THE DESIGN OF THE SURVEY

4.1. As the material available was different for different regions it became necessary to adopt different types of "frame" and hence different methods of selecting the sample-units in different parts of the country. The probability of being included in the sample thus differed from region to region which made the design of the survey somewhat complicated and less efficient in the first round. Varying sampling fractions also complicated the calculations (which was set right in the fourth round). One important reason for using varying sampling fractions was the desire on the part of the field staff to keep the work load of each investigator in each village the same.

4.2. The sample units were selected in two stages. First, the villages were selected after suitable stratification. Within each sample village all or a subsample of 80 households, whichever was less, were stratified into agricultural and nonagricultural classes. Sample households were then selected at random from each of these strata. The data were collected in a number of phases. A larger sample of households was interviewed for general economic information and smaller sub-samples were then interviewed for more intensive investigation.

4.3. *Formation of strata:* All the States in India (except Jammu & Kashmir, and Sikkim) were divided into 160 strata and each stratum was formed on the basis of geographical contiguity and topographical homogeneity. In those strata for which population figures of individual villages were available, 4 sub-strata were formed on

the basis of the size of the population of the villages. The four classes were villages with populations of:

(1) 1 to 499, (3) 1000 to 1999,
(2) 500 to 999, (4) 2000 and above.

Such sub-strata, however, could be formed in only 32 (out of 160) strata and these 32 sub-strata were then divided into 128 ultimate strata. There were thus 256 strata altogether on the basis of which the sample villages were selected.

4.4. *Random selection of sample villages :* The procedure of sample selection varied depending on the nature of information available for the villages; and five different procedures for selection were followed :

(1) probability of selection of each village equal;
(2) probability of selection proportional to village area;
(3) probability of selection proportional to village population;
(4) probability of selection proportional to village area, but separately within each sub-stratum;
(5) probability of selection proportional to village population but separately within each sub-stratum.

4.5. Table (B) below gives the coverage of the different procedures of selection.

TABLE (B) : COVERAGE OF DIFFERENT METHODS OF SELECTION OF SAMPLE VILLAGES

method of selection	area in sq. miles	no. of strata	no. of sample villages	percentage to total area
(1)	(2)	(3)	(4)	(5)
1. probability of selection equal	2,30,764	62	398	20.34
2. probability of selection proportional to area in strata without sub-stratification	2,47,794	52	475	21.84
3. probability of selection proportional to population in strata without sub-statification	1,03,738	13	120	9.15
4. probability of selection proportional to population in strata with sub-stratification	2,42,793	52	330	21.40
5. probability of selection proportional to area in strata with sub-stratification	3,09,248	76	510	27.27
6. total	11,34,337	256	1833	100.00

4.6. *Allocation of sample villages:* The allocation of sample villages in each stratum was in proportion to the rural population of the stratum. Altogether 1833 sample villages were selected for the whole of India. In each stratum the number of sample villages was made a multiple of 3 in order that the allocation of the samples between the two types of questionnaires (as referred to above in paragraph 1.1) could be made in the ratio of 2:1 approximately. The villages spread over all the strata were thus divided into 2 groups for the two types of schedules, the first main group consisting of 1189 villages and the second group of 644 villages. The allocation of

sample villages over the different States and the numbers actually surveyed are given in Table 3. In the main group of villages, out of the 1189 villages allotted, 1111 were surveyed; and in the second group, of the 644 villages alloted 611 were surveyed. This report is concerned with the first group of 1189 villages, and a separate report will deal with the second group of 644 villages.

4.7. *Selection of households in the main group of villages:* The different phases of sampling were as follows:

(1) All the households in a sample village were listed, that is, a complete enumeration was attempted.

(2) A random sample of 80 households was selected for collecting information relating to occupation.

(3) These 80 households were then classified into two groups; namely, agricultural and non-agricultural on the basis of the particulars collected.

(4) Out of the agricultural households, 8 were selected at random. Similarly, 8 were selected from non-agricultural households. Schedule 1, that is, the household schedule for general particulars was then completed from each of these 16 households.

(5) Two of these 8 agricultural households and 3 of the 8 non-agricultural households were then selected at random for completing schedules 2.1 to 2.3, that is, schedules for details on household enterprises.

(6) Of the remaining 6 agricultural households, 1 was selected; and of the remaining 5 non-agricultural, 2 were selected, that is, 3 in all for completing schedules 3.1 and 3.2, that is, schedules for detailed information on consumer expenditure.

4.8. *Selection of plots for land utilisation survey:* Together with the household interviews, information on land utilisation was also collected by direct observation of the fields. This was done as an experimental measure to ascertain the type of difficulties the investigators were likely to face in the different parts of the country. The method of selection of sample plots (fields) within sample villages for such direct observation was as follows.

(1) On the basis of village maps showing plot boundaries, 20 clusters of 5 plots each were selected with probability proportional to the area of cluster. These were surveyed in respect of land utilisation (schedule 4).

(2) To ensure that the probability of selection of clusters was proportional to area, the method illustrated below was adopted. First, 20 plots were selected with probability proportional to area and then clusters were determined on the basis of the plot numbers according to the following rule. If the serial number of a plot selected was 42, then plots with numbers 41-45 formed the cluster. If any of the plots bearing numbers between 41 and 45 was selected, the *same cluster* 41-45 would be chosen. Similarly, if plot no.38 were selected, the corresponding cluster consisted of plots 36-40.

(3) In respect of crop-cutting experiments (schedule 5), 9 plots were selected at random out of the 20 plots on the basis of which the clusters were formed.

4.9. The preliminary work on direct crop surveys revealed the very serious difficulties which arise from the widely varying crop seasons in different parts of the country. The crop observed on the ground in the same week or month may belong to entirely different crop seasons in different regions. Also in the case of a continuing series of repeated surveys there are serious possibilities of double counting. The question of direct crop survey is complicated and will be discussed in a later report.

5. LACK OF STANDARDISATION IN WEIGHTS AND MEASURES

5.1. Attention may be drawn to the lack of standardisation in weights and measures in the rural areas before we pass on to discuss the results of the survey. It was found on the basis of the data collected during the first round of the survey that there are 143 different systems of measurements of weight in various parts of rural India. From an analysis of only a part of the material, the number of different systems of measurements of volume was found to be 150, and the number of systems of measurements of land area was found to be 180.

5.2. It will probably be necessary to explain as to what exactly is meant by a 'system', and an illustration relating to measurements of weight will make the point clear. Table (C) below shows 3 types of inter-relationships between the different denominations of the weights. System 1 consists of the standard denominations; and the other two namely, systems 2 and 3, are particular examples.

TABLE (C) : INTERRELATIONSHIP BETWEEN DIFFERENT DENOMINATIONS OF WEIGHT

denomination	system 1	system 2	system 3
(1)	(2)	(3)	(4)
maund	40 *seers*	40 *seers*	40 *seers*
seer	4 *poas*	4 *poas*	5 *poas*
poa	4 *chhataks*	4 *chhataks*	3 *chhataks*
chhataks	5 *tolas*	6 *tolas*	4 *tolas*
tola	180 grains	180 grains	200 grains

5.3. The different denominations starting from *tola* upto *maund* have been shown in the table. The standard system of measurement is that 5 *tolas* make a *chhatak*, 4 *chhataks* make a *poa*, 4 *poas* make a *seer*, and 40 *seers* make a *maund*. If any of the denominations change, for instance, if in a village 6 *tolas* make a *chhatak*, the whole system of weighing will naturally change; or again if 4 *tolas* make a *chhatak* or 3 *chhataks* make a *poa*, the whole system of measurement gets changed. As already mentioned, in the villages covered during this survey, 143 such systems of weight measurements were found. Similarly, for measurements of volume 150 systems were found; and for land area measurement, 180 systems were found. Where the deno-

minations were common but the names were different, the system has been taken as one in spite of the differing names. Only where the denominations are different, have the systems been taken as more than one.

5.4. An analysis of the differing systems of weight, volume and area measurements arranged by districts is given in the following Table (D). The information relates to only 5 States, namely, Orissa, Madras, Rajasthan, Bombay, and Uttar Pradesh as similar analysis for all the States (except for weight measurements) has not yet been completed. An analysis of the different systems of measurements of weight arranged by districts for all the States and based on data collected from 1084 sample villages is given in Table 4 attached.

TABLE (D) : NUMBER OF SYSTEMS OF WEIGHT, VOLUME, AND AREA MEASUREMENTS IN DISTRICTS

(based on 167 villages)

number of systems in a district	Orissa	Madras	Rajasthan	Bombay	Uttar Pradesh
(1)	(2)	(3)	(4)	(5)	(6)
		measurements of weight			
district with					
1 system	6	10	12	11	22
2 systems	2	7	5	2	16
3 systems	2	2	1	1	5
4 systems	1	3	–	–	1
5 systems	1	–	–	–	1
over 5 systems	–	1	–	–	–
no. of districts	12	23	18	14	45
no. of systems	13	24	11	5	31
		measurements of volume			
district with					
1 system	2	1	3	5	9
2 systems	2	6	–	–	6
3 systems	3	2	1	–	3
4 systems	1	3	–	2	1
5 systems	2	2	–	–	–
over 5 systems	–	7	–	1	1
no. of districts	10	21	4	8	20
no. of systems	28	82	3	11	26
		measurements of land area			
district with					
1 system	6	8	9	2	15
2 systems	3	9	7	5	17
3 systems	1	2	2	3	4
4 systems	1	3	–	3	3
5 systems	1	1	–	1	..
over 5 systems	–	–	–	–	2
no. of districts	12	23	18	14	41
no. of systems	12	34	15	16	33

5.5. It will be seen from these figures that whenever the estimates of quantities were made, the chances of confusion between the local measure and standard measures were high and that very careful scrutiny was necessary at the time of analysis. Where the information was given in local measure, these had to be converted into standard measures before computation work could be proceeded with. Thus, a great deal of additional work had to be done for scrutiny and multiplication for conversion to standard systems at the stage of analysis in this survey in comparison with surveys in other countries.

6. SUMMARY OF SELECTED RESULTS[1]

6.1. The detailed figures showing some of the information collected in the survey are given in the tables attached at the end of this report. The estimates on various items of information given in the attached tables have not been shown by individual States, because the size of the sample was not large enough to give reliable figures. The States have been, however, grouped into 6 Population Zones on the lines of a memorandum issued in 1951 from the Office of the Registrar General, Ministry of Home Affairs, Government of India. The compositions of the Population Zones are given below:

Population Zones	*States included*
1. North India :	Uttar Pradesh.
2. East India :	Bihar, Orissa, West Bengal, Assam, Manipur, Tripura, Andaman & Nicober Islands, Sikkim (omitted in this survey).
3. South India :	Madras, Mysore, Travancore-Cochin, Coorg.
4. West India :	Bombay, Saurashtra, Kutch.
5. Central India :	Madhya Pradesh, Madhya Bharat, Hyderabad, Bhopal, Vindhya Pradesh.
6. North West India :	Rajasthan, PEPSU, Jammu & Kashmir, (omitted in this survey), Ajmer, Delhi, Punjab, Bilaspur, Himachal Pradesh.

6.2. According to the type of information the tables can be arranged in the following groups:

(1) general information regarding the survey :	Tables 1-4.
(2) size of households and distribution of their members by economic status :	Table 5.
(3) summary tables on household expenditures :	Tables 6-12.
(4) value of consumption of various food items by population zones :	Tables 13-24.
(5) expenditures on fuel & light, clothing, and tailoring services by population zones :	Tables 28-35 & 56.

