

ECONOMIC STUDY OF A REGION
WITH SPECIAL REFERENCE TO
THE CONSUMPTION PATTERN -
A TRIBAL REGION IN AHMEDNAGAR
DISTRICT MAHARASHTRA STATE

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M. D. SATHE

**Economic Study of a Region
with Special Reference to
the Consumption Pattern--
A Tribal Region in Ahmednagar
District, Maharashtra State**

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**MADHUSUDAN DATTATRAYA SATHE
DEPARTMENT OF ECONOMICS,
UNIVERSITY OF POONA,
POONA:**

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University of Poona,
Poona.
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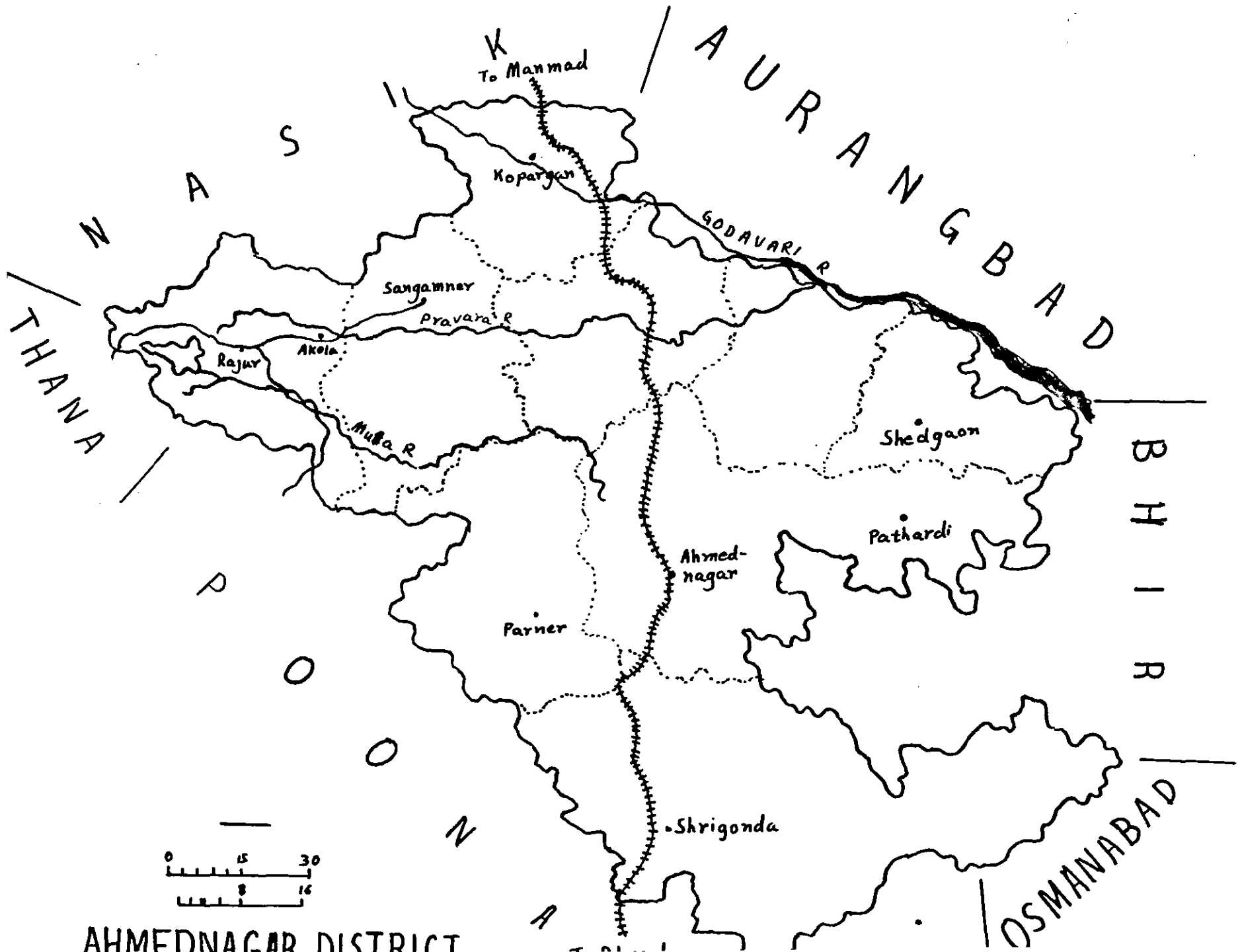

M. D. Sathe

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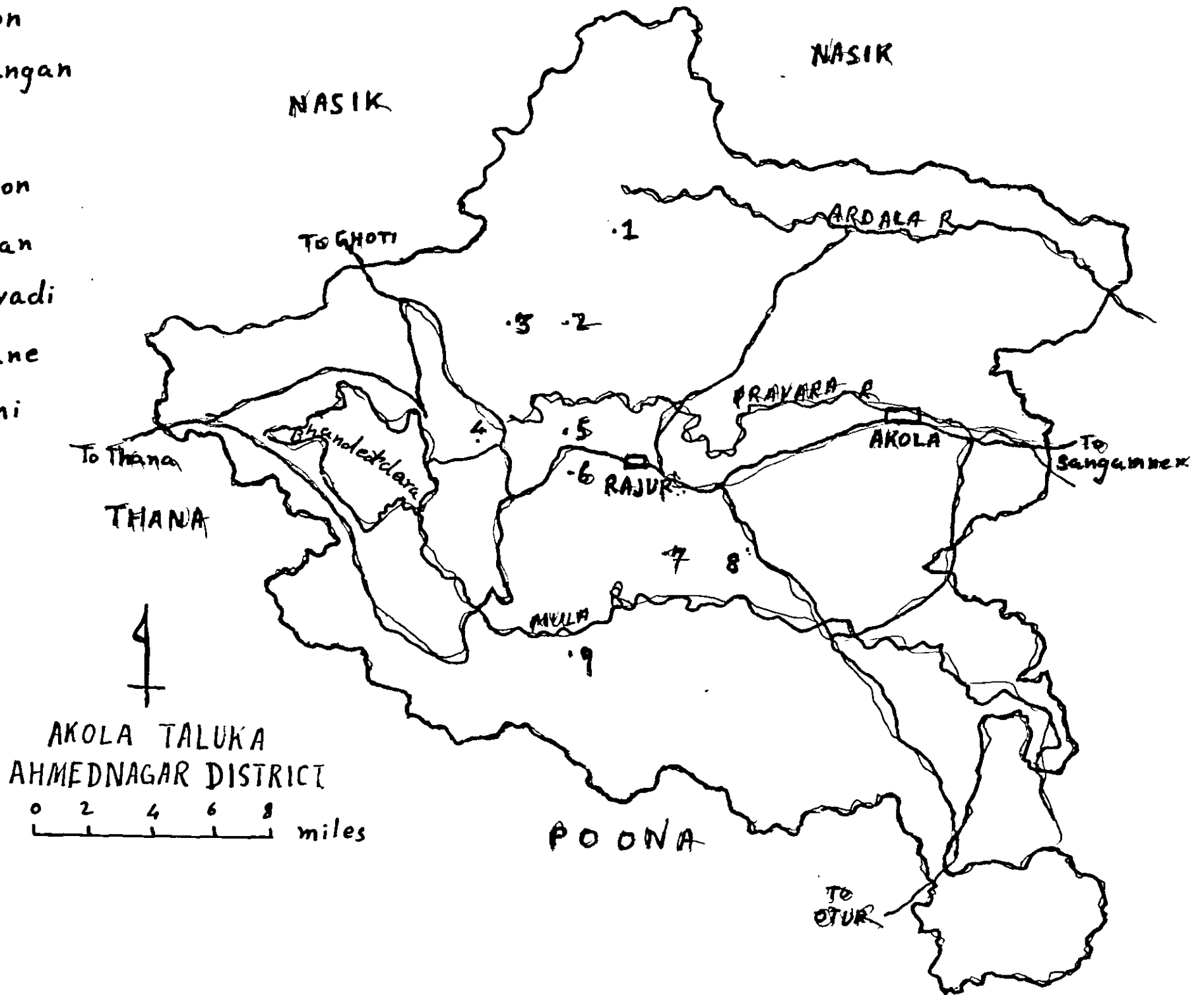
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AHMEDNAGAR DISTRICT

- 1 Khirvire
- 2 Deogaon
- 3 Ambevangan
- 4 Guhire
- 5 Malegaon
- 6 Kelungan
- 7 Sahirwadi
- 8 Padalane
- 9 Vakdani



CHAPTER I

I N T R O D U C T I O N

1.1 The Theme

The approach to the present study of a tribal region may be characterized by what is called, a 'vertical emphasis'.¹ This approach implies that a detailed study of the region is undertaken with the view of understanding its working and economic structure. The transactions with the external world are understood only in a complementary way. It is essentially the

¹ Hoover and Chinitz while generalising their experiences of the design and early phases of the execution of the Pittsburgh Regional Planning Association's three-year study of the Pittsburgh region, have said, ".... it will be helpful here to consider a more general dichotomy of approaches." The two approaches, they have characterized in terms of 'vertical', vs. 'horizontal' emphasis. "By 'vertical' we mean an approach that seeks to probe as deep as possible into the workings of the economy of the region under study, while the outside world as such is not studied or even observed directly. Only transactions with the outside world are recognised as items in the accounts of the region in question. What we call here the 'horizontal' approach, leans heavily on (1) interregionally comparative structural analysis, and (2) locational analysis in terms of interregional competition and complementarity."