[1] The results in the summary tables and in the attached tables 1—96 have been given to two decimal places for purposes of arithmetic calculations and there is no suggestion that the figures have significance to this order of accuracy. Some idea of the relative order of accuracy will be obtained when figures for errors of sampling become available.

(6)	expenditures on various other items by population zones :	Tables 25-27 & 30-55.
(7)	consumption in quantity of foodgrains, salt, and milk by population zones :	Tables 57-59.
(8)	value of production and costs in agriculture and animal husbandry by population zones :	Tables 60-68.
(9)	value of production and costs in household industrial establishments by population zones :	Tables 69-74.
(10)	value of stocks and turnover in household trading establishments by population zones :	Tables 75-77.
(11)	gross income from various types of services not confined to household enterprises only by population zones :	Tables 78-86.
(12)	agricultural production of main cereals on the basis of information supplied by the households by population zones :	Tables 87-96.

6.3. In addition to the details given in the above tables, the all-India averages on some of the interesting items are given below with brief comments.

6.4. It will be seen from Table (E) that the average size of households is 5.21 persons out of which 1.46 persons or 28.1 per cent are earners, 0.87 persons or 16.6 per cent are earning dependents and 2.88 persons or 55.3 per cent are non-earning dependents. According to the 1941 Census Reports for the areas which are now

TABLE (E) : AVERAGE NUMBER OF PERSONS PER HOUSEHOLD IN RURAL AREA AND THEIR ECONOMIC STATUS IN 1950

sample villages : 1,091 : : sample households : 16,264

economic status	persons	per cent
(1)	(2)	(3)
1. earners	1.46	28.1
2. earning dependents	0.87	16.6
3. non-earning dependents	2.88	55.3
4. total	5.21	100.0

included in the Republic of India, the average size of household in the rural area was 4.99 persons. The two figures are based on somewhat different definitions. In the 1941 Census a person actually present in the household on the Census day was considered as a member of the household. In the present survey any person who lived for more than one month during the year July 1949-June 1950 was deemed to be a member of the household and the present estimate 5.21 is therefore, bound to be greater than the estimate based on the census definition. Also, the two estimates refer to different years, namely, 1941 and 1950 with an interval of about 9 years during which some real change could easily have taken place. The figures for the 1951 Census operations are not available yet.

6.5. The annual personal consumer expenditure per household in rural areas came to Rs. 1144 during the year July 1949 to June 1950. Roughly, two-thirds, that is, 66 per cent of the expenditure went to food as shown in Table (F).

For food not purchased but supplied from own households (which is a common thing in rural areas) appropriate values have been imputed at prevailing retail prices.

TABLE (F) : ANNUAL EXPENDITURE ON CONSUMPTION IN THE RURAL AREA : JULY 1949 — JUNE 1950

sample villages : 1,085 : : sample households : 3,141

item	Rs. per household	per cent
(1)	(2)	(3)
1. food	758	66.3
2. fuel & light	37	3.3
3. house rent	7	0.6
4. clothing, bedding, and tailoring charges	121	10.5
5. miscellaneous including *pan*, tobacco, intoxicants	221	19.3
6. total	1144	100.0

6.6. Comparable figures showing the distribution of expenditure in various groups of items are not available from other sources for the whole of the rural area of India. The Labour Bureau, Government of India, constructed a number of working-class cost of living indices for various industrial centres of India and the primary data for this purpose were collected between the period 1943 and 1945. The distribution of expenditure on various groups of items in working-class families in industrial centres is not strictly comparable with similar figures relating to rural households, but still, a rough comparison may be of interest to see the extent of agreements and disagreements. Relevant figures are given below in Table (G).

TABLE (G) : PERCENTAGE DISTRIBUTION OF EXPENDITURE ON GROUPS OF ITEMS[1]

area type	groups of expenditure					
	food	fuel & light	house-rent	clothing, bedding etc.	miscellaneous*	total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
0. all-India rural	66.3	3.3	0.6	10.5	19.3	100
ndustrial centres						
1. Delhi	61.0	8.8	6.4	10.8	13.0	100
2. Ajmer	63.7	8.2	3.0	8.2	16.9	100
3. Jamshedpur	65.8	5.4	4.7	10.2	13.9	100
4. Jharia	77.7	0.5	0.0	6.7	15.1	100
5. Dehri-on-Sone	69.6	4.6	2.0	13.5	10.3	100
6. Monghyr and Jamalpur	69.8	5.0	1.7	10.7	12.2	100
7. Cuttack	67.1	8.9	3.0	8.1	12.9	100
8. Berhampore	62.4	7.5	3.5	11.0	15.8	100
9. Gauhati	63.4	8.6	4.5	5.1	18.4	100
10. Silchar	71.1	7.1	4.4	6.7	10.1	100
11. Tinsukia	68.7	7.3	3.2	8.5	12.3	100
12. Ludhiana	61.2	9.2	3.7	10.8	15.1	100
13. Akola	58.6	7.3	2.1	13.4	18.6	100
14. Jubbulpore	58.2	7.2	2.7	12.6	19.3	100
15. Kharagpur	69.2	5.9	3.4	10.6	10.9	100

* including *pan*, tobacco, intoxicants

[1] Source : Labour Gazette monthly issues.

6.7. Breakdowns of various items are given in the attached tables but a few interesting items of expenditure are also given here in Table (H)

TABLE (H) : EXPENDITURE ON EDUCATION, AMUSEMENT, HEALTH SERVICES ETC : JULY 1949 — JUNE 1950

sample villages : 1,079 : : sample households : 3,123		
item	Rs. per household	per cent
(1)	(2)	(3)
1. education	2.92	0.26
2. educational service	4.95	0.43
	7.87	0.69
3. amusements	6.04	0.53
4. newspaper, periodicals, etc.	0.50	0.04
	6.54	0.57
5. medical expenses	9.19	0.80
6. medical services	5.35	0.47
	14.54	1.27

6.8. Some further details on relative orders of expenditure on clothing will be of interest and breakdowns of the figures according to production types are given in percentages in Table (I).

TABLE (I) : EXPENDITURE ON CLOTHING : JULY 1949 — JULY 1950

sample villages : 1,079 : : sample households : 3,123		
production type	Rs. per household	per cent
(1)	(2)	(3)
1. cotton millmade	80.74	74.01
2. „ handloom	22.29	20.43
3. *khaddar*	3.06	2.81
4. woollen & all other types	3.00	2.75
5. total clothing	109.09	100.00

6.9. Figures presented in Tables (J), (K), (L), (M), (N) are of a different order of reliability in comparison with the estimates of expenditure presented earlier. While all households surveyed could furnish the required data on consumption, only a fraction of the sampled households owned productive enterprises. This fraction is comparatively large for agriculture and services, but is very low for industry and trade.

Therefore, estimates relating to agriculture and services are more satisfactory both from the point of view of coverage as well as of sampling errors. Estimates relating to industry and trade are based on samples of a very small effective size, and are being presented here to give a general idea of the type of information collected rather than to furnish national estimates.

TABLE (J) : VALUE OF PRODUCTION IN AGRICULTURE AND ANIMAL HUSBANDRY JULY 1949 — JUNE 1950

sample villages : 1,094 : : sample households : 5,247	
item	Rs. per household
(1)	(2)
1. value of agricultural crops	403.32
2. value of livestock products produced and consumed at home	47.89
3. value of livestock products produced and sold	14.56
4. total gross value	465.77

6.10. The all-India averages of value of production and costs in agriculture and animal husbandry are presented in Tables (J) and (K).

TABLE (K) : COSTS IN AGRICULTURE AND ANIMAL HUSBANDRY JULY 1949 — JUNE 1950

sample villages : 1,094 : : sample households : 5,247	
item	Rs. per household
(1)	(2)
1. cost of repair and maintenance of bunds, irrigation work, fencing, etc.	5.96
2. maintenance & repairs of agricultural implements	3.28
3. operational expenses on materials	9.50
4. cost of materials and supplies (imputed value) from households for feed and upkeep of livestock excluding labour charges and services	64.15
5. cost of materials purchased for food and upkeep of livestock exoluding labour charges and services	24.43
6. total	107.32

6.11. It may be stressed that item 4 (total gross value) of Table (J) falls short of the real gross value of agricultural and animal husbandry products by the following three items:

(a) the output of all agricultural and animal husbandry enterprises not owned by rural households less factor payments to rural households by such enterprises;

(b) almost the whole of item 4 of Table (K), that is, the cost of materials and supplies from households (imputed value) for feed and upkeep of livestock; and substantial parts of item 2.2 of Table (L), namely, raw materials used in household industrial establishment. Thus, in so far as item (4) of Table (K) is concerned, commodities like straw, grass etc., which constitute a large part of imputed feed costs escaped evaluation in Table (J) which though intended to cover all products, covered, in fact, only the major products;

(c) the extent of under-statement inherent in the reporting of agricultural production in a country where procurement of food grains is in operation. Numerically this is likely to be the largest item of the three.

TABLE (L) : PRODUCTION AND COSTS IN HOUSEHOLD INDUSTRIAL ESTABLISHMENTS IN RURAL AREAS

sample villages : 1,016 : sample households : 4,895

item		Rs. per household
(1)		(2)
1. value of production		80.07
2. costs		
.1. fuel & power	Rs. 2.66	
.2. raw materials	Rs. 52.09	
.3. maintenance & repair	Rs. 1.25	
.4. other expenses	Rs. 9.36	
		65.36
3. value added gross of depreciation [1—2]		14.71
4. income from industrial servicing		4.70
5. total of items 3 and 4		19.41

6.12. If appropriate corrections could be applied on all three counts, the estimated gross value would probably increase very appreciably. One unsatisfactory feature is that costs are substantially higher than the gross material output in the animal husbandry sector taken in itself. Even if the whole of the distributive margin accrues to the farmers, the gross material product still remains lower than the cost. Secondly, the gross output (even when inflated by a reasonable distribution margin) falls short of the consumer expenditure obtained independently. It is possible that there is some over-estimation of costs and a substantial under-estimation of the gross production. This is the result of a general tendency of an imputed value to get magnified when included in the questionnaire as a cost item, and to get deflated when the same item is concerned with the value of production. For example, straw, grass etc. used as livestock feeds would be given high imputed values on the side of costs, while the

chance of inclusion of these items or of dung, *lassi* etc., in the value of the product fully would be small. Items of cost presented in Table (K) are self explanatory, and apart from the livestock feed are of reasonable order of magnitude.

6.13. All-India averages of the value of production and costs per household in industrial production are given in Table (L). In a number of schedules the entries were made without proper breakdowns as required in the instructions, and these schedules were excluded in estimating the averages. This is the reason why the number of sample households shown in Table (L) is lower than those of the two preceding tables. Schedules showing zero value were, however, included in the calculation.

6.14. Of the households selected for completing the enterprise schedules only about 7 per cent were found to have any handicrafts or trading activities. Evidence from the succeeding rounds indicates that this is likely to be an under-estimation; and in consequence the net output per household is under-estimated to an extent not yet known. Secondly, it has been already pointed out that the production from enterprises not owned by rural households (i.e., those owned by joint stock companies, local and provincial governments, co-operatives, households living in urban areas etc.), were excluded from the survey. A correction would, therefore, be necessary on this count to get the output of small industrial enterprises located in rural areas. Lastly, there is likely to be considerable under-estimation of the rural income as a whole due to the inclusion in costs of the imputed values of all raw materials used. To the extent the raw materials are primary products and are missed there, the under-estimation is located in the corresponding primary sectors. To the extent the raw materials are semi-fabricated, the under-estimation is located in the sector itself. If corrections are applied on all these counts, the net output of the sector is likely to rise substantially.

6.15. All-India averages of values of stocks and turnover per household in trading are given in Table (M).

TABLE (M) : GROSS TRADING INCOME IN RURAL AREAS
JULY 1949 — JUNE 1950

sample villages : 1,086 : : sample households : 5,212	
item	Rs. per household
(1)	(2)
1. value in cost price of opening stock and replenishment	158.90
2. value in cost price of the closing stock	20.46
3. cost price of merchandise sold =[1—2]	138.53
4. value in selling price of merchandise sold	179.10
5. gross trading income =[4—3]	40.57

6.16. The gross trading income per household was Rs. 40.57. Here again the trading operations done by non-household enterprises or by households living in urban

areas but operating in rural areas have been excluded from the scope of the survey. The estimate, subject to this limitation, may be considered as reasonable.

6.17. All-India averages of incomes from services of various types are given in Table (N). As already noted, the particulars were not restricted to employment in household enterprises only but covered employment in non-household enterprises also.

6.18. It is important to note that the various income flows considered here are constituents of gross national product in the rural household sector only in so far as they originate either in all emterprises not owned by rural households or in such rural household enterprises as are not covered by the four preceding tables.

TABLE (N): GROSS INCOME FROM SERVICES IN RURAL AREAS
JULY 1949 — JUNE 1950

sample villages : 1,087 : : sample households : 5,222

item	Rs. per household	per cent
(1)	(2)	(3)
1. agriculture & animal husbandry, forestry, fishing	94.18	41.01
2. exploitation of minerals	2.58	1.12
3. manufactures	14.30	6.20
4. construction of building	13.00	5.66
5. electricity, gas, water supply & sanitary services	3.25	1.42
6. trade, commerce, real estate, trading, etc.	11.01	4.79
7. transport, storage & communication	30.43	13.25
8. professional services	56.89	24.77
9. others (including services not specified)	4.02	2.75
10. total	229.66	100.00

6.19. While it is not possible to make a quantitative estimate of the contribution to gross national product by rural households, it is of interest to delineate certain items which are to be added for this purpose. The gap, for example, will include the value of construction activities in rural areas as a whole, only the service component of a part of which has been included in item 4 of Table (N). Secondly, the non-wage components of the net value produced in enterprises connected with forestry, fishing, minerals, and transportation will form another constituent. Thirdly, the rent of rural houses will have to be added. Fourthly, the imputed value of fuel etc., gathered for direct consumption has probably been missed. From the total obtained in this way we have to deduct all factor payments flowing out of the rural area, or included in the net value of the product already considered, to get an estimate of the contribution of the sector to the gross national product.

7. CONSUMPTION OF SALT

7.1. Information on most of the items given in this report was not available before. Surveys have been carried out in some parts of India covering some of the items but the data were not of an all-India character. The figures collected in the present survey have a limitation in the sense that these refer to rural areas and to household consumption and enterprises only and do not cover both rural and urban areas for the country as a whole.

7.2. *Estimated population on 31 December 1952.* Some broad comparisons are, however, possible about the consumption and supply of salt and of food grains. Various approximate estimates have to be made for this purpose. The first thing necessary is to calculate the relevant population figures. The period of reference of the first round of survey is the year July 1949 to June 1950 of which the midpoint is 31 December 1949. The estimated population as on 31 December 1949 would then be the appropriate reference population for the present survey. The Census population in thousands in 1941 and in 1951 (as on 3 March 1951) are reproduced from the *Census of India, Paper No.* 1,1952 in cols. (2)-(6) of Table (O.1) together with the mean (decennial) arithmetic rates of growth for the total and the rural populations in cols.(7) and (8). In the present calculations it has been, however, considered advisable to use the geometric rates of growth which are given in cols. (5) and (6) of Table (O.2) for the total and rural populations respectively. The 1951 census day, 3 march 1951, was roughly 14 months later than the reference date, 31 December 1949, of the estimated population, so that the calculated increase of population in 14 months has to be subtracted in each case from the appropriate 1951 census population. The estimated total, rural, and urban populations in thousands, as on 31 December 1949, are given in cols. (2), (3), and (4) respectively of Table (O.2).

7.3. It should be noted that two estimates of the population are given for each population zone, the first obtained by adding the estimated population of the States which constitute the zone ; and the second obtained directly from zone totals in 1951 and 1941. In the same way, 3 estimates are given for India (excluding Jammu and Kashmir); the first has been obtained by adding the State estimates; the second by adding the zone estimates; and the third is calculated directly from the all-India totals in 1941 and 1951. It will be noticed that the difference between alternative estimates is small, and it is practically immaterial which particular estimate is used for numerical calculations.

TABLE (O.1) : CENSUS POPULATION[1] IN THOUSANDS IN 1941 AND 1951 AND MEAN (DECENNIAL) ARITHMETIC RATE OF GROWTH

	population zones & states	1941 Census		1951 Census			mean (decennial) arithmetic rate of growth (%)	
		total	rural	total	rural	urban	total	rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	*North India :*							
	1. Uttar Pradesh	56,532	49,347	63,216	54,590	8,626	+11.2	+10.1
2.	*East India :*							
	2. Bihar	36,528	34,582	40,226	37,521	2,705	+ 9.6	+ 8.2
	3. Orissa	13,768	13,355	14,646	14,052	594	+ 6.2	+ 5.1
	4. West Bengal	21,837	17,198	24,810	18,657	6,153	+12.7	+ 8.1
	5. Assam	7,593	7,444	9,044	8,629	414	+17.4	+14.7
	6. Manipur	512	412	578	575	3	+12.0	+33.0
	7. Tripura	513	495	639	596	43	+21.9	+18.5
	8. Andaman & Nicobar Is.	34	33	31	23	8	— 8.6	—35.7
	sub-total	80,785	73,519	89,974	80,054	9,920	+10.8	+ 8.5
3.	*South India :*							
	9. Madras	49,831	41,881	57,016	45,832	11,184	+13.4	+ 9.0
	10. Mysore	7,338	5,984	9,075	6,896	2,179	+21.2	+14.2
	11. Travancore & Cochin	7,500	6,634	9,280	7,792	1,488	+21.2	+17.6
	12. Coorg	169	158	229	213	16	+30.5	+29.6
	sub-total	64,837	54,657	75,600	60,734	14,867	+15.3	+10.7
4.	*West India :*							
	13. Bombay	29,181	22,348	35,956	24,786	11,170	+20.8	+10.3
	14. Saurashtra	3,561	2,542	4,137	2,744	1,393	+15.0	+ 7.6
	15. Kutch	508	411	568	454	114	+11.1	+10.0
	sub-total	33,250	25,301	40,661	27,984	12,677	+20.1	+10.1
5.	*Central India :*							
	16. Vindhya Pradesh	3,659	3,373	3,575	3,269	306	+ 0.2	— 3.1
	17. Madhya Pradesh	19,632	14,429	21,248	18,370	2,877	+ 7.9	+ 5.3
	18. Madhya Bharat	7,170	6,049	7,954	6,513	1,441	+10.4	+ 7.4
	19. Bhopal	779	646	836	700	136	+ 7.2	+ 8.0
	20. Hyderabad	16,327	14,144	18,655	15,179	3,476	+13.3	+ 7.1
	sub-total	47,476	41,641	52,268	44,031	8,237	+10.0	+ 5.6
6.	*North West India :*							
	21. Rajasthan	13,306	11,204	15,291	12,641	2,649	+13.9	+12.1
	22. Punjab	12,699	11,115	12,641	10,240	2,401	— 0.5	— 8.2
	23. Bilaspur	110	107	126	122	4	+13.3	+13.2
	24. P.E.P.S.U.	3,403	2,924	3,494	2,828	666	+ 2.6	— 3.3
	25. Ajmer	584	370	693	396	298	+17.2	+ 6.8
	26. Delhi	918	222	1,744	307	1,437	+62.1	+32.2
	27. Himachal Pradesh	947	904	983	942	41	+ 3.7	+ 4.1
	sub-total	31,967	26,846	34,972	27,477	7,496	+ 9.0	+ 2.3
	all-India	3,14,846	2,71,211	3,56,691	2,94,860	61,822	+12.5	+ 8.4

[1] The last digit of each number has been individually rounded off to the correct number of thousands. In consequence, the totals and sub-totals given in this table are not always identical with the corresponding arithmetic totals of the constituent numbers.

TABLE (0.2) : ESTIMATED POPULATION AS ON 31 DECEMBER 1949 AND MEAN GEOMETRIC RATE OF GROWTH

population zones and States	estimated population in thousands on 31 December 1949.			geometric rate of growth $\frac{1}{10}(\log P_{1951} - \log P_{1941})$	
	total	rural	urban	total	rural
(1)	(2)	(3)	(4)	(5)	(6)
1. *North India :*					
1. Uttar Pradesh	62,397	53,883	8,514	0.0485320	0.0438523
2. *East India :*					
2. Bihar	39,776	37,101	2,675	0.0418787	0.0354243
3. Orissa	14,541	13,951	590	0.0268451	0.0220942
4. West Bengal	24,443	18,381	6,062	0.0554331	0.0353689
5. Assam	8,861	8,455	406	0.0759327	0.0651541
6. Manipur	570	567	3	0.0522724	0.1447706
7. Tripura	623	581	42	0.0953835	0.0806411
8. Andaman & Nicobar Is.	31	23	8	−0.0375550	−0.1567861
sub-total	88,845	79,060	9,785		
East India Zone	88,850	79,054	9,796	0.0467823	0.0369780
3. *South India :*					
9. Madras	56,127	45,118	11,009	0.0584997	0.0391518
10. Mysore	8,853	6,727	2,126	0.0922807	0.0616057
11. Travancore & Cochin	9,053	7,601	1,452	0.0924996	0.0764698
12. Coorg	221	206	16	0.1334783	0.1297225
sub-total	74,254	59,652	14,602		
South India Zone	74,258	59,655	14,603	0.0667008	0.0465742
4. *West India :*					
13. Bombay	35,091	24,189	10,902	0.0906721	0.0449677
14. Saurashtra	4,066	2,697	1,369	0.0651921	0.0332086
15. Kutch	560	448	112	0.0482642	0.0432141
sub-total	39,717	27,333	12,384		
West India Zone	39,717	27,334	12,383	0.0873914	0.0437721
5. *Central India :*					
16. Vindhya Pradesh	3,550	3,246	304	0.0260481	−0.0136014
17. Madhya Pradesh	21,052	18,202	2,851	0.0343522	0.0228367
18. Madhya Bharat	7,858	6,434	1,424	0.0450834	0.0320975
19. Bhopal	830	695	135	0.0311513	0.0348655
20. Hyderabad	18,367	14,945	3,422	0.0578885	0.0306710
sub-total	51,657	43,521	8,136		
Central India Zone	51,659	43,518	8,141	0.0436144	0.0242373

TABLE (0.2) : ESTIMATED POPULATION[1] AS ON 31 DECEMBER 1949 AND MEAN GEOMETRIC RATE OF GROWTH

population zones and States	estimated population in thousands on 31 December 1949			geometric rate of growth $\frac{1}{10}(\log P_{1951} - \log P_{1941})$	
	total	rural	urban	total	rural
(1)	(2)	(3)	(4)	(5)	(6)
6. *North West India :*					
21. Rajasthan	15,045	12,438	2,607	0.0603762	0.0524083
2. Punjab	12,648	10,246	2,402	−0.0019676	−0.0356095
23. Bilaspur	124	121	4	0.0581396	0.0569760
24. P.E.P.S.U.	3,483	2,820	663	0.0114747	−0.0144980
25. Ajmer	680	388	292	0.0747941	0.0294935
26. Delhi	1,618	285	1,333	0.2787760	0.1407854
27. Himachal Pradesh	979	938	41	0.0161968	0.0178825
sub-total	34,577	27,234	7,342		
North West India Zone	34,608	27,190	7,418	0.0390287	0.0190739
All-India : State total	3,51,446	2,90,683	60,763		
All India : Zone total	3,51,488	2,90,634	60,855		
All India : direct	3,51,511	2,90,584	60,927	0.0544725	0.0363189

7.4. The amount of salt consumed as human food is seen from Table (58) to be 7.51 seers per person per year, on an average for the whole of the rural area of India during the year July 1949-June 1950. The results of certain surveys carried out by the Indian Statistical Institute between 1936 and 1945 are given below in Table (P).