Edger M. Hoover and Benjamin Chinitz, "The Role of Accounts in the Economic Study of Regions". Reprinted from Werner Hochwald, ed., Design of Regional Accounts, pp. 253-261, in John Friedmann and William Alonso, ed., Regional Development and Planning. A Reader. The M.I.T. Press, Massachusetts, 1964, pp. 617-18.

interaction of domestic demand and supply of goods that is primarily analysed. This static analysis becomes partly dynamic on account of the econometric analysis of family budgets. A further dimension has been added by presenting a perspective view of the evolution of consumption pattern in the last hundred years or so. An analysis of the incidence of seasonal variations in the consumption pattern of cereals highlights the process of substitution among cereals, and this changing and declining balance of total cereal consumption indirectly reveals the levels of living in the region under study. Also the interaction of internal availability, demand and prices of cereals settles a certain pattern of trade which is corroborated by the results of the general enquiry of trade at the local market of the region.

Meyer mentions two more approaches to such a type of study of the region.² One approach emphasizes the historical and behavioural characteristics of the

² "Specifically, two rather different approaches are discernible. In one the emphasis is on historical and behavioral characteristics; in the other, the orientation is more toward quantification, forecasting, and the development of a logically rigorous framework for the analysis. To be sure, these distinctions are at least somewhat arbitrary, as most such classifications usually are. Thus those with an historical-behavioral inclination also often try to make quantitative

region, whereas the other attempts towards quantification and forecasting, and a logically rigorous model is built up from the statistical compilation.

In the present study an attempt is made to combine the historical orientation with an analytical-quantitative approach, though admittedly the overall treatment is rather descriptive and general. This is

forecasts and those with an analytical-quantitative approach normally will try to develop an understanding of underlying behavioral patterns. Furthermore, one of the dominant concerns in the field at the moment is with finding means of fusing or synthesizing the best elements in different approaches into better, more comprehensive procedures.

Still, very important differences in emphasis do exist. For example, those with an historical-behavioral orientation tend to stress the analysis of trends and evolutionary patterns. They try to 'dig beneath' the data to an understanding of motivations, particularly those leading to significant changes in structure and conduct. Thus, their concern tends to be more with structural change than with its continuity. They are not too disturbed; moreover, if this structural change makes forecasting hazardous or uncertain or if their forecasts are not formally rigorous and consistent in all details. Their involvement tends to be more with whether what they have said and forecast is plausible in light of current or apparent trends in behaviour. In keeping with this, they often will emphasize such considerations as entrepreneurship, market structure, and external economics that normally are not conveniently incorporated into the more formal analytical frameworks. Finally, they are often quite willing to sacrifice a good static analysis even for an admittedly poor dynamic analysis...."

John R. Meyer, 'Regional Economics: A Survey'.
 Surveys of Economic Theory: Volume II, Growth and Development, edited by American Economic Association and Royal Economic Society. St. Martin's Press, New York (1965), pp. 257-58.

basically necessitated by the insufficiency of data that are already available at the regional level and the difficulties in collecting the primary data on an extensive scale with limited resources.

1.2 The Concept of a Region

In the literature on regional planning the problem of defining a region as a distinct spatial entity, has been intricate and has engaged a wide attention.³ A brief review of these ideas may be helpful in appreciating how an economic analysis of a region turns out to be a discussion of 'an economic base' and its viability as a homogeneous economic entity.

Traditionally there are three distinct approaches to the definition of a region.⁴ The first deals with the homogeneous characteristics, usually a combination of spatial and economic, of a region. The second tries

³ A list of books is separately attached at the end of the chapter.

⁴ Prof. Fourie has quoted a definition from Mumford, "The Culture of Cities".

"The region is the unit-area formed by common aboriginal conditions of geological structure, soil, surface relief, drainage, climate, vegetation and animal life, reformed and partly redefined through the settlement of man, the domestication and acclimatization of new species, the nucleation of communities in villages and cities, the reworking of the landscape, and the control over land, power, climate and movement of provided by the State of technics." Prof. F.C. Van N. Fourie, "Regional Planning and Development in South Africa". A South-African interests group publication, Cape Town, 1947, p. 40.

to analyse the polarization around some market or urban place within a region, and the third is concerned with working out a coherent relationship between the existing administrative and political set-up and the policy decisions. These attempts to identify a region are called respectively homogeneous, nodal and programming⁵ region.

The criterion of homogeneity implies the grouping together spatially local units having the same characteristics. These boundaries, mainly geographical or natural, may be in terms of such indices that comprehend the local characteristics such as soil, climate, rainfall, topography, hydrography, etc. In the case of

⁵ Boudeville, J.R., "A Survey of Recent Techniques for Regional Economic Analysis", Regional Economic Planning: Techniques of Analysis, Walter Isard and J.H. Cumberland, ed. Paris, 1960, pp. 377-98.

Boudeville, J.R., "Frontiers and Inter-relations of Regional Planning", paper given at International Congress on Economic Development, Vienna, Aug-Sept., 1962.

Fisher, J.L., "Concepts in Regional Economic Development Programs", Papers and Proceedings, Regional Science Association, 1955, 1, W 1 - W 20.

Perloff, H.S., "Regional Studies at U.S. Universities: A Survey of Regionally Oriented, Research and Graduate Education Activities", Washington, D.C., 1957.

Vining, R., "Delimitation of Economic Areas: Statistical conception in the study of the spatial structure of an Economic System", Journal of American Statistical Association, January 1953, 48. pp. 44-64.

agricultural regions, the primary characteristics of the basic economic activity, namely agriculture,⁶ will be decisive. These may include the cropping pattern, techniques and methods of cultivation, the forms of ownership, etc. Thus, the maximum number of uniform characteristics of a region gives a criterion of delimiting a region.⁷

The Pacific North-West Regional Planning Commission describes a region as that which is larger than a single metropolitan community and possesses similar natural resource-endowment. Such an area has to have a strong sense of regional community-interest. The Commission gives in more detail the 'requisites for regionality' thus: "The area should possess the maximum degree of unity, homogeneity and cohesion, its territory should be contiguous and as compact in outline as possible; it should be large enough to embrace all territory containing generally similar problems and resources; and it should be so delineated as to conform to existing regional consciousness and sentiments."

⁶ Tinbergen calls this as the 'space consuming production' in the context of 'spatial economics'. "Regional Planning: Some Principles", Netherlands Economic Institute, Division of Balanced International Growth. Rotterdam, August, 1960, p. 3.

⁷ Boudeville, J.R., "A Survey of Recent Techniques for Regional Economic Analysis" in "Regional Economic Planning: Techniques of Analysis", edited by Walter Isard and J.H. Cumberland, Paris, 1960, p. 379.

Admitting that the complete homogeneity is not possible, the Commission still contends that the concept of homogeneity be regarded as primary in the definition of a region. The Commission⁸ has cautioned against the over-emphasis on geographical homogeneity and argues that the importance of economic similarities and "the web of interconnections of group with group" need be stressed. The Commission has attached importance to the economic behaviour of people of a region. Prof. F.C. Van N. Fourie⁹ argues that "the primary purpose of planning is the creation of functionally efficient communities." Prof. Fourie¹⁰ also emphasizes that two main considerations should determine the demarcation of a region. The first is homogeneity in respect of natural and physical - economic problems and the other conforms to existing regional consciousness or popularly accepted regional groupings.

The boundaries of 'nodal region' are not based on

⁸ Pacific North-West Regional Planning Commission: Referred to in Prof. F.C. Van N. Fourie, *ibid.*, p.40.

⁹ Prof. F.C. Van N. Fourie, "Regional Planning and Development in South Africa" - A South-African interests group publication, Cape Town, 1947, p. 51.

¹⁰ Prof. Fourie, *ibid.*, pp. 40-41.

homogeneity proper but, rather, on the functional criterion that combines areas dependent, in some trade or functional sense, on a specific centre. Thus the enquiry starts tracing the outlines of internally interdependent regions. The formations of poles and their spheres of influence become the principal theme of enquiry.¹¹ The emphasis is shifted from an analysis of structure of a region to an analysis of import-export trade amongst regions. The study of transportation indicates the movements and zones of trade. Boudeville¹² mentions tele-communications, press circulation, daily manpower movements, distribution of various goods, etc., as various aspects to be noted to trace the spheres of influence of an urban trade centre within the region. Thus there may be a number of boundaries, depending upon the types of economic flows. In such a situation, these flows may have to be combined to indicate the limits of the most general, and, still local, trading area. Some economists, particularly Boudeville, have argued that only a nodal region is useful for policy purposes.¹³

¹¹An attempt has been made in the fourth chapter to trace the historical background of the market centre of the region under study.

¹²Boudeville, J.R., *ibid.*, p. 379.

The programming or policy region is understood to be a decision-making model involving the spatial notion. Boudeville¹⁴ says that this notion in economic terms has two aspects. The first is price effect and the second, income effect. The former aspect leads to the analysis of transport and production costs, whereas the latter aspect is dealt with in terms of multiplier, agglomeration effect and nodal attraction. Thus, the programming region attempts to build up the appropriate model to determine the optimum area.