TABLE (P) : CONSUMPTION OF SALT PER PERSON PER DAY

year (1)	seers (2)		lbs (3)	seers (4)	lbs (5)
	Calcutta middle-class			*Jagaddal working-class*	
1939	8.41		(17.3)	—	—
1941	—		—	7.73	(15.9)
1945	5.74	—	(11.8)	5.83	(12.0)
1936-42	*Bengal general*			7.33 seers	(15.3 lbs)
NSS 1949-50	*All-India average*			7.51 seers	(15.5 lbs)

[1] The estimated population has been calculated on the basis of the geometric rates of growth given in cols. (5) & (6). of this table.

Two totals are given for each population zone, the first obtained by adding up the State figures; and, the second obtained by adjusting the total zonal populations directly. Following the same principle, 3 totals have been obtained for India, first by adding State figures; second by adding zonal estimates; and third, by estimating the all-India total directly.

7.5. The NSS estimate of consumption of 7.51 seers per person per year is not inconsistent with the results given in the above table. Also the consumption of salt is likely to be same in both urban and rural areas. On this assumption the total consumption in India can be obtained by multiplying 7.51 seers per person by the estimated population of 351.51 millions which comes to 2.424 million tons.

7.6. There is a more rigorous way of estimating the total consumption in India by building it up from estimates of consumption in each of the 6 population zones. The following Table (Q) shows the consumption figures by population zones.

TABLE (Q) : CONSUMPTION OF SALT IN INDIA BY POPULATION ZONES JULY 1949—JUNE 1950.

population zones	estimated total population on 31 December 1949	salt consumption per person in seers per year	total salt consumption in million tons
(1)	(2)	(3)	(4)
1. North India	62.40	5.57	0.3192
2. East India	88.85	8.21	0.6699
3. South India	74.26	9.40	0.6414
4. West India	39.72	6.38	0.2327
5. Central India	51.66	6.94	0.3292
6. North West India	34.61	7.61	0.2491
7. total of (1)—(6)	351.50	..	2.4343
8. All-India	351.51	7.51	2.4244

7.7. The total issue[1] of locally manufactured salt was 60,749,000 maunds or 2.231 million tons in 1949 and 63,957,000 maunds or 2.349 million tons in 1950. Taking the average one gets an estimated issue of 2.29 million tons during the period July 1949-June 1950. Some information is also available about domestic production[2]. It was 46.3 lakh maunds per month or 2.04 million tons in 1949; and 59.4 lakh maunds per month or 2.62 million tons in 1950 with an average of 2.33 million tons corresponding to the year of reference, July 1949-June 1950.

7.8. Net imports[3] of salt by sea in the year April 1949 to March 1950 amounted to 224 thousand tons. The net export[4] of salt by land during the same period was 56 thousand tons, leaving a net import balance by both sea and land of 167 thousand tons. Allowing a time lag of three months in the case of imports, the total estimated supply during the year July 1949-June 1950 may be obtained by adding 167 thousand tons to the estimated total issue of 2.29 million tons or 2.46 million tons

[1] Statistical Abstract of India, 1950, p. 865.

[2] Monthly Statistics of Production of Selected Industries of India, July 1951, p. 46.

[3] Monthly Seaborne Trade of India, March 1950, pages 118 and 212.

[4] Supplements to the Indian Trade Journal in 1949 and 1950.

in all. In view of the approximate nature of the estimates, the agreement between the estimated consumption of 2.43 million tons and the estimated supply of 2.46 million tons seems to be quite satisfactory.

8. CONSUMPTION OF FOODGRAINS

8.1. The NSS figures relating to the consumption of foodgrains include all cereals such as rice, wheat, barley, maize, jowar, bajra, ragi and also those parts of small millets and gram which were eaten as cereals. Similar consumption figures are available from a number of surveys although the scope of these surveys were only regional. Firstly, there was a group of surveys carried out in the urban areas of Bengal between 1939 and 1950-51. A survey of middle class households of Calcutta[1] was organised by the Indian Statistical Institute in 1939 in which the number of households covered was 1151. The consumption of foodgrains per person per day amounted to 6.5 chhataks or 13.4 ozs. In 1942, another survey of middle class households was organized by the Indian Statistical Institute covering 981 households in a number of towns in Bengal excluding Calcutta[1]. The foodgrains consumption per person per day was 6.3 chhataks or 13.0 ozs. A third survey was organised by the same Institute in 1945 in Calcutta covering 610 middle class families.[1]. The foodgrains consumption per person per day was 6.7 chhataks or 13.8 ozs. In 1950-51, the West Bengal State Statistical Bureau organized a survey of middle class families of Calcutta and the foodgrains consumption of persons in 774 households with incomes between Rs. 100 and Rs. 350 per month amounted to 6.4 chhataks or 13.2 ozs[2]. per person per day. The consumption of foodgrains in middle class households in West Bengal thus shows a great deal of stability over the period 1939 to 1950-51 inspite of the rising prices of foodgrains and the introduction of rationing.

8.2. The Indian Statistical Institute carried out three sample surveys of working class families between the years 1941 and 1945 in Jagaddal, an industrial area near Calcutta. The first survey was organized in 1941and covered 642 households; the second in 1942 covered 740 households; and the third in 1945 covered 755 households[3]. The figures of foodgrains consumption per person per day for the three years 1941, 1942 and 1945 were 8.6, 8.2 and 6.8 chhataks or 17.7, 16.9 and 14.0 ozs. respectively. The figures show a clear decline in consumption of foodgrains amongst the working class households between 1941 and 1945. It will be also noticed that the consumption of foodgrains in working class households was appreciably higher than that in middle class households in 1941 and 1942 before the introduction of rationing, but naturally become about the same under rationing.

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[1] "Recent Experiments in Statistical Sampling in the Indian Statistical Institute" *Jour. Roy. Stat. Society.*, Vol. CIX, 1946, Table 21, p. 353.

[2] From a paper submitted for publication in *Sankhya;* the Indian Journal of Statistics. 5Date for the other income groups have not yet been tabulated.

[3] *J. R. S. S.* Vol. CIX, 1946, Tables 18 & 21, p. 347 & 353.

8.3. The above figures relate to urban areas and are not comparable with the consumption figures of NSS because the present round covers only the rural areas. The figures will be, however, useful for estimating roughly the amounts of consumption in urban areas which has to be added to the consumption in rural areas to obtain the total consumption in the country as a whole.

8.4. Some consumption figures for rural areas are available from a number of surveys. The Bengal Board of Economic Enquiry organised in 1936 a survey primarily in rural areas of 8 districts of Bengal to investigate the condition of handloom weavers. The total number of households covered was 9038. The consumption of foodgrains per person per day was 8.4 chhataks or 17.3 ozs. A survey was organized by the Visva-bharati (Institute of Rural Reconstruction) in 1936-37 which however covered only 659 households in 12 villages near Bolpur in the district of Birbhum, West Bengal. The consumption of foodgrains per person per day was estimated at 7.0 chhataks or 14.4 ozs. The National Sample Survey in West Bengal covering the whole State shows in 1949-50 an average consumption of 8.4 chhataks or 17.3 ozs per person per day. This is nearly the same as the figure of 8.4 chhataks or 17.3 ozs. per person per day obtained in the earlier survey of 1936.

8.5. In Uttar Pradesh, the Department of Economics and Statistics, U.P. Government organized a survey in 1948-49 covering 16 villages. The figures of foodgrains consumption were published in terms of adult equivalent per day and amounted to 12.75 chhataks[1]. On the basis of 80 adults = 100 persons as taken in the Famine Enquiry Commission Report on Bengal 1945 (p. 203), the consumption per capita per day comes to 10.2 chhataks or 21.0 ozs. If the conversion factor is taken as 0.75 (please see discussion in paragraphs 8.8—8.12), the per capita consumption will come to 9.6 chhataks or 19.7 ozs. In the NSS, on the basis of 450 sample households in 155 sample villages in U.P., the consumption in 1949-50 was 10.2 chhataks or 21.0 ozs. per person per day.

8.6. The Indian Council of Medical Research in a report issued in 1951 published various details of 841 diet studies carried out in the different parts of India during the period 1935 to 1948[2]. With one or two exceptions, the data were collected by investigators by house to house visits and actual weighment of food-stuffs for a continuous period ranging from 7 to 21 days. The planning of schedules was not uniform. The investigations were carried out in urban and rural areas of different States and covered not only families but also inmates of student hostels, homes, reformatories, prisons, relief camps etc. The number of households covered in each study varied widely but the average number was around 20. The results of each study have been given in the I.C.M.R. report showing the average quantity of different foodstuffs in ounces per day for every consumption unit (i.e., equivalent adult unit). Figures of consumption of cereals are available in these tables.

[1] U. P. Monthly Bulletin of Statistics, Vol. V, No. 1.

[2] I. C. M. R. Special Report Series No. 20: Results of Diet Surveys in India, 1935-48.

8.7. These are separate type studies carried out over a period of 14 years and are not random samples selected in an appropriate manner from all over the country. Nevertheless, the figures can give some broad ideas of quantities of food grains consumption. Since the figures of the first round of NSS relate to families in rural areas, the results of only those I.C.M.R. diet studies which relate to rural families will be discussed here. Of the 841 studies, only 338 covered households of a family type, the rest covered hostels, camps etc. Of these 338 family studies, 207 related to rural areas. Again, the studies relating to the rural families can be divided into two groups, one consisting of 146 surveys which were carried out before 1944, that is, before the introduction of food rationing; and the other consisting of 61 surveys in 8 States which were carried out in and after 1944, the year of introduction of control and rationing. It is the results of this latter group of 61 studies in 8 States which may be somewhat comparable with the reuslts of the first round of the NSS.