It is obvious from the foregoing discussion that these three approaches to the problem of defining a region are not mutually exclusive. It is possible to argue that all these approaches are different versions of the homogeneity criterion.¹⁵ The differences are primarily related to the degree and kind of homogeneity sought. The programming region is essentially homogeneous as the policy formulations are always in terms of certain administrative units. The regional data

¹³ Boudeville argues that, "the notion of "nodal (or polarized)" region seems to provide the best economic tool for developing a territory. It is a means simultaneously of delimiting space, analysing its structure and determining its trade". *ibid.*, p. 397.

¹⁴ Boudeville, J.R., *ibid.*, p. 380.

¹⁵ Meyer, John, R., "Regional Economics : A Survey" in "Survey of Economic Theory, Volume II, Growth and Development", American Economic Association and Royal Economic Society, St. Martin's Press, New York, 1965, p.243.

are always compiled by local administrative agencies of the government and it may often happen that these divisions do not always coincide with economic differences and structures.¹⁶ Similarly, a nodal region also implies a certain notion of homogeneity since not only the pole but the surrounding area are together supposed to complete the picture of a region. It may be added here that since a region cannot be thought of as an entity to be developed by itself and independently of the country to which it belongs, the need for coherence in local plans and in the choice of effective set of programmes is all the more greater.

As noted earlier, the notion of nodal region has been the dominant theme in the Western literature on regional planning. A large number of metropolitan studies indicate this trend. The analytical interest arises out of the phenomenon of indivisibilities and agglomeration, i.e., decreasing costs in relation to the increasing scale of production activity and concentration of such activities into urban areas. Obviously, as soon as the decreasing returns set in, the problems of housing, sanitation, transport, power supply, communications, etc. become the immediate themes of metropolitan

¹⁶ Boudeville, J.R., *ibid.*, p. 379.

study groups. At the theoretical level the discussion centres around a centre-periphery relationship. A dualistic structure comprising of a 'centre' - or what François Perroux vividly calls as the 'growth poles' (poles de croissance) - and a 'periphery' has been interpreted at different levels.¹⁷

Thus it may be concluded that the availability and limitations of data dictate departure from ideal type of definitions in different situations. Meyer has commented that "homogeneity with respect to statistical compilations may often be the real determinant of regional boundaries for practical purposes."¹⁸

As noted in the beginning, it is now easy to see how the discussion of homogeneity implies a certain notion of an economic base. Meyer¹⁹ has explained how the attempts to improve the economic status of a region lead to estimate the extent of new export activities

¹⁷ Meir and Baldwin have visualized this relationship on a global scale. "Raul Prebisch of the United Nations Economic Commission for Latin America (ECLA) has used it as part of a fundamental explanation of Latin America's persisting economic backwardness compared with Western Europe and North America."

John Friedmann, "Regional Development Policy: A Case Study of Venezuela". The M.I.T. Press, p. 10.

Friedmann has briefly reviewed the various hypothesis advanced by Harvey S. Perloff and Lowdon Wingto, Jn. T.W.Schultz, Gunnar Myrdal, etc., pp. 10-12.

¹⁸ Meyer, John R., *ibid.*, p. 243.

which go to create a base for expansion in the general economy of the region under analysis. According to him, the 'economic base' is estimated with the help of an empirical multiplier which is historically determined by the export activity and total economic activity in the region. The usual procedure to assess the new export activities is to undertake a comparative study of interregional production cost comparisons with the help of 'comparative cost analysis'. Thus, one of the objectives of regional economic development is to bring about the changes in the relationship between export and import activities.²⁰

1.3 Homogeneity of the region under study

The preceding discussion may be supplemented by the discussion of the character of homogeneity of the region under study. The various aspects, such as geography, climate, soil, rainfall, caste and culture,

¹⁹ Meyer, John R., *ibid.*, p. 252.

Also refer to the notion of economic base in the discussion, by North, D.C., "Location and Regional Economic Growth", *Journal of Political Economy*, June 1955, 43, pp. 243-58.

²⁰ In the second chapter an attempt is made to view this relationship in a historical perspective. In the absence of data, the techniques such as 'multiplier' or 'comparative cost analysis' are not useful in the present study. Still a broad idea of an economic base of the region does emerge.

cropping pattern, administrative and revenue history, etc., all more or less indicate the homogeneity of the region.

The tribal tract under study has been always a historically distinct entity from the beginning of land revenue settlement in 1848. Mr. Arthur Crawford, the Commissioner, writes in his letter dated 6th Sept., 1887, "The great diversities in physical features, climate, rainfall, mode of agriculture and facilities of communication between the Dāng and the Desh²¹ portions of the taluka necessitated their treatment at the original settlement on an entirely different basis."²² It is notable that the British revenue authorities made a careful distinction between the two parts of the taluka, which are called the Desh and Dāng (or Dāngan). The early revenue records have elaborately commented on the variety of natural features of the taluka.

In 1888, Mr. Stewart, the Survey and Settlement Commissioner, writes: "It so happens that in Akola taluka

²¹ The Dāng and Desh parts of the taluka means the hilly and relatively flat countryside respectively. These local descriptions are from vernacular dialect.

²² "Papers relating to the Revision Survey Settlement of 102 Dangi villages of the Akola taluka of the Ahmednagar Collectorate." The Government Central Press, Bombay, 1888, p. 89.

This report is mentioned as "The Fletcher Report (1888).

there is a distinct division between, what are called the Deshi and Dangi villages. The deshi villages are those partaking more or less of the character of the inland plain villages having a moderate rainfall only and producing the better varieties of dry crops. The dangi villages, on the other hand, are those further on towards the ghats where the rainfall becomes heavy, where the dry crops are chiefly of the coarser variety produced in the konkan and rice becomes the staple product."²³

The Hay Report of 1916 has described the nature of desh part of the taluka and has commented on the similarities of conditions obtaining in the other parts of the district. He says: "The eastern side of the taluka, bordering on Sangamner (taluka) consists of fairly open dale land, formed by the widening out of the Pravara valley in the middle and of the Ardala valley in the north-east corner. It is broken in places by low ridges and ravines and hemmed in on the north, south and west by high hills, but open and flat to the east. In the south-east there is a narrower strip of flattish land in the Mula valley. These together form what is

²³ "Paper relating to the Revision of the Rates of Assessment on the Expiration of the First Settlement into the 50 villages of the Akola Taluka of the Ahmednagar Collectorate." The Government Central Press, Bombay, 1886, p. 55.

known as the 'desh' of Akola, where climate, crops and conditions are more or less like those of Sangamner (taluka) and the other Deccan talukas."²⁴

The preceding paragraphs explain vividly how the dang part of the taluka is distinct.²⁵

The original revenue settlement report -- The Tytler Report (1848) -- gives the description of the region. The Report begins with the title "Description of the 'Dang' or hill country", and it continues: "The Akola Dangs form a portion of the Sahyadri range and of the country known by the name of the Konkan ghat-matha or Konkan on the top, to distinguish it from the

²⁴ "Papers relating to the Revision Survey Settlement of the Akola Taluka of the Ahmednagar District".

Selections from the records of the Bombay Government No. CCCIV - New Series, 1916, p. 1. This report is referred to as the Hey Report (1916). p. 1.

²⁵ The Hey Report (1916) says:

"Originally the whole taluka is really one high plateau, lying above the crest of the western ghats. But it has so weathered and worn through the ages that it has become a welter of hills and dales, slopes steep and stony, or broad and rolling small high tablelands and deep low hollows, with only the great peaks like Kalsubai and Harischandragad, left to mark the original level."

"The taluka is surrounded from Igatpuri Taluka of Nasik District by a rugged range of hills, forming the highest crest of the Western Ghats and including the loftiest hill in the whole presidency, namely Kalsubai. This range is pierced by only a good pass, that at Bari, up which the road from Ghoti runs. On the south the scarp of the Sahyadris, frowned by the big peak of Harischandragad, sharply divides the Akola Dangs from the Thana (District) Konkan lying below" -- The Hey Report (1916), *ibid.*, p. 1, para 2.

Thal or Konkan below the ghats. The average breadth of the ghāt-mātha is 30 miles, extending from the summit of the ridge facing the Konkan to the Desh or the Deccan plains. The features of the ghāt-mātha, now commonly called the Dāng, in no way resemble those of the Desh or champaign country. Produce, customs, castes, climate, trades, pursuits, revenue-management, past and present, all differ more or less.²⁶

The Hey Report (1916) has noted the difference in the two parts of the taluka in respect of soil. The report says: "In the 'dang', the soil is what is known as 'mal', light-reddish brown or grey in shade, coarse, thin and gravelly. It is always poor and infertile and its comparative value depends more on the steepness or otherwise of the slopes, the natural drainage and its position in relation to the set of the monsoon winds and local rainfall, than on its own inherent qualities, which do not vary very much.

In the 'desh', the soil is for the most part darkish and moderately fertile. It varies a good deal in depth and hue, being thinner and lighter at the foot

²⁶ The Tytler Report of 1848, p. 59, para 2.

The report is reproduced in "Papers relating to the Revision Survey Settlement of 102 Dangli villages of the Akola Taluka of the Ahmednagar District". Selections from the records of the Bombay Government, No. CCXVI - New Series. 1888. This report is referred to as the Fletcher Report (1888).

and on the slopes of the surrounding hills, deeper and darker in the east and centre."²⁷

Thus, it is seen that from the beginning of revenue settlement the two parts of the taluka were treated separately for a number of reasons. Some of the natural differences relating to the topography and soil are noted here. The other differences such as climate, rainfall, etc., are emphasized in the early revenue history.

As regards castes and occupation, the region under study is characterized by tribal people, mainly Mahadev Kolis, and their exclusive source of income is agriculture. As against this, the other part of the taluka is inhabited by Marathas, relatively an advanced caste, and their sources of earnings are diverse on account of the cultivation of cash crops.

It is evident from the foregoing discussion that the region under study is homogeneous and, spatially, a distinct cultural, economic entity from the rest of the taluka or, for that matter, from the rest of the district also.

1.5 Regional Planning in India in the Rural Setting

In India, the first pioneering attempt at regional

27 The Hey Report (1916), *ibid.*, p. 2, para 6.

planning was made by the team led by Prof. D.R.Gadgil. The other studies²⁸ previously undertaken were essentially descriptive and historical, and inevitably often general in their interpretation, though it is to their credit that they focussed the importance of the local character of the problem set in the general background of an underdeveloped economy. The other systematic attempt is made by the National Council of Applied Economic Research.²⁹ This organization has surveyed the position of resources at the state levels. These survey monographs are again rather general in their very conception though, as first approximations, they are useful. These surveys are not particularly helpful in understanding the level of economic performance of a

²⁸ Choksi, R.D., "Economic Life in the Bombay Konkan, 1818-1939", Asia Publishing House, 1955.

"Economic and Social Survey of Mehsana District", Indian Society of Agricultural Economics, Bombay.

Gadgil, D.R., "Economic Effects of Irrigation", Gokhale Institute of Politics and Economics, Poona, 1948.

"Agro Industrial Balance (An Expository Survey of Sirur Taluka)" - A team of economists appointed by the Samaj Prabodhan Samstha, Popular Prakashan, Bombay, March, 1964.

Prasad, Kedarnath, "The Economics of a Backward Region in a Backward Economy : A Case Study of Bihar in relation to other states of India". Volume One. Scientific Book Agency, Calcutta 1, March, 1967.

Balakrishna, R., "Regional Planning in India", Bangalore Printing and Publishing Company, Ltd., Bangalore, 1948.

²⁹ There have been a number of Techno-Economic Surveys of different states conducted by the National Council of Applied Economic Research, New Delhi. These studies seek "to investigate into the technically and economically feasible resource-based and other development potentialities of a specific geographic region over a time perspective."

region. They do not explain the way in which a regional system operates and also thereby do not furnish any insight into the interacting mechanism of basic economic activities such as consumption, production and accumulation within a region.

What distinguishes Prof. Gadgil's attempt at regional planning from all these research monographs is the novel feature of involving the people themselves in the preparation of the plan for whom really the planning activity is undertaken.³⁰

Prof. Gadgil says: "The plan thus began to be shaped in light of the knowledge of basic physical and socio-economic conditions, the techniques of economic analysis of planning procedures and expressed preferences and values of the people consulted."³¹

³⁰ Prof. Gadgil says, "It may be claimed that what has been done so far, has been unique, in the sense, that such planning effort, essentially guided and carried out by local non-official effort and leading to the preparation of a complete plan, for a whole district has not been put through elsewhere. The extent of consultation and thinking and the volume of documentation in the process has also been highly exceptional. More important than this is the fact that the plan incorporates a large number of ideas and suggests experimentation in a number of directions which have very considerable potential for the future of planning in India."

"An important feature.... in the process was that of active consultation with the people. This decision to attempt to concretise the notion of "planning from the bottom" in this experiment added an entirely new dimension to the proceedings."

"Wardha Plan - A Commentary" (Mimeographed paper) dated 30-11-1965, Gokhale Institute of Politics and Economics, Poona 4, p. 1.

³¹ *ibid.*

Prof. Gadgil has made a summary statement of the objectives of the Wardha Plan.³² According to him there were at least three main objectives (1) to test the possibility of planning from the bottom; also to rouse and maintain full interest and co-operation of the people at various levels in the formulation, implementation and continuous adjustment of the plan; (2) to attain the objective of Antyodaya which meant paying special regard to development of backward areas and classes, and to provide more adequate employment universally; (3) to make the whole process of planning and its implementation both more realistic and fruitful.

The other novel feature of Prof. Gadgil's work in the field of regional planning is his attempt to specify "the problem of chronological sequence and of synchronisation"³³ of the constituent parts of the

³² *ibid.*, p. 4.

³³ A certain approach regarding preparation of the plan is indicated. "First place was accorded to the physico-geographic structure which might attentively be called the frame-work of the socio-economic overheads. It touched vital local interest..

A road system is based on and connects together centres and nuclei. Certain centres are naturally or historically indicated, in others choice or selection may be possible.. Closely connected with this predominantly communications - services plan is the plan of conservation and development of resources. Because of the long and continued neglect in this country, of soil, water, pasture, forest etc., resources problems of conservation are at the centre of development effort, and scientific conservation is a preliminary to it. The sizes of the two programmes are related to previous neglect of resources and of provision of facilities. The plan for increase in production and in efficiency, in particular activity follows next, the two main parts of this being agriculture and industry."

ibid., pp. 9-10.

Plan "that could act as integrative elements."³⁴ He has discussed five essential aspects of the planning process while "taking a pre-view of the projected route of development." These are: (1) the plan of socio-economic overheads, (2) the plan of conservation and development of natural resources, (3) the plan of development of production activity -- in particular agriculture and industry, (4) the employment plan, and (5) the organizational plan.³⁵

The planning procedure indicated by Prof. Gadgil involves a certain possibility of "resort to all-inclusiveness and conflicting claims" in the absence of a definite system and sequence of priorities.³⁶ And he has suggested:

"At this stage, limit must be placed on the independent judgement in each local area in such matters.

³⁴ Gadgil, D.R., "Notes on the Present Position Regarding the Wardha Plan", Mimeographed paper dated October 1964, p. 5.

³⁵ *ibid.*, p. 1.

³⁶ "However, without explicit limit (financial) made clear to the relevant authorities or committees, the operations of the Zilla Parishad necessarily led to solution of conflicting claims by resort to all-inclusiveness. Also, whereas in the earlier version, the plan had been given an emphasis and a structure by reference to certain priorities as that of creating the framework of the communications and the assistance system and emphasizing productive investment and experimentation, the Zilla Parishad operating through the various subject committees necessarily produced a plan with an almost equal and immediate emphasis on operations in all directions." - Gadgil, D.R., "The Wardha Plan", p. 13.

There has to be an accepted framework of overall national objectives and a certain broad valuation must inform all district plans. The overall financial limit is of course another general limitation which will necessarily be externally imposed on district plans. It is necessary that all planning at the district level be undertaken from the beginning within a broad limit and a general framework. Being forced to build their structure within certain constraints, it will compel district planners to make a number of meaningful choices"³⁷

It is of interest to note how a regional development policy is viewed in the national context. It is generally believed that the regional policy is basically visualized to interpret national development in regional terms so as to attain a continuous state of economic and social equilibrium within the country.³⁸ The regional projects cannot be considered as a bureaucratic routine work.³⁹ Also the national policy phased

³⁷ Gadgil, D.R., "The Wardha Plan", p. 14.

³⁸ Nino Novacco in "Discussion Paper" in Isard and Cumberland, ed. "Regional Economic Planning : Techniques of Analysis", Paris, 1960, p. 404.

³⁹ Prof. Gadgil has commented critically on the present method of planning in India.

into certain sectors such as income, employment, foreign trade and the balance of payments, etc., may not logically work out in the absence of a detailed consideration of means and regional context of resource mobilization.⁴⁰ The drafting and execution of investment plans for a given region, to meet the specific demands backed by local pressures do not constitute a regional policy. Development in one place implies a certain coordination of local projects in the regional and national context. Ernest Weissmann⁴¹ says that "a regional plan permits

"Current practice in relation to preparation of plans of development for States and districts appears to take it for granted that the framework of a plan is established at the national level and that at the State, district or regional level plans are, in the main, made by putting together schemes of work or operations of individual departments. A district plan thus becomes a summation of lists of departmental schemes. In my opinion a district plan must be considered as an integrated whole which is thought out in its entirety, for objectives accepted at the national or state level will powerfully influence the structure of a district plan. This would not, however, obviate the need for the construction of a district plan as such." Gadgil, D.R., "Supplementary Note to the Notes on the Present Position of Wardha Plan". (mimeographed paper), Gokhale Institute of Politics and Economics, Poona 4, p. 1.

In other context, Prof. Gadgil comments, "In all regions and districts of India, Development Plans operate in the form of a series of specific schemes of different departments of state. There is no evidence of the various specific schemes being coordinated at the local level and no criteria are laid down for gauging their success." Gadgil, D.R., "Wardha District Development Plan - Objectives, Nature and the System of Implementation". Mimeographed paper dated 1-12-1965, Gokhale Institute of Politics and Economics, Poona 4, p. 1.