8.8. *Conversion factor for consumption unit.* All the figures in the I.C.M.R. diet survey report have been given in terms of ounces per consumption unit per day. On page 5 of the I.C.M.R. report it has been stated that "the number of consumption units in each family or institution has been estimated on the basis of the table of calorie coefficients suggested by the League of Nations in 1932, for men and women of different ages. The arithmetic mean of average intake of each family or institution comprising a group has been indicated in the tables." The actual basis of calculating the consumption unit has not been reproduced in the I.C.M.R.Report. The League of Nations scale was originally given in the *Quarterly Bulletin of Health Organization*, Vol. I, No. 1, March 1932, pp. 480 and following, and is reproduced in Table (R) for convenience of reference.

TABLE (R): CONVERSION FACTOR FOR CONSUMPTION UNIT

age-group in years	sex	caloric coeffi-cient (c)	1941 age structure (f)	weighted factor =f.c.
(1)	(2)	(3)	(4)	(5)
0— 2 years	both	0.2	4.63	0.926
2— 3 ,,	,,	0.3	5.68	1.704
4— 5 ,,	,,	0.4	5.79	2.316
6— 7 ,,	,,	0.5	5.63	2.815
8— 9 ,,	,,	0.6	5.48	3.288
10—11 ,,	,,	0.7	4.51	3.157
12—13 ,,	,,	0.7	4.43	3.544
14—59 ,,	males	1.0	30.58	30.580
14—59 ,,	females	0.8	28.76	23.008
60 & above	both	0.8	4.51	3.608
			100.00	74.946

Note : In col. (1), age-group 0–2 includes all persons from birth up to and including the 24th month of age; the group 2–3 years includes all persons who have completed 2 years but have not completed 4 years of age, and so on. Col. (2) gives the sex; col. (3) the calorie-coefficient recommended by the League of Nations in 1932; and col. (4) the number of persons per 100 of the Census population of India in 1941. Finally, col. (5) gives the product of cols. (3) and (4) and adds upto 74.946 consumption units per 100 persons so that the conversion factor is 0.75 approximately.

8.9. Using the age distribution of the population of India in 1941, the equivalent consumption unit per capita comes out as 0.75 approximately. That is, figures given in the I.C.M.R. report has to be multiplied by the factor 0.75 in order to secure the corresponding per capita estimates on the assumption that the age structure of the families surveyed is the same as the all-India age structure in 1941. It will be noticed, however, that many of the surveys relate to inmates of institutions and special groups which were selected for type studies . The age structures of such special groups are almost certainly quite different from the age structure of the country as a whole. The conversion coefficient of 0.75 cannot, therefore, be validly used for much of the material to obtain the corresponding per capita figures. The position would have been satisfactory if 'per household' and 'per capita' rates of consumption were given in the case of each survey; or, alternatively, the age structure of each group were specified. It may be noted that the factor used in the Famine Enquiry Commission Report on Bengal (Appendix II, p. 203), was slightly higher, viz., 0.80 so that 100 persons of all ages have to be taken as equivalent to 80 adults.

8.10. The question of 'consumption units' was subsequently discussed in greater detail in another League of Nations publication *Relation of nutrition to healthy agriculture and economic policy, Geneva, 1937* which gives a number of different scales of calorie coefficients for different age groups. In a still later publication *Guiding principles for studies on the nutrition of population, Geneva, 1939*, several additional scales are given. Each scale of calorie coefficient can be used in conjunction with the age-distribution of the 1941 Census population of India to yield a conversion factor for the consumption unit. The results of such calculations are shown in Table (S).

TABLE (S) : CONVERSION FACTORS FOR CONSUMPTION UNIT.

serial no.	scales	conversion factor
(a) *Relation of nutrition to healthy agriculture an economic policy (1937), p. 243.*		
1.	scale (a)	0.767
2.	,, (c)	0.644
3.	,, (d)	0.795
4.	,, (e)	0.823
5.	,, (f)	0.806
6.	,, (g)	0.685
7.	,, (h)	0.821
8.	,, (i)	0.769
9.	,, (j)	0.790
10.	,, (k)	0.767
(b) *Guiding principles for studies on the nutrition of populations 1939.*		
11.	,, on p. 94	0.832
12.	,, ,, p. 96	0.983
13.	,, ,, ,,	0.774
14.	,, ,, p. 105a	0.747
15.	,, ,, p. 105b	0.762
16.	,, ,, p. 111c	1.029
17.	,, ,, ,,	0.822
18.	,, ,, p. 112	0.781
average of scales nos. (1)-(18) excluding no. (16)		0.784

[a] adopted in south India [b] adopted in Japan [c] American Scale

8.11. It will be seen that excluding no. (16), the average of the remaining 17 coefficients comes out as 0.78 consumption unit per person approximately. In an enquiry conducted by the Indian Statistical Institute at Giridih in 1945 the actual measured consumption of rice of 253 persons showed an equivalent consumption unit of 0.789 per person on the basis of the consumption of a male adult (30 years of age or more) as one consumption unit.

8.12. From the above discussion it seems that the conversion factor appropriate to the Indian population lies between 0.75 and 0.80. The intakes of foodgrains per consumption unit as given in the Indian Council of Medical Research Report have been, therefore, converted into two sets of per capita figures, one by multiplying with 0.75 and the other with 0.80.

TABLE (T): CONSUMPTION OF FOODGRAINS, BY I.C.M.R. STUDIES AND BY NSS FIRST ROUND

State	no. of studies	consumption in oz. per day	no. of households	consumption in oz. per day	difference: col (3)—col. (5)
(1)	(2)	(3)	(4)	(5)	(6)
	I.C.M.R. studies			NSS	
(1) consumption per person per day with conversion factor = 0.75.					
1. Assam	4	15.04	109	19.96	−4.92
2. Bihar	25	15.17	319	18.75	−3.58
3. Orissa	6	16.70	99	19.93	−3.23
4. Madras	4	13.88	421	14.58	−0.70
5. Hyderabad	3	14.55	162	15.47	−0.92
6. Bombay	4	13.54	289	14.32	−0.78
7. Madhya Pradesh	8	22.41	301	17.11	+5.30
8. West Bengal	7	19.08	181	17.28	+1.80
9. combined	61	16.30	1881	17.18	−0.88
(2) consumption per person per day with conversion factor = 0.80.					
1. Assam	4	16.04	109	19.96	−3.92
2. Bihar	25	16.18	319	18.75	−2.57
3. Orissa	6	17.82	99	19.93	−2.11
4. Madras	4	14.80	421	14.58	+0.22
5. Hyderabad	3	15.52	162	15.47	+0.05
6. Bombay	4	14.44	289	14.32	+0.12
7. Madhya Pradesh	8	23.90	301	17.11	+6.79
8. West Bengal	7	20.35	181	17.28	+3.07
9. combined	61	17.38	1881	17.18	+0.21

8.13. Whether the conversion factor is 0.75 or 0.80, the I.C.M.R. figures and the NSS figures are not strictly comparable because the households for the I.C.M.R. studies were selected with a different approach from the one adopted in the NSS. The I.C.M.R. studies were type studies and the household groups were not selected to obtain a proper cross-section of the rural households of a State as a whole; they were selected according to convenience of accessibility and other considerations. In the NSS, on the other hand, the households were selected with a view to securing representative samples of rural households and were thus scattered all over the State. The sample size for an individual State was, however, small because the main purpose of the NSS is to obtain all-India estimates. Nevertheless, a broad comparison may be of interest. As will be seen from the two Tables T(1) & T(2), the unweighted average consumption of foodgrains for the 8 States differ by −0.88 oz., when the conversion factor used for the results of the I.C.M.R. diet survey is 0.75, the NSS average being higher. Using a conversion factor of 0.80, the difference between the two series is +.21 oz., the I.C.M.R. figures being higher.

8.14. Another interesting point may be noted in passing. It has already been mentioned that of the 841 diet surveys included in the I.C.M.R. report, 338 covered households of a family type and that some of these surveys were carried out before 1944 and a comparison of pre-1944 and post-1944 surveys may give some rough indication of the effects of high prices and rationing on the consumption of food grains. The comparison can only be rough because the surveys of the two groups did not cover the same localities, and therefore the observed differences can not be unequivocally ascribed to differences in conditions before and after 1944. The consumption of food grains has been given in terms of per person per day using 0.80 as the conversion factor for converting the figures of per consumption unit given in the I.C.M.R. report.

TABLE (U) : ICMR REPORT : COMPARISON OF PRE-1944 AND POST-1944 SURVEYS.

households of a family type	pre-1944		post-1944		difference
	no. of surveys	oz. per person	no. of surveys	oz. per person	col. (3)− col. (5)
(1)	(2)	(3)	(4)	(5)	(6)
rural	146	17.48	61	17.58	−0.10
urban	71	14.31	60	11.25	+3.06

8.15. It will be seen that in rural areas 146 surveys were carried out before 1944 and 61 surveys in and after 1944. In rural areas the average consumption in both these groups of surveys was more or less the same. In urban areas, 71 surveys were carried out before 1944 and 60 in 1944 and after. The consumption per day per consumption unit was 14.3 oz. for the first group and 11.25 oz. for the second group, a difference of 3.6 oz. There was apparently a fall in the consumption of cereals in urban areas due no doubt to the introduction of rationing.

8.16. All the comparisons may now be summed up in the following Table (W).

TABLE (W) : CONSUMPTION OF FOODGRAINS PER PERSON PER DAY

survey	no. of sample households	consumption per person per day	
		chhataks	ounces
(1)	(2)	(3)	(4)
URBAN			
middle class			
1. Calcutta middle class : 1939	1151	6.5	13.4
2. Bengal urban middle class : 1942	981	6.3	13.0
3. Calcutta middle class : 1945	610	6.7	13.8
4. Calcutta middle class : 1950-51	774	6.4	13.2
working class			
5. Jagaddal working class : 1941	641	8.6	17.7
6. Jagaddal working class : 1942	740	8.2	16.9
7. Jagaddal working class : 1945	755	6.8	14.0
RURAL			
8. Bengal Weaving Survey : 1936	9038	8.4	17.3
9. West Bengal Bolpur Survey : 1936-37	659	7.0	14.4
10. NSS, West Bengal : 1949-50	181	8.4	17.3
11. Uttar Pradesh, 16 villages : 1948-49			
with conversion factor=0.80		10.2	21.0
with conversion factor=0.75		9.6	19.7
12. NSS, Uttar Pradesh : 1949-50	450	10.2	21.0
13. ICMR Diet Studies in 8 States : 1944-48	(61)*		
with conversion factor=0.80		8.4	17.3
with conversion factor=0.75		7.9	16.3
14. NSS average for these 8 States : 1949-50	1881	8.3	17.1
15. NSS average, all-India : 1949-50	3177	8.9	18.3

* 61 groups of studies covering 2126 families altogether.

8.17. It will be seen from these broad comparisons that the per capita consumption figures obtained in the NSS fit in quite well with other estimates. An average consumption of 8.9 chhataks or 18.3 oz. per person per day in the rural areas of India as obtained in this survey may not be an over-estimation. On the contrary, it may well be that this figure is an under-estimation for reasons explained below.

8.18. The reference period of this survey was a year, namely July 1949 to June 1950. There is a school of opinion which is definitely of the view that households cannot remember the quantities of consumption for such a long period as one year; and hence, in supplying information to investigators, they make omissions. Therefore,

according to this school, it is likely that the figures of consumption would be underestimates. One cannot yet prove or disprove this point of view. It was, however, thought worthwhile to alter the reference period of the investigation in subsequent rounds of National Sample Survey to observe the effects, if any, due to a change in the reference period.