⁴⁰ Nino Novacco, op.cit., p. 400.

more easily an identification of national goals in terms of local action. In other words, it offers a suitable framework within which development projects of national as well as of local significance can find their proper place. It therefore also provides an opportunity to mobilize through local community development movements the human resources of an area within the scope of national development goals."

It is not clear, it must be admitted, from these extensive notes, how, unless a system of social accounts even a preliminary approximation of it, is constructed at the regional level, any plan making is operational and realistic. Of course, it may be conceded that, at a number of places, Prof. Gadgil admits that "a reference would have to be made in addition to a number of calculations of availabilities and balance.⁴² As has been

⁴¹ Ernest Weissman, "Place of environmental planning in development programmes" International Seminar on Regional Planning and Development, held at the Hague. July, 1957, p. 121.

⁴² Gadgil, D.R., "The Wardha Plan", p. 11.

In another context, Prof. Gadgil has referred to "Area programming" when he discusses the concept of Mandi centre. This notion is similar to the concept of 'nodal region' or 'growth poles' to be developed as a part of development process itself. Prof. Gadgil has nowhere elaborated this notion in any details. Later on, this notion of market towns or mandi centre has been reviewed while tracing the history of Rajur village, a long standing traditional market of the region under study, in the fourth chapter.

admitted by him, "It cannot be claimed that in the building up of the Wardha Plan much attention could be paid to consideration of material availabilities and balances. A number of possibilities of this type were thought of, but there was not sufficient time to undertake any detailed calculations. The point is noted here in order to emphasize the need for making good the deficiency as early as possible." It is evident from these general admissions that Prof. Gadgil was quite aware of the necessity of building up the regional social accounts.

Prof. Gadgil is also appreciative of the basic idea of the regional social accounting system originally theorized by Richard Stone. Stone's regional accounting framework indicates broadly the capacity of each region to invest and develop from its own resources. Prof. Gadgil has this idea in mind when he says: "An implicit assumption was that development was to be largely based on availability of internal resources. Among objectives one was to spread the developmental process, as far as possible, over the entire area of the district."⁴³ At another stage he has concluded:

⁴³ Gadgil, D.R., "Supplementary Note on the Notes on the Present Position of Wardha Plan". Gokhale Institute of Politics and Economics, Poona 4, p. 1.

"Finally, though a development plan will be put together in stages, the inter-relationship and the complementarity between its various parts will have to be under constant examination in order to maintain internal consistency and order. Whether the schemes in the development plan will prove operational with respect to the different aspects of the programme or not has to be examined in detail. So also the production, demand, and the supply of particular commodities will have to be estimated and checked in the aggregate."⁴⁴

Prof. Gadgil has emphasised "the fundamental importance of fairly intensive local surveys, as preliminary to plan-making."⁴⁵ He has noted two features of such surveys. According to him, the survey brought to notice a number of highly local but crucial problems, and, secondly, the district survey defined dimensions and brought out a number of quantitative relations which proved fundamental in detailed plan-making.⁴⁶

The importance of local surveys is something that may be readily conceded, since it is helpful to any authority even in the absence of regional planning.

⁴⁴ Gadgil, D.R., "Wardha District Development Plan-Objectives, Nature and the System of Implementation". (Mimeographed paper dated 1-12-1965). Gokhale Institute of Politics and Economics, Poona 4, p. 6.

⁴⁵ *ibid.*, p. 3.

⁴⁶ *ibid.*, p. 3.

What is really not obvious is that, even if problems are identified and their dimensions defined -- though admittedly it is a justified departure from the routine departmental planning⁴⁷ -- how it is possible to assess statistically what the region as a viable economic entity can do on its own to develop the local sources? The available literature on the Wardha Plan does not explain this in terms of the social accounting system at the regional level. The importance and limitations of the Wardha Plan are discussed here in details, in order to review the background of regional planning and explain the context of the present study.

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Prof. Gadgil has commented critically on the present arrangements for the formulation and implementation of plans.

"Indian Planning, as it has evolved during the last fourteen years, is perhaps the most centralised system of planning in the world. It is also, perhaps, the most highly officialised... Non-official experts or leaders are consulted to some extent only by the Planning Commission at the centre. No mechanism through which this may be done exists in the States, at least in most of them. ... Planning at the State level is thus highly officialised and is essentially a secretariat affair. Moreover, the evolution of financial arrangements in relation to plan schemes and projects during the last decade have induced a bias in all secretariat to build up state plans in terms of standard central schemes. The Fourth Five Year Plan has consequently to be oriented specifically towards study of problems of each region and local area and devoting large resources towards solving them.... The overall national efforts in the field of basic industries and national systems of transport, power, etc. will have to be meaningfully related to the plans of area and regional developments."

Prof. D.R.Gadgil, "Notes on Approach to the formulation of the Fourth Five Year Plan" (mimeographed paper), Gokhale Institute of Politics and Economics, Poona 4, 1964, p. 2.

1.4 Description of the region

The general picture of the region is presented here to facilitate the background understanding of the region under study.⁴⁸ The region comprises of 87 villages that form the hilly part of the Akola taluka from the Ahmednagar district. As stated earlier, the two parts of the taluka, one hilly and the other relatively flat have nothing in common in so far as terrain, soil, climate, rainfall and cropping pattern, castes and the ethnic background of the people inhabiting them, etc. are concerned. The hilly part situated in the west locally known as the 'dang', grows rice, ragi in the main, whereas the plains, in^{the} east, locally known as the 'desh', grows bajra and groundnut as kharif crops, and wheat, jowar and gram as rabi crops. The population of the region, about fifty-four thousands, is tribal and the majority is of Mahadeo Kolis. The other tribes are Thakars and Kanadi Talwars.

The hilly, tribal part of the taluka was under the jurisdiction of Sarvodaya scheme. This scheme was in operation as a semi-official autonomous development

⁴⁸ Here the minimum technical details such as topography, location, rainfall are noted. The other data on economic resources such as cropping pattern, livestock, etc. are presented in the subsequent chapters in the course of relevant discussion.

agency from 1950 to 1966, a period of three five year plans, in place of routine community development blocks. The choice of region has been primarily given on account of this facility of administrative set up in charge of the local development programmes.

The Ahmednagar district is situated in the central part of Maharashtra between $18^{\circ}2'$ and $19^{\circ}9'$ N. latitude, $73^{\circ}9'$ and $75^{\circ}5'$ E. longitude. It covers an area of about 6472 sq. miles. The district is bounded on the south by Sholapur district, on the south-west by Poona district, on the west by Thana district,⁴⁹ on the north by Nasik district, on the east by Bhir district and on the south-east by Osmanabad district. The Ahmednagar district consists of twelve talukas and one Mahal, and is grouped in four revenue sub-divisions. Akola taluka is included in Sangamner sub-division.

The Sahyadri mountain range lies on the western

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Bombay Gazetteer, Deccan contains a description about the western boundary of the taluka:

"The Sahyadri mountains form, for a distance of about twenty five miles, a continuous natural boundary between the Ahmednagar and Thana districts. When viewed from the west or low level of the Konkan, the appearance of this range is that of a mighty wall of rock 2000 to 3000 feet high, of dark hue, relieved by narrow horizontal belts of grass and evergreen forest, surmounted by isolated peaks and rocky bluffs rising in many places to a further height of 1000 to 1500 feet.

The Bombay Gazetteer, Deccan, Volume XVII, Ahmednagar, 1884, p. 3.

side of the district. Along these ranges, Akola taluka is situated. The Fletcher Report⁵⁰ (1888) has described the features and position of the region:

"The tract of country comprised in the villages under report is irregular in shape, its southern border along which is its greatest length, is marked for some 18 miles by the edge of the ghats overlooking the Thana district and then for about an equal distance the spur of hills, which begin from old mountain fastness of Harischandragad and run eastwards along the border of the Nagar and Poona collectorates; to the west and north the boundary is also formed by a range of hills or rather a precipitous descent, beneath which lies the Igatpuri taluka of Nasik, to the west are the deshi villages of this same taluka which were brought under revision settlement last year. In general aspects the country is bleak and bare, but so broken up by valleys and ravines and hills that one loses sight of the fact that it forms one lofty plateau and with difficulty recognises its main features."

The Tytler Report⁵¹ (1848) has described the Akola Taluka as: ~~under~~:

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The Fletcher Report (1888), p. 4.

⁵¹

The Tytler Report (1848), p. 62.

"The hill district under report forms the most western position of the Ahmednagar division; it is composed of ghats, hills, ravines and nallas; level land is rare, it contains the two highest mountains in the Deccan, Kalsai and Harischandragad. The soil is poor, rain is plentiful, torrents numerous and destructive, so much so, that jirait land is frequently embanked like rice land to prevent the soil being washed away."

The Stewart Report⁵² (1886) has emphasized the two rivers that originate in the Akola taluka:

"Situated in the upper valleys of the Pravara and Mula (rivers), and bounded by the ghat crest to the westward, the Akola taluka forms the north-western extremity of the Ahmednagar district and comprises both Deshi and Dangi country. The latter or hilly portion includes about two thirds of the total area and lies towards the western and southern borders."

In the Ahmednagar district, rainfall pattern is uneven. The average rainfall in the western part of the Akola taluka, around Bhandardara lake, is about 200 inches, whereas at the taluka place, which is about 28 miles away from the Sahyadri ranges, ^{it} is about 22

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The Stewart Report (1886), p. 4.

inches.⁵³ The major part of precipitation in this region is experienced during monsoon, spread over from early June to the end of September. The season usually closes with some heavy showers in November and December. The Ahmednagar District Statistical Handbook has given the average rainfall for the district as 26 inches in the last 25 years. It continues: "The western part of Akola taluka has the highest annual rainfall and this goes on slowly decreasing to eastward. The average rainfall for Akola taluka during the last decade was 23 inches."⁵⁴

In the region under study irrigation facilities are almost nil as compared to the northern part of the

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The indication of rainfall pattern at the end of last century may be obtained from the Fletcher Report (1888):

"The climate is on the whole much moister than that of the villages immediately to the east which lies on the crest of the ghats and I am inclined to think, must now have a less heavy rainfall than when the original settlement (in 1848) was introduced. From the Tytler's description of the country it would appear at that time to have been clothed with forest and scrub jungle; it is now quite bare except for the few forest reserves and such a change can hardly have been unaccompanied by a decrease in the rainfall. There is no place in the tract where a rain-gauge is kept, but at Akola. The average fall for the last ten years has been 22.8 (inches), while at Igatpuri, which adjoins on the west, the average for the same period has been 131.6 inches. It is probable that the valley of the Mula (river), which is narrower and walled in with loftier hills than the others has a heavier rainfall than the rest of the taluka." - The Fletcher Report (1888), *ibid.*, para 18, p.4.

Contd./

district which is characterized by good canal irrigation and cash crops such as sugarcane and cotton. The Hey Report⁵⁵ (1916) has commented on the state of irrigation in this district and this comment is still relevant to this day. The report says:

"The big dam building at Bhandardara and the new 'Lake Arthur Hill' which will be formed above it will have no effect on this taluka. The lake will serve purely as storage for water which will be let down the Pravara as wanted in the dry season to keep up the water supply in the irrigation canals in Sangamner and beyond upto Nevasa for whose sole benefit it is being built.

Its only effect in Akola will be to put under water all the best low lying land of nine villages and to submerge the road running from Bhandardara through Samrad to Ghatghar."

Out of a total area of about 42 lakhs of acres of land in the district, an area of about 5 lakhs of acres is covered by forest. Of this, about one lakh of acres, which comes to twenty percent, is in the Akola taluka, and nearly seventy thousand acres of forest is covered by the group of tribal villages under study.

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"The District Statistical Handbook Ahmednagar" Census of India, 1961, The Maharashtra Census Office, Bombay, 1964, p. 2.

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The Hey Report (1916), *ibid.*, para 21, p. 7.

The total area is nearly 1,94,000 acres. Approximately each one third of land is under cultivation, fallows, and forest. The total revenue received by the government is about fifty-five thousand rupees. Thus on an average per person tax on land comes to nearly a rupee per annum.

Concept and Definition of Region

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CHAPTER II

PERSPECTIVE VIEW OF CONSUMPTION
AND CROPPING PATTERN--
AN ANALYSIS OF SECULAR TRENDS

2.1 Introduction

In the present chapter, a historical view of the region under study is attempted. In the main, emphasis is placed on tracing the changes that have come about in cropping pattern and consumption pattern; in other words, trends in real income have been investigated.

The principal sources of information are the periodic "Revenue Survey Settlement Reports"¹ from 1848 onwards. From these reports, the data on cropping pattern, prices and wages, population, consumption and finally trade have been examined and compared with the survey data which pertain to the year from November 1963 to October 1964. It has not been always possible to locate the information in statistical form and on many

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(1) "Papers Relating to the Revision Survey Settlement of 102 Dangi Villages of the Akola Taluka of the Ahmednagar Collectorate". Selections from the records of the Bombay Government, No. CCXVI-New Series, 1887-88, submitted by Mr. W.M.Fletcher, Superintendent, Poona and Nasik and Southern Maratha Country Revenue Surveys. This report has been referred to as the Fletcher Report (1888).

(2) The earlier report by Mr. Fraser-Tytler on the First Survey and Settlement of the Akola Dangs, 1848, has been reproduced in the Fletcher Report (1888) on page 58 onwards. This report has been referred to as the Tytler Report (1848).

(3) "Second Revision Settlement of the Akola Taluka of the Ahmednagar District", submitted by Mr. N.H. Hey, Assistant Settlement Officer, Western Talukas, Ahmednagar, on 19th May 1916. This report has been referred to as the Hey Report (1916).

occasions, the descriptive comments, particularly in the sphere of consumption and trade, are the only material that is available. But since the principal interest being centred around in evolving a perspective view of the region, particularly in consumption and generally, in the overall direction of change of an economic region, the descriptive comments obtained from these government records appear fairly useful.

2.2 Changes in Cropping Pattern

A detailed cropwise account of the area under cultivation is reproduced in Table 2.1. It may be noted here that a detailed comparison is not always possible, in the absence of very reliable and comprehensive data. Particularly during the initial years of land revenue settlement the land under cultivation was continuously extended in the interior of this tract which is, even today, characterized by heavy rainfall and lack of communications and transport and above all, the hilly terrain. Apart from these early difficulties of clearing up the land suitable for cultivation and habitat, the Fraser-Tytler Report (1848) takes note of these initial hurdles, in details, namely the inexact nature of measurement of the land and the inadequate administrative machinery to assess and collect the land revenue.

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TABLE 2.1 : CHANGES IN CROPPING PATTERN

Crop	Fletcher ² Report 1887-88 (Acres)	Hey ³ Report 1915-16 (Acres)	Present ⁴ Study 1963-64 (Acres)
<u>CEREALS</u>			
1. Ragi	21,867	18,733	17,662
2. Bajra	16805	11,527	3,900
3. Rice	5,087	12,938	17,640
4. Sava	8,619		4,152
5. Bhadli	2,306		
6. Jowar	367		595
7. Wheat	1,421	2,320	3,643
<u>PULSES</u>			
8. Udid	1,297		1,668
9. Kulith	761		5,054
10. Toor	370		79
11. Matki	128		
12. Moog	92		36
13. Gram	1,678	2,799	2,144
<u>OIL SEEDS</u>			
14. Khorasuni	20,354	13,775	5,864
15. Kardai (Safflower)	907		
16. Miscellaneous			962
		Varai	2,777]new
		Ground nut	2,930]crops

1 Data on acreage are presented here with necessary adjustments. The original tables are presented in Appendix with a comment on certain obvious inconsistencies in the original records.

2 The Fletcher Report (1916), *ibid.*, p. 15.]Statistics

3 The Hey Report (1916), *ibid.*, p. 4.]for 102 villages

4 1963-64 survey covered 87 villages.

Added to all this is the fact that the period of revenue settlement being approximately of thirty to forty years, the statistical discrepancies at the beginning and end of the period appear again. But to a considerable extent, all this data on cropping pattern facilitates a broad comparison of important changes in respect of prominent crops, during last hundred years or so, and thus it serves the analytical purpose.²

The area under rice has registered an increase from about 5000 acres in 1888 to about 18,000 acres in 1963-64. The rise in acreage has been nearly three and half times in a period of seventy-five years. Whereas the increase in area under rice is from 13,000 acres in 1916 to 18,000 acres in 1963-64, a rise of 5,000 acres in a period of about fifty years. The Fraser-Tytler Report (1848) gives the area under rice as nearly 3,500 acres. This works out to be a five-fold rise in area during a period of about hundred and twenty years.

Thus, it is evident that during the first half of

² Most of the data from these records are related to a group of 102 Dangi villages, and out of these, 87 villages are the subject matter of present study. It is possible that in those days these 102 villages were all tribal communities and later, on account of regrouping of population, changes and movements, this number may have come down. Wherever possible, the data for 85 villages, have been separately dealt with. But this was not always possible. The coverage of data being different, no comparison of gross cropped areas is attempted. The attempt essentially is to correlate the broad movements in cropping pattern rather than any precise evaluation of the different rates of change.

the twentieth century, there was a rise in acreage of about one thousand acres every decade; whereas during 1888 to 1916, a period of about thirty years, the rise was of the order of twenty five hundred acres per decade. Again, preceding this period, an extension of rice cultivation seems to be rather slow as compared to the later movements.

The area under ragi crop has declined continuously, though slowly, from 22,000 acres in 1888 to 19,000 acres in 1916 and still further, to 18,000 acres in 1963-64. The area figure prior to 1888 is not available though the prominent position of ragi as a staple cereal is commented upon frequently in the revenue settlement records. This matter is further dealt with later.

Thus, the area under ragi declined ^{by} nearly three thousand acres in a period of about thirty years from 1888 onwards, whereas it declined by hardly one thousand acres during a period of about fifty years from 1916 onwards. The average area under ragi seems to have stabilized around 18,000 acres in the last fifty years, though it is precisely during this period that acreage under rice rose by about one thousand acres every ten years. Of course, considering the pronounced increase with respect to land under rice, the falling trend in the case of land under ragi is certainly slow.