Comparison of NSS estimates of consumption and supply

8.19. In the present survey questions[1] were also asked about the production of foodgrains. Based on the replies given by the growers, the production of rice, wheat, barley, maize, jowar, bajra, ragi and gram was found to be 19.86 maunds or 0.73 tons per household during the year (excluding small millets of which the returns have not yet been analysed). From Table (57) the consumption of foodgrains per household is seen to be 1,055.31 seers or 26.38 maunds (0.97 tons) for the year. If the consumption figure is deducted from the production figure, there is a negative balance of 6.52 maunds or 0.24 tons per household in the rural areas, which is quite absurd. The rationing off-take from imported foodgrains, which amounted to about 2.8 million tons during the year under review, had to be supplemented by procurement of home grown foodgrains to provide food for rationed population. There must have been, therefore, a surplus balance of production over consumption in the rural area. If it is granted that the NSS consumption figures were not overestimates then it follows that the NSS production figures obtained by asking the growers were clearly underestimates.

Comparison with official estimates of production

8.20. A comparison with the foodgrains production figures of the Ministry of Food and Agriculture of the Government of India is also of interest. In the publication *Area and Production of Principal Crops in India* 1948-51, issued in November 1951, the total production figures in thousand tons are given as below.

		1948-49	*1949-50*
All-India :	cereals	43,314	46,018
	gram	4,535	3,667
	total	47,849	49,585
Jammu & Kashmir :	cereals	897	337
	gram	—	—
	total	897	337

On the basis of these figures (in thousand tons) the all-India figures excluding Jammu & Kashmir are derived and are shown below:—

	1948-49	*1949-50*	average for reference period
cereals	42,417	45,681	44,049
gram	4,535	3,667	4,101
total	46,952	49,348	48,150

[1] Questions on production and consumption were not put to the same sample household generally; see para 4.7.

The appropriate official production figures of foodgrains in respect of the NSS reference period are thus 44.05 excluding gram and 48.15 million tons including gram. The rural population in India (excluding Jammu and Kashmir) has been estimated at 290.58 millions at the end of December 1949, the midpoint of the reference year. The per capita consumption of all foodgrains in rural areas in the year 1949-50 as given in Table (57) of this report, was 202.74 seers; multiplying this figure by 290.58 millions, the total estimated consumption in the rural areas only was about 54.10 million tons. This also leads to a negative balance of 10.05 million tons excluding gram, and 5.95 million tons including gram, for the rural areas. This is absurd. Again, if it is granted that the NSS consumption figure is not an over-estimate, then the production figure of the Ministry of Food and Agriculture must be an under-estimate.

8.21. In regard to the requirements of urban areas, if it is assumed that the per capita consumption per day was as low as 6 chhataks or 12.3 oz., then with an urban population of 60.93 million persons at the end of December 1949, the total consumption of foodgrains would be about 7.66 million tons; adding 54.10 million tons (the consumption in rural areas) the total consumption was 61.76 million tons for both rural and urban areas. A part of this requirement was met by imports from abroad. From the *Bulletin on Food Statistics* (Ministry of Food and Agriculture), January 1952, Table 3, p. 10, it is found that the total off-take from Government stock for rationing purposes was 7.692 and 7.554 million tons in the two calendar years 1949 and 1950 respectively. The procurement of foodgrains by Government out of the domestic production was 4.610 and 4.617 million tons in 1949 and 1950 respectively. The net release out of imports was thus 3.082 and 2.937 million tons with an average of 3.01 million tons which would be the appropriate figure of net supply out of imports for the reference period from July 1949 to June 1950. Deducting 3.01 million tons from the total consumption of 61.76 million tons there is a balance of 58.75 million tons which must have been met out of the domestic production (assuming there was no change in the stock position). The official production figure as estimated for the reference period is 48.15 million tons including gram or 44.05 million tons excluding gram. Production thus falls short of the estimated consumption by 14.70 million tons if gram is excluded, and by 10.60 million tons if gram is included. It is known that the whole of the gram is not consumed as a cereal substitute. It follows, therefore, that the discrepancy between estimated consumption and the official figure of production lies between say 15 and 12 million tons out of an estimated requirement of about 59 million tons.

8.22. A more rigorous estimate of foodgrains consumption for the country can be built up on the basis of zonal estimates and the following Table (X) shows the estimated consumption for the different zones. The per capita consumption of urban areas has been assumed to be 76 per cent of that for rural areas as was observed in West Bengal (13.2 to 17.3 ozs.). It may be noted that in the I.C.M.R. diet surveys, all of them taken together, the average intake per consumption unit per day was 15.72 oz. in urban areas and 20.16 oz. in rural areas with an urban : rural ratio of 76.8 per

cent. On the basis of the zonal estimates, the total estimated consumption in the country amounts to 63.17 million tons. If 3.01 million tons of imports are deducted, the balance requiring to be met from domestic production comes to 60.16 million tons against a production figure of 48.15 million tons inclusive of gram and 44.05

TABLE (X) : CONSUMPTION OF FOODGRAINS IN INDIA BY POPULATION ZONES

population	estimated population in millions on 31 December 1949			consumption of foodgrains in million tons		
	total	rural	urban	total	rural	urban
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. North India	62.40	53.88	8.51	12.74	11.37	1.37
2. East India	88.85	79.05	9.80	16.23	14.83	1.40
3. South India	74.26	59.65	14.60	11.87	10.01	1.86
4. West India	39.72	27.33	12.38	5.43	4.04	1.39
5. Central India	51.66	43.52	8.14	8.40	7.36	1.04
6. North-West India	34.61	27.19	7.42	8.50	7.04	1.46
total of zones	351.51	290.62	60.85	63.17	54.65	8.52
All-India	351.51	29.58	60.93	62.72	54.10	8.62

million tons exclusive of gram. The discrepancy lies between 12.01 and 16.11 million tons out of an estimated requirement of 60.16 million tons. On the basis of the above calculations, the magnitude of under-estimation of the official figures of production would seem to lie between 20 and 27 per cent of the estimated consumption out of domestic production.

Comparison of consumption and supply in West Bengal

8.23. Comparisons can also be made on somewhat surer grounds in the case of West Bengal. Here two different estimates of production are available. The NSS estimate was obtained by asking the growers as in other parts of India. There is also an entirely independent estimate which had been obtained during the actual period of crop production on the basis of sample data collected by investigators by direct physical observation of the area sown with particular crops together with crop-cutting experiments to determine the yield per acre. Since 1941 annual sample surveys of crops are being carried out in West Bengal by an experienced wholetime staff of investigators who are engaged exclusively in collecting the crop statistics and who have no other administrative duties like the patwaris.

8.24. According to the sample surveys based on direct physical observation of crops, the production of clean rice in West Bengal during the crop year ended June 1950 was 3.682 million tons[1]. According to the NSS estimate (based on the informa-

[1] Bulletin of Food Statistics, January, 1952 (Ministry of Food and Agriculture, Government of India), Table 2, p. 3, col. (15). (The production figure for the crop year July 1949–June 1950 is shown under the food year 1950 as it is assumed that the crop grown during July 1949—June 1950 would become available for consumption during the calendar year 1950).

tion given to the investigators by rural households) the production of clean rice for the same crop year July 1949-June 1950 was 16.56 maunds per household or 3.33 maunds per capita. Multiplying the per capita figures by the estimated population of 18.38 millions in the rural areas of West Bengal at the end of December 1949, the total production of clean rice comes to 2.24 million tons. If the estimate based on direct physical observation of crops by a sampling method, namely, 3.68 million tons is taken as correct, then the production figure based on the replies given by households in the NSS shows an underestimation of 1.44 million tons orab out 39 per cent of the more objective estimate.

8.25. The total quantity of foodgrains including gram produced in West Bengal was 3.534 million tons in 1949 and 3.860 million tons[1] in 1950. Taking the average of these two figures, 3.697 or say 3.70 million tons may be adopted as the production of foodgrains in the reference year July 1949-June 1950. The *Bulletin on Food Statistics*, January 1952, Table 3 gives figures of procurement and off-take from Government stock for rationing. As the figures are given for calendar years, the appropriate figures for the year July 1949-June 1950 will be the average of the figures for the two calendar years 1949 and 1950. The off-take figures for the two calendar years 1949 and 1950 were 814 and 868 thousand tons respectively (p. 9); taking the average of these two figures, 841 thousand tons would be the gross off-take for the reference year. The procurement for the two years 1949 and 1950 was 437 and 473 thousand tons respectively with an average of 455 thousand tons. The difference between the off-take and procurement figures is 386 thousand tons or say 0.39 million tons which represents the net import during the reference period. The amount of foodgrains available for consumption in West Bengal during the year, July 1949-June 1950, was thus 3.70 plus 0.39 or 4.09 million tons.

8.26. It is also possible to calculate approximately the consumption of foodgrains in West Bengal during the same period. The NSS estimate of consumption in the rural area is 8.4 chhataks (or 17.3 oz.) per person per day. For an estimated rural population of 18.38 millions during the reference period[2] the total consumption at the above rate would come to 3.22 million tons. According to the sample survey carried out by the West Bengal State Statistical Bureau among middle class families in Calcutta in 1950-51, the consumption of foodgrains was 6.4 chhataks or 13.2 oz. per person per day. Using this rate for the estimated urban population of West Bengal of 6.06 millions at the end of December 1949,the total consumption comes to 0.81 million tons. Adding 3.22 million tons for the rural consumption, one gets 4.03 million tons as the estimated total consumption in West Bengal, during the year under review against an estimated supply of 4.09 million tons. The difference of 0.06 million tons is roughly about 1.5 per cent of the estimated consumption.

8.27. It would be seen from these comparisons that the NSS estimates of consumption are probably of the right order but the NSS estimates of production

[1] Area and production of Principal Crops in India, November, 1951. Ministry of Food and Agriculture, Government of India. Table 13.

[2] Table (0.2)

based on the statements of households (as also official production figures) are under-estimates. Experience in other countries of the world has also been that growers are usually inclined to under-estimate the production. As already pointed out in chapter 5, to secure reliable estimates of cereal production, it would be advisable to use methods based on direct physical observation of crops over the whole of India.

8.28. The possibility of under-estimation also arises in connection with industrial production and with trading. At the moment no comparable figures are available on the basis of which the nature of under-estimation, if any, can be calculated. Increasing attention must, therefore, be given to develop appropriate methods to secure unbiased estimates of industrial production and of the volume of trading.

8.29. The question of bias of the respondent or of the investigator is a problem which is not peculiar to sample surveys only but is common to complete enumeration also. If the figures are vitiated by response bias, means have to be devised to overcome this bias, and suitably designed sample surveys can deal with different aspects of these problems step by step. Because of the unwieldy nature of complete enumeration, problems of this type can never be tackled satisfactorily and the practical solution seems to lie in improving the quality of the data by using properly designed and repeated sample surveys.

9. DEVELOPMENT SINCE THE FIRST ROUND OF SURVEY

9.1. In view of the difficulties confronted during the first round of the survey and also in order to explore the possibilities of eliminating bias in data collection, the methods of investigation were altered to some extent from round to round. The data collected in the different rounds will be analysed one after another, and the experience gained from the changes introduced in the different rounds will be reported in due course. In the meantime, short descriptions of the rounds of surveys carried out since the first round are given below one by one.

9.2. *Second round of survey* : The second round of survey was started in April and was completed at the end of July 1951. This round also covered the rural areas only. The most important change effected during this round was to alter the reference period from one year to one week for items of general consumption. For certain other items, depending on their nature, the reference period was changed to a month or to a year.

9.3. It has already been mentioned in the previous section that it was not clear whether the figures of consumption of cereals and cereal products were correct or under-estimates. A short reference period, namely, the week preceding the date of the survey was, therefore, introduced to see if the householders were able to remember their consumption more correctly for this short period. A short reference period has also the opposite possibility, namely, the figures may get over-estimated. This difficult problem of response to different reference periods of enquiry is being carefully studied and during the fourth round of the survey a design of inter-penetrating sub-samples has been used to study the effect of different reference periods.

9.4. The number of sample villages was reduced to 1,160 in the second round, firstly, because the same type of schedules was used for all villages; and secondly, because the time taken for completing the field work in the first round was much longer than was originally expected. A sample of 10 households was selected by a random procedure in each village for detailed investigation.

9.5. Two types of schedules were used:

Schedule 1: was used for collecting information in great details on quantities and expenses on various consumption items;

Schedule 2: was used for collecting information on crop production with special emphasis on the production of the main cereals and of jute and cotton.

9.6. *Third round of survey:* The third round of the survey was started in August 1951 and was completed in November 1951. Two important changes were made in this round. Firstly, the survey was extended to cover the urban areas so that the sample may be a cross-section of the whole of India and not of rural areas alone. Secondly, the scope of this survey was further extended to cover information not only on consumption but also on production, income, and costs in household industries, trading and services.

9.7. The basic design of the survey in regard to stratification and selection remained the same as in the first and the second rounds. The number of sample villages covered was 920. The sample of towns was 54 including the 4 cities of Calcutta, Bombay, Delhi and Madras. A sample of 12 households was selected from each sample village for detailed investigation. The number of households selected for investigation in urban areas varied according to the size of the population of the town. In a small town with a population below 15,000 the number of sample households was 40. At the other extreme, for a large city like Calcutta, the number of sample households was as high as 336. The selection of households in the towns was made in two stages. A specified number of blocks was selected first with probability proportional to size (population) and within the block a given number of households was selected. The numbers of blocks per town and households per block varied according to the population of the town.

9.8. Two types of schedules in addition to the village schedules were used in this round.

Schedule 1.0: same as in the second round for collecting information in detail on quantities and expenditure on various consumption items.

Schedule 2.1 *to* 2.5: for collecting information on production in agriculture and animal husbandry; production, costs and income in household industries, transport, trade, professions and services.

9.9. The schedules on enterprises used during the first round were completely revised on the basis of experience obtained during that round of the survey and practically a new set of schedules was used for collecting data from the households.

9.10. *Survey of crop acreage :* A quick crop survey to ascertain crop area figures only was carried out in 920 villages during December 1951. No crop cutting work was done to ascertain the yields. The villages were the same as those covered during the third round. The investigation referred to winter and spring crops only. The sample plots in the villages were selected in exactly the same way as in the first round. On the basis of village maps showing plot boundaries, 20 clusters of 5 plots each were selected with probability proportional to the area of the cluster in the way explained in paragraph 4.8.

9.11. *Fourth round of survey :* The fourth round of the survey started in May 1952 and was generally completed in October 1952. The sample design for the urban areas remained broadly the same as in the third round, but the design for the rural areas was completely changed. A brief description of the new design is given below.

9.12. The whole of India (excepting Jammu & Kashmir, and Sikkim) was divided into 240 strata and from each stratum 2 tehsils were selected. From each selected tehsil, two villages were selected and from each selected village a certain proportion of households was selected in such a way that the sampling fraction for all the strata would be equal.

9.13. India was first divided according to the "natural division" (as defined by the Registrar-General). The total consumer expenditure for each natural division was calculated on the basis of figures obtained in the first round of the survey. The allocation of the sample tehsils in each natural division was made proportional to the estimated total consumer expenditure.

9.14. Within a natural division the tehsils were stratified according to the the density of population. Where the area figures were not available, the classification was done by population only.

9.15. The limits of these classes within a natural division were, however, so adjusted that for each class the total consumer expenditure was approximately equal. The number of the classes was known beforehand because the allocation was known.

9.16. Thus, a stratum within a natural division has been formed on the basis of density of population (with necessary modifications) with the requirement that the total consumer expenditure of each of the strata within a particular division was equal. Since the allocation of sample tehsils over the natural division is proportional to the total expenditure of the divisions, the total expenditure of each stratum of each "natural division" is approximately equal.

9.17. The 240 strata were then divided into 2 comparable groups. From one group, two tehsils from each stratum were selected at random with probability proportional to population. From the second group, two tehsils from each stratum were selected with probability proportional to area. Then within each sample tehsil, two villages were selected at random with probability proportional to area. A suitable proportion of sample households within each village was selected for investigation

and half of the households was investigated by one investigator and the other half by another investigator simultaneously. The whole sample thus consisted of two interpenetrating network of sample households over the whole country.

9.18. The programme of investigation was also arranged in such a way that, in both rural and urban areas, half the households would have consumers' schedules with the week as the period of reference for enquiry and the other half would have the month as the period of reference. This would enable a valid comparison being made of the effect, if any, of the length of period of reference on the information collected from households.

9.19. Except for necessary changes due to using two reference periods, the schedules in the fourth round are broadly the same as those used in the third round of survey.

10. COMMENTS ON THE ATTACHED TABLES

10.1. Brief notes and comments on the figures of the detailed tables are given in this section. The comments mainly indicate the nature of coverage of the figures given in the table. Where the nature of coverage is clear from the headings of the tables no further comments have been given. Table 1 shows the distribution of area over groups of localities (towns and villages) arranged by types of information available for individual localities at the start of the survey. The areas in square miles of the localities having individual statistics of various types are shown in cols. (3), (4), (5), (6), and (7). It will be seen that population figures of 1941 Census were available for 56.7 per cent of the area at the time of preparing the design of the survey. Area figures for individual localities were available for 14.2 per cent of the area but the population figures were missing. For 7.7 per cent of the area, no population nor area figures for the individual localities were available but the area figures could be extracted from tehsil maps. For 15.8 per cent of the area, neither area nor population figures of any kind were available for the individual localities; only village names could be obtained. For 5.6 per cent of the area even village names were not available; tehsil maps from which the area of individual localities could be extracted were also not available. However, when the field staff started working in these areas, they collected the village lists, and, on the basis of these lists, supplementary samples were drawn for the survey. It will be seen from the table that population or area figures for individual localities were not available in parts of Assam, Manipur, Tripura, parts of Bihar, parts of Orissa, parts of Hyderabad, parts of Madhya Pradesh, parts of Madhya Bharat, parts of Bombay, parts of Rajasthan, parts of Uttar Pradesh, Delhi, parts of Himachal Pradesh, Punjab and P.E.P.S.U.

10.2. Table 2 shows the distribution of population over groups of localities (towns and villages) arranged by types of information available for individual localities at the start of the survey. Figures in this table are similar in character to those in Table 1 with the important difference that instead of showing the distribution in square miles, the populations of the localities having the different types of information have been shown in the present table.

10.3. Table 3 shows the allotment of sample villages to the different States and the number actually surveyed. Taking together the first and second groups of sample villages, it will be seen that some of the sample villages in a number of States could not be surveyed due to various difficulties. The details are given below in Table (Y). Thus, on the whole, 111 villages out of the 1833 villages could not be surveyed.

TABLE (Y) : NUMBER OF VILLAGES INCLUDED IN THE SAMPLE BUT NOT SURVEYED

	state	number of villages not surveyed
1.	Orissa	30
2.	Madras	4
3.	Hyderabad	67*
4.	Travancore & Cochin	2
5.	Rajasthan	1
6.	Madhya Bharat	2
7.	Saurashtra	2
8.	Bombay	2
9.	Madhya Pradesh	1
10.	total	111

* mostly in Telengana

10.4. Table 4 shows an analysis of different systems of measurements of weight arranged by districts for all the States. These figures are based on data collected from 1084 sample villages. For purposes of comparison the smallest region within which the systems have been shown is a district. Attention may be drawn to the districts having five or more exclusive systems of weight measurements, namely. one district in Uttar Pradesh, 3 districts in Bihar, 1 in Orissa, 1 in Madras, 1 in Hyderabad, and 1 in Bombay.

10.5. Table 5 shows the average number of persons per household with the distribution and the economic status of the members of households in the rural areas in 1949-50 in the different population zones of India. All persons living in a household more than 1 month during the year before the date of enquiry were taken as members of the household. The average size of the household was 5.21 persons for India, and between the different population zones the size varied between 5.47 and 4.98 persons. The number of earners in a household, on an average, was 1.46 for India and varied between 1.27 persons in South India and 1.63 persons in North West India. The number of earning dependents in a household was 0.87 for India varying between 1.18 persons in West India and 0.63 in North India. The number of non-earning dependents was 2.88 persons per household for India and varied between 2.38 persons in Central India and 3.21 persons in East India. Thus, for the whole of India 28.07 per cent of the members of a household were earners. The proportion varied between 25.49 per cent in South India and 30.92 per cent in North West India. The proportion

of earning dependents in a household was 16.57 per cent for India, and it varied between 11.91 per cent in North India and 21.78 in the Central India. The proportion of non-earning dependents in a household was 55.36 per cent for the whole of India and varied between 47.82 per cent in Central India to 59.99 per cent in East India.

10.6. Table 6 shows the average expenditure incurred by households in rural areas on various items of consumption during the year July 1949 to June 1950. The expenditure figures include not only the value of purchases (cash and barter) but also the imputed value of articles produced and then consumed at home. It may be noted that in all the tables on value of consumption that follow, the figures include the imputed value of consumption of home grown articles. As for services, only the values of services originating outside the household were taken into consideration. The table gives the figures for the whole of India. The total consumer expenditure per household came to Rs. 1143.70 and the per capita expenditure was Rs. 219.72 per year. It will be seen from column 5 of the table that the largest part of the expenditure namely, 38.70 per cent went to consumption of foodgrains. Of the food items next in order of importance by expenditure was milk and milk products, namely, 7.77 per cent. The total proportion of expenditure on food items was 66.31 per cent. Of the various non-food items attention may be drawn to the expenditure on ceremonials which came to 7.21 per cent of the total expenditure.

10.7. Table 7 shows similar expenditure figures on various items of consumption in the North India zone. The average expenditure per household was Rs. 1081.02 during the year July 1949 to June 1950; 42.27 per cent of the expenditure went to foodgrains and 8.93 per cent to milk and milk products. The proportion of expenditure for all the food items together was 69.65 per cent. The proportionate expenditure on ceremonials was 6.56 per cent.