The area under bajra has gone down from 17,000 acres in 1888 to 12,000 acres in 1916 and still further, to 4,000 acres in 1963-64. In other words, this means that during the first thirty years from 1888 onwards, the area was reduced by about five thousand acres and during the subsequent fifty years, it was reduced by eight thousand acres. Thus, broadly speaking, the total area under bajra was progressively diverted to other crops at an uniform rate of about sixteen hundred acres every decade.

Of all cereals that are grown in this region, only in respect of rice and bajra the movements in land under these respective crops have been comparable. As noted earlier, the area under rice rose from 5,000 acres to 18,000 acres in a period of about eighty years, whereas during the same period, the area under bajra declined from 17,000 acres to 4,000 acres. The absolute difference of thirteen thousand acres, of course, overlooks the fact that these rates of change in opposite direction were different during two survey settlement periods. Also a note of caution may be added here. The comparable differences in respect of land under rice and bajra cannot be overworked for two reasons. The rainfall requirements of these two crops are different. And to this extent there is an inherent limitation to the possibility

of substitution of bajra by rice. Also, the area statistics reproduced from revenue settlement records cover a group of 102 villages, described as 'Dangi villages' as distinct from 'Desh villages' of Akola taluka. It is seen that the tribal tract of 87 villages covered in 1963-64 survey is the bulk part of these 102 Dangi villages. It is possible that the fifteen villages not covered in the present study, and situated all along on the border from North to South, where the basic differences in the two tracts which together constitute the Akola taluka start becoming visible, are not all populated by tribal people. And in the matter of rainfall, these border villages are notably different from what may be called as the rice culture of 87 villages under study. Naturally, the differences in area under rice and bajra have to be interpreted with sufficient caution.

The area under sava declined from nearly 9,000 acres in 1888 to 4,000 acres in 1963-64. Thus, approximately six hundred acres of land were diverted to other crops every decade. It is found in the seventh chapter in the econometric exercise that in some parts, the consumption of sava is replaced by other cereals at higher levels of income. This phenomenon usually known as 'Giffen paradox' may be useful in explaining that there

is a certain likelihood of demand for sava being substituted by that for other cereals, with an overall improvement in income position of the region. Consequently, the area under sava may be progressively diverted to other crops.

The area under wheat has increased two-fold, whereas it has increased marginally in the case of gram. Amongst pulses, the area under kulith, has increased by nearly eight times, to 5,000 acres in 1963-64. The other minor pulses have not shown any change in either direction.

The case of oil seeds is different. The area under niger oilseeds has declined from 21,000 acres in 1888 to 14,000 acres in 1916 and still more, to 6,000 acres in 1963-64. The rate of decline has been around twenty-three hundred acres every decade for a period of thirty years from 1888 onwards. And then for subsequent half a century, at a rate of about one thousand acres every decade. This sharp decline during these two periods of land revenue settlement is inversely comparable to that of rice.

The area under safflower, which stood at one thousand acres, is totally replaced by a new crop, groundnut, introduced after 1916. This crop occupies as much as three thousand acres at present. And by all indications, including the common belief of local people, it is on the

increase continuously.³

It is noticeable that along with groundnut, varai is also a newly introduced crop which occupies as much as three thousand acres. It may be necessary to qualify the earlier conclusion in respect of sava to the effect that sava and varai together occupy as much as seven thousand acres as against nine thousand acres under sava alone in 1888.

Still, the total area under oilseeds crops has declined from 21,500 acres in 1888 to 9,000 acres in 1963-64 -- a difference of about 12,500 acres in a period of seventy five years. Approximately, the rate of decline was a little less than two thousand acres every decade.

Generally speaking, the kharif crops have shown considerable changes both ways, whereas rabi crops have registered, comparatively, less variation, though of course, the percentage increase has been impressive. Over a period of seventy-five years, the area under second crop, wheat and gram put together, increased from

³ On account of the time lag involved in taking note of changes in the cropping pattern by existing governmental machinery that deals in land records, the area under groundnut may have been underestimated. This discrepancy is much more obvious in the case of a recently introduced crop, like tomato, which is exported on a considerable scale. This is discussed in a later chapter.

3,000 acres to 6,000 acres. This region, under the spell of heavy rainfall, still does not seem to ensure the possibilities of winter-rabi-crop on a significant scale. Amongst pulses, excepting kulith, all other pulses have shown little improvement in area. In fact, the area under gram, seems to have decreased after 1916. As mentioned earlier, groundnut, varai and tomato seem to be, comparatively, lately introduced crops.

It is analytically helpful to see the changes in areas under different crops, separately for cereals and oilseeds, or rather for food and non-food crops. The changes are discussed in broad terms. Table 2.2 presents these details.

Amongst cereals, including pulses also, the crops that have registered increase in area are rice, wheat, varai, kulith and gram. The net increase in area under these crops comes to about 23,000 acres in a period of seventy-five years. As against this, the crops that have registered decline are ragi, bajra and sava and the extent of decline comes to about 21,000 acres in the corresponding period. The obvious conclusion seems to be that over this period of three quarters of a century, the area under cereals, including pulses, increased definitely by a net margin of two thousand acres. The rise in acreage under food crops, in fact, must be much more since, as

TABLE 2.2 : CHANGES IN AREA UNDER DIFFERENT CROPS DURING
1887-88 TO 1963-64

Area increase		Area decrease	
Rice	13000 acres	Ragi	4000 acres
Wheat	2000 "	Bajra	13000 "
Kulith	4000 "	Sava	4000 "
Gram	1000 "		
Varai	3000 "	Total food crops decreased by	21000 "
Total food crops	23000 "	Non-food crop, Niger seed	15000 "
Non-food crop, Groundnut	3000 "		
Total increase	26000 "	Total decrease	36000 "

NOTE

In this cropping pattern, wheat and gram are the only Rabi crops, all others are Kharif crops taken during monsoon. Henceforth, this distinction in Kharif and Rabi crops has been maintained.

noted earlier, the acreage under bajra, a crop in whose case the pronounced fall has been matched by the rise in rice area, belongs to such border cases of villages which are excluded from the tribal tract under consideration here. Thus, the net rise in area under food crops,

in so far as tribal village community or the rice-culture of 87 villages, is concerned, the decrease in area under bajra is only a partial explanation of increased area under rice. The substitution of land to food crops must have come from that of non-food crops.

It is already noted that the total area under oil seeds decreased by as much as about 13,000 acres. It is conceivable that with an improvement in soil productivity⁴ and dry land farming methods the diversion of land not only from ragi and bajra but also from niger oilseeds to rice became possible on an increasing scale. In discussions with local people during the course of data collection an interesting point emerged. The possibility of imprecise measurement of land under different crops is already mentioned. It seems that it is much more possible with respect to land under Niger seeds since more often than not, this crop is grown as a hedge to protect the crops, usually cereals.

It is quite possible that under such circumstances, the records related to niger seeds are inexact. Also, on

⁴ Soil productivity is understood in a general way and it covers soil characteristics such as topography, texture, climatic suitability, salinity, stoniness and tendency to erode. Obviously, in the absence of such technical data, no definite statement can be made about what must have happened during such a long period. Only a tentative hypothesis can be advanced in the light of other evidence.

account of climatic conditions and banded slopes, usually, wherever possible, rice receives preference over all other crops. Naturally, on account of superior productivity of soil, the per acre yield of rice is higher. Thus, if the hypothesis that over a long period, there came about a secular growth in the productivity of land, is accepted, then progressive diversion of land to rice crop may be explained. It is necessary, thus, at this stage to trace the trends in regard to other variables such as population, prices, per acre productivity, consumption and trade. This would, indirectly, indicate the secular trends in income position of the region.

2.3 Population

The details of population at different times are somewhat incomplete on account of changes in the procedure of revenue settlement and thus these comparisons have a certain limited view. Also, the details are, usually, available for a group of 102 Dangri villages, but wherever possible, the statistics for 87 tribal villages under study are separately presented. It has been possible to extract information about the 85 tribal villages in four groups which are more or less natural divisions of the region.

(1) Rajur : Since Rajur village has been a market

centre of the region, it has been treated as an independent unit. A separate discussion of this market place will be found in the fourth chapter.

(2) Pravara valley wherein about 21 villages are situated.

(3) Mula valley wherein about 37 villages belonging to Mula valley are situated.

(4) There are 26 villages situated around the origin of two important rivers, Pravara and Mula at the foothills of the Harischandragad and around the Bhandar-dara lake.

The rest of the 17 villages do not belong to any of these subregions which go to constitute the theme of the present study. Thus, it is possible to make broad comparisons.

Table 2.3 shows varying rates of growth of population in 85 villages during 1848 to 1888, a period of 40 years. The minimum percentage increase^{of} 39% in the case of Rajur village shows that population hardly increased by one per cent a year. This may be on account of out-migration from Rajur. The maximum percentage increase^{of} about 94% in the case of interior villages shows that probably during this period a large scale movement of population in the interior of the region took place. Again, it may be noted that percentage increase is hardly

TABLE 2.3 : REGIONWISE POPULATION DURING 1848 TO 1888

	1848	1888	In-crease	Percent- age in- crease in popu- lation	Occupied area per head (acres)
(1) Rajur	1623	2262	639	39.40	1.2
(2) 21 villages (Pravara)	4336	7369	3033	70.00	3.8
(3) 37 villages (Mula)	8137	13221	5084	62.50	4.7
(4) 26 villages (Around Bhandar- dara and Harishchandragad)	3558	6886	3328	93.50	2.9
Total of 85 villages	17654	29738	12084	68.45	
Remaining 17 villages	6233	6667	434	6.96	
Total population of 102 Dangi villages	23887	36405	12518	52.41	

Source: The Fletcher Report (1888), p. 7.

7% in the case of 17 villages which are on the border of Dang and Desh parts of the taluka. A certain shift of population of these border villages into interior is probable.

Table 2.4 indicates that the percentage increase in female population was greater by as much as ten percent

TABLE 2.4 : DETAILS OF POPULATION OF 102 DANGI VILLAGES
DURING THE PERIOD 1848-1888

Population	Tytler Report (1848)	Fletcher Report (1888)	Increase in popula- tion	Percentage increase in popula- tion
1. Males	12,689	18,759	6,070	47.84
2. Females	11,198	17,646	6,448	57.58
3. Total	23,887	36,405	12,518	52.41

Source: The Fletcher Report (1888), p. 17.

than that of male population. Also, the male population was in excess of female population at both ends, though over the years, the difference was decreasing from 1,491 in 1848 to 1,113 in 1888. This trend seems to have continued and imbalance in other direction has come about even as early as 1916 when the female population of Mahadeo Kolis was slightly in excess of that of male population (Please refer to Table 2.5). And according to 1951 census, the excess of females over males was of the order of 342 and this difference increased further in 1961 and was of the order of 1,167, for the entire taluka.

According to 1961 census results, the population

TABLE 2.5 : DETAILS OF POPULATION OF AKOLA TALUKA (156 VILLAGES)

Population	According to Imperial Census	Percentage Literacy	Mahadeo Kolis	Percentage increase	Thakur	Percentage increase	Total increase	Percentage
1. Males	37,799	4.1	14,075	37.24	2,946	7.79	17,021	45.03
2. Females	38,150	0.2	14,180	37.17	2,901	7.60	17,081	44.77
3. Total Population	75,949	2.2	28,255	37.20	5,847	7.70	34,102	44.90

Source: The Hey Report (1916), p. 35.

of 87 villages was about 54,000, which means that over hundred years, i.e. from 1848 to 1961, the population rise was as much as three times. Whereas, from 1888 to 1961, a period of about seventy-five years, the net increase was of the order of 24,000 or about 180%. From Hey's Report (1916) the population data for tribal tract of Akola taluka are not available, but from Table 2.5, the 45% population of Kolis and Thakurs, may be taken as the population of tribal tract under study. This comes to about 34,000 out of the total population of 76,000 for the entire taluka. Thus between 1911 and 1961, there was a net increase of about 20,000 in the population. This works out to be a rise of 150% in a period of fifty years. Thus, on an average, there was an overall three per cent increase in population. Only between 1848 and 1888, in a period of 40 years, there was a rise of 69%, which is somewhat less than two per cent per annum.

TABLE 2.6 : POPULATION OF AKOLA TALUKA (CONSISTING OF 156 VILLAGES)

S.No.	Year	Total Population
1	1881	60,800
2	1891	68,009
3	1901	70,566
4	1911	75,949

Source: The Hey Report (1916), p. 9.

2.4 Prices and Wages

The prices of some of the important crops have been reproduced in Table 2.7. For some crops, like jowar, varai and niger oil seed, prices are not available in a continuous series. The range of price rise has been significant and on this score, the amount of produce in seers of 80 tolas⁵ per rupee has been reproduced in Table 2.8-as the original price data had been presented in such a form - instead of presenting this data in terms of price per seer. This procedure brings out vividly the differences in prices in initial years.

Table 2.9 shows that upto 1915, in a period of about 75 years, the price index of ragi rose by three and half times and almost to the same extent as that of wheat. The price index of rice rose three times. In other words, Table 2.8 shows that during this period of about 75 years, the price of ragi rose four-fold, i.e. from 58 seers per rupee in 1838-39 to 1847-48 to 14 seers per rupee in 1914-15; the price of rice rose from 20 seers to 7 seers per rupee during this corresponding period. The range of price rise in the case of jowar between 1838-39 to 1885-86 was from 50 seers per rupee to 22 seers per rupee. Relatively the price of niger oil seed showed less variation, i.e. from 1885-86 to

5 One seer is equivalent to 80 tolas.

TABLE 2.7 : MOVEMENT OF PRICES OF PRINCIPAL CROPS*

(Prices are in Rs. 00 per seer)

Sr. No.	Report	Period	Ragi	Bajra	Wheat	Cleaned rice	Gram	Jowar	Varai	Niger seed
1	Fletcher Report (1888) ¹	1838-39 to 1847-48	0.02	0.03	0.03	0.05	0.03	0.02	0.03	n.a.
2		1847-48 to 1857-58	0.02	0.04	0.04	0.05	0.04	0.02	0.05	n.a.
3		1857-58 to 1867-68	0.04	0.06	0.09	0.10	0.08	0.05	0.08	n.a.
4		1867-68 to 1885-86	0.04	0.06	0.07	0.10	0.06	0.05	0.07	n.a.
5	Hey Report (1916) ²	1885-86 to 1889-90	0.04	0.05	0.06	0.08	0.05	n.a.	n.a.	0.07
6		1890-91 to 1894-95	0.05	0.05	0.07	0.09	0.06	n.a.	n.a.	0.08
7		1895-96 to 1899-'00	0.05	0.06	0.08	0.10	0.06	n.a.	n.a.	0.10
8		1900-01 to 1904-05	0.05	0.06	0.10	0.11	0.08	n.a.	n.a.	0.11
9		1905-06 to 1909-10	0.07	0.07	0.11	0.13	0.10	n.a.	n.a.	0.10
10		1910-11 to 1914-15	0.07	0.08	0.10	0.14	0.08	n.a.	n.a.	0.10
11	Present enquiry	1963-64	0.40	0.50	0.87	0.78	0.50	0.48	0.40	0.92

* In the original records, the prices are given in different unit (as in Table 2.8 i.e. the number of seers per rupee). In this table, these prices have been converted into rupees per seer. But this way, important price-differences are concealed and so in Table 2.8 the prices in original form are reproduced.

1 The Fletcher Report (1888), pp. 50-51.

2 The Hey Report (1916), p. 49.

TABLE 2.8 : THE PRICES OF PRINCIPAL CROPS - "IN SEERS OF 80 TOLAS PER RUPEE"

S.No.	Report	Period	Ragi	Bajra	Wheat	Cleaned rice	Gram	Jowar	Varai	Niger seed	Combined Index
1	Fletcher Report (1888) 1	1838-39 to 1847-48	58	41	34	20	36	50	31	n.a.	
2		1847-48 to 1857-58	49	29	26	22	28	44	19	n.a.	
3		1857-58 to 1867-68	23	16	11	10	13	21	13	n.a.	
4		1867-68 to 1885-86	25	18	14	10	17	22	15	n.a.	
5	Hey Report (1916) 2	1885-86 to 1889-90	24	19	17	13	19	n.a.	n.a.	14	100.00
6		1890-91 to 1894-95	21	19	15	11	17	n.a.	n.a.	10	88.57
7		1895-96 to 1899-00	20	16	12	10	16	n.a.	n.a.	10	78.09
8		1900-1901 to 1904-05	19	17	10	9	12	n.a.	n.a.	9	71.43
9		1905-06 to 1909-10	14	14	9	8	10	n.a.	n.a.	10	61.90
10		1910-11 to 1914-15	14	13	10	7	12	n.a.	n.a.	10	60.95
11	Present enquiry	1963-64	2.5	2	1.25	1.33	2	2	2.5	1	

1 The Fletcher Report (1888), pp. 50-51.

2 The Hey Report (1916), p. 49.

TABLE 2.9 : INDEX OF PRICES OF PRINCIPAL CROPS : PERIOD 1838-39 TO 1963-64

S.No.	Report	Period	Ragi	Bajra	Wheat	Cleaned rice	Gram	Jowar	Varai	Niger seed*
1		1838-39 to 1847-48	100	100	100	100	100	100	100	-
2	Fletcher Report (1888)	1847-48 to 1857-58	100	133	133	100	133	100	167	-
3		1857-58 to 1867-68	200	200	300	200	267	250	267	-
4		1867-68 to 1885-86	200	200	233	200	200	250	233	-
5		1885-86 to 1889-90	200	167	200	160	167	-	-	100
6	Hey Report (1916)	1890-91 to 1894-95	250	167	233	180	200	-	-	114
7		1895-96 to 1899-00	250	200	267	200	200	-	-	143
8		1900-01 to 1904-05	250	200	333	220	267	-	-	157
9		1905-06 to 1909-10	350	233	367	260	333	-	-	143
10		1910-11 to 1914-15	350	267	333	280	267	-	-	143
11	Present enquiry	1963-64	2000	1667	2900	1540	1667	2400	1333	1315

* For niger seed, the prices for earlier years are not available, and so 1885-86 to 1889-90 is taken as the base period.

1914-15 the price rise was hardly 50%.

A comparison of a continuous price series with that of 1963-64 prices shows that in a period over hundred and twenty-five years, the price of ragi