10.8. Table 8 shows the consumer expenditure for the East India zone including Andaman and Nicobar Islands. It may be noted that only 12 sample households were taken from Andaman & Nicobar Islands as compared with the total of about 717 households for the East India zone including these Islands. The average consumer expenditure per household was Rs. 1,127.09 during the year July 1949 to June 1950. The per capita expenditure was Rs. 210.44. These figures are lower than the all-India averages for consumer expenditure. The porportion of expenditure for foodgrains was higher than the all-India average and was 49.07 per cent. The proportion of expenditure on milk and milk products, namely, 3.32 per cent was much lower than the all-India figures. The proportion of expenditure on meat, egg and fish, namely, 3.25 per cent was a little higher than the all India figure. The proportion for all food items was 71.01 per cent of the total expenditure which is somewhat higher than the all-India proportion of 66.31 per cent. The proportion of expenditure on ceremonials, namely, 5.18 per cent was slightly lower than the all-India proportion of 7.21 per cent.

10.9. The consumer expenditure for South India zone is shown in Table 9. The average consumer expenditure per household was Rs. 1009.10 and the per

capita expenditure was Rs. 202.82 during the year July 1949 to June 1950. These averages were much lower than the all-India averages of Rs. 1143.70 per household and Rs. 219.72 per person. 36.45 per cent of the total expenditure went for foodgrains which was slightly lower than the all-India proportion of 38.70 per cent. Only 4.48 per cent was spent on milk and milk products. The proportion of expenditure for all food items was 66.37 per cent. The expenditure on ceremonials was 4.17 per cent which was lower than the all-India proportion of 7.21 per cent.

10.10. Table 10 shows the consumer expenditure in West India. The per household expenditure amounted to Rs. 1383.08 and the per capita expenditure was Rs. 253.01. These figures, it may be noted, are higher than the corresponding all-India averages. The proportion of expenditure on foodgrains, namely, 23.09 per cent, as would be expected, was much below the all-India proportion. The proportion of expenditure for milk and milk products was 9.76 per cent which is higher than the all-India proportion. The expenditure on meat, egg and fish was lower than the similar proportion for all-India. The proportion for all food items was 54.01 per cent. The expenditure on ceremonials was 15.58 per cent.

10.11. Table 11 shows the consumer expenditure for the Central India zone. The per household expenditure amounted to Rs. 984.15 and the per capita expenditure was Rs. 197.73. These averages are lower than the all-India average of Rs. 1143.70 per housdhold and Rs. 219.72 per person. The proportion for all food items came to 62.79 per cent of which 34.72 per cent was for foodgrains and 7.20 per cent was for milk and milk products. The expenditure on ceremonials was 8.23 per cent of the total.

10.12. Table 12 shows the consumer expenditure per household for the North West India zone. The per household consumer expenditure amounted to Rs. 1654.30 and the per capita to Rs. 313.88. It will be noted that these averages are much higher than the corresponding all-India averages showing the comparatively better position of the region. 36.93 per cent of the total went for food and as high as 19.03 went for milk and milk products. The proportion of expenditure for meat, egg and fish was extremely low and was only 0.54 per cent. The proportion of expenditure for all food items was 67.94 per cent. The proportion for ceremonials was 6.47 per cent.

10.13. Table 13 shows the value of consumption of foodgrains during the year July 1949 to June 1950 in the six population zones. The food grains consisted of rice and rice products, wheat and wheat products, barley, maize, jowar, bazra, ragi and also those parts of gram and small millets which were consumed as main cereals, and also a part of tapioca for Travancore and Cochin. It may be noted that a part of gram and small millets was found to have been consumed as pulses by households in certain parts of the country. The all-India average expenditure on consumption of foodgrains per household was Rs. 442.61 or Rs.85.03 per capita. The highest per capita expenditure was in North West India, namely, Rs. 115.89 and the lowest in West India, namely, Rs. 58.40 It may be mentioned that these figures do not necessarily show

the relative amount of consumption because the price levels in different areas were not the same.

10.14. Table 14 shows the value of consumption of pulses arranged by different population zones. Pulses included all the various pulses, like *arhar*, *barbati*, *mung*, *masur*, *urd*, etc., and also that part of gram and small millets which were consumed by the households as pulses. On an average each household spent Rs. 40.89 on pulses of various types during the year, which was 3.58 per cent of the total consumer expenditure and the per capita consumption was Rs. 7.86. The highest per capita expenditure was in North India, namely, Rs. 10.36 and lowest in North West India, namely, Rs. 5.35. Here, again, it may be noted that the price levels of pulses were not the same in the different regions.

10.15. Table 15 shows the value of consumption of edible oils. This item included vegetable oils, like mustard oil, cocoanut oil, til oil, groundnut oil, as well as vegetable oil products like vanaspati, etc. Ghee was excluded from this group and was included under the item milk product. Only the value of the quantities used by the households as food was included here. The value of the part used for purposes other than food was excluded and these entries were made against other items in the schedule according to the types of use. As will be seen, the highest per capita expenditure of the edible vegetable oils was in West India, namely, Rs. 10.53 and the lowest in North West India, namely, Rs. 6.64. The all-India average was Rs. 8.32.

10.16. Table 16 shows the expenditure on vegetables. The item included all types of green vegetables as well as potato, onion, etc. The all-India per capita expenditure was Rs. 5.13 or 2.34 per cent of the total expenditure. The per capita average was highest in South India and lowest in North West India.

10.17. Table 17 shows the value of consumption of milk and milk products and included items such as cow's milk, goat's milk, buffalo's milk and milk products such as *ghee*, *khowa*, curd, butter, butter-milk, *chhana* etc. The all-India per capita expenditure was Rs. 17.06. The average was highest for the North West India region, namely, Rs. 59.71 per person and lowest in East India region, namely, Rs. 6.98.

10.18. Table 18 shows the value of meat, eggs and fish consumed during the year July 1949 to June 1950 arranged by population zones. The group included meat of all types, such as goat meat, mutton, beef, pork, buffalo meat, poultry, etc., and eggs and fishes of all types. The two zones where the expenditure on consumption was higher than the other areas were East India and South India due mainly to higher consumption of fish.

10.19. Table 20 shows the value of consumption of refreshments. Items such as tea, coffee, *nimki*, sweets, biscuits, cakes, etc., were included under this heading. Values of prepared tea and coffee which were purchased from shops for consumption were taken, but where tea leaf or coffee powder was purchased and the beverages prepared in the household for consumption, the expenses on tea leaf and coffee powder only were included. The expenses on milk or sugar were recorded in appropriate blocks

in other parts of the schedule. The per capita figures for the West India and South India zones were higher than the other regions.

10.20. Table 21 shows the value of consumption of salt. The expenditures on various types of salt such as rock salt (*saindhab*) and sea salt or common salt or any other type of salt (e.g. *karkach*) were recorded under this item. The average all-India expenditure on salt in rural areas was Rs. 4.82 per household and Rs. 0.93 per capita.

10.21. Table 22 shows the value of consumption of spices during the year July 1949 to June 1950 arranged by population zones. Items such as chillies, turmeric, pepper, mustard seeds, *dhania*, etc., were included in the group. The highest expenditure per person, namely, Rs. 9.39 was noted in South India and lowest in North India, namely, Rs. 4.26.

10.22. Table 23 shows the value of consumption of sugar. The figures also included *gur* (unrefined sugar) of all types but excluded sweetmeats, etc. The two zones where the figures were much higher than the rest were West India and North West India.

10.23. Table 24 shows the value of consumption of total food items during the year July 1949 to June 1950. The total included all the items mentioned in Tables 13 to 23 and it is probably needless to mention that it excluded the items such as, *pan* leaf, tobacco, intoxicants, etc.

10.24. Table 25 shows the value of consumption of *pan* (betel leaves) during the year July 1949 to June 1950 by population zones. The figures included expenses on *pan* leaves as well as spices used with them. The leaves were used by the households in two ways. Either the households got leaves and prepared them for consumption with *supari* (arecanuts), lime and other ingredients at home or they bought prepared *pan* direct from the shops. In the former case, the value of the leaves and various ingredients were recorded separately. But, in the latter case, the prices of the prepared '*pan*' were recorded as single items. The value of consumption per person was highest in the South India zone and lowest in the North West India zone.

10.25. Table 26 shows the value of consumption of tobacco. *Biri*, cigarettes, cigar, leaf tobacco, *hooka* tobacco, snuff, zardah, etc., were included under the term tobacco. It may be noted that the value of consumption per capita was about even in the various zones with the average for West India higher than the rest, and that for East India somewhat lower.

10.26. Table 27 shows the value of consumption of intoxicants. Items such as, toddy, *ganja*, opium, *pachai*, *hadia*, country liquor of other varieties and all types of foreign liquor were included under this head. As the respondents may be evasive on this question of intoxicants, the investigators were instructed not to ask the question bluntly right at the beginning but to raise the issue in a general way first. In spite of this approach it is difficult to say yet to what extent these figures are correct estimates. The value of consumption of intoxicants per capita was highest in the North West India zone and lowest in the West India zone.

10.27. Table 28 shows the expenditure on fuel and light during the year July 1949 to June 1950 for the different population zones. The value of consumption of items such as fuelwood, coal, coke, gas, electricity, kerosene, candle, matches, dung-cake, charcoal and that part of vegetable oils used for lighting purposes was included in this group. Only the value of the part which was relevant to consumer expenditure was included here and the part which was used for some productive purposes was excluded. The average per capita figure for all-India was Rs. 7.14 with the highest figure for North West India and the lowest for Central India zone.

10.28. Table 29 shows the expenditure on men's clothing during the year July 1949 to June 1950 arranged by population zones. All types of men's clothing such as, *dhoti*, *pyjamas*, *lungi*, trousers, shirts, *kurta*, vests, coats, *shawls*, socks, etc., were included in this group. Separate entries were made for mill-made, handloom, *khaddar* and woollen and other products and the breakdowns have been shown in Table 56 for all clothings taken together. The expenditure per person (and not per man) was Rs. 6.92 for all-India.

10.29. Table 30 shows the expenditure on women's clothing. Expenses on *saree*, *salwar*, chemise, blouse, *kurta*, petticoat, *dopatta*, etc., were included under this group and the entries were made separately for mill-made, handloom, *khaddar* and woollen and other products. It will be seen the expenditure per person (and not per woman) was Rs. 8.14 for all-India. The per capita figures were much higher in the West India and the North West India zones than in the others.

10.30. Table 31 shows the expenditure on children's clothing. The various items of clothing used by children, as in the case of men's and women's clothings, were included in this group, and again, these were recorded separately for mill-made, handloom, *khaddar* and woollen and other products.

10.31. Table 32 shows the expenditure on miscellaneous clothing. This group included expenditure on items such as towels, napkins, screens and clothes used for purposes other than wearing apparel, headgear or bedding. The average expenditure per person amounted to Rs. 1.22 for all-India.

10.32. Table 33 shows the expenditure on turbans and other headgear. The group included expenditure on items such as turbans, hats, caps, etc. The all-India per capita expenditure was Rs. 0.89. The highest average was for North West India, namely, Rs. 3.99 and the lowest for the East India zone, namely, Rs. 0.06.

10.33. Table 34 shows expenditure on bedding during the year July 1949 to June 1950 for the different population zones. The figures included the expenses on items such as, pillow, mattresses, bed-sheets, covers, mosquito-nets, etc. The average all-India expenditure per person was Rs. 1.91, that is, 0.87 per cent of the total expenditure.

10.34. Table 35 shows the expenditure on tailoring services. The various tailoring or mending services were included under this item and, in order to avoid a separate item the charges for washing of clothes by washermen were also included under this head. The all-India per capita figures was Rs. 2.20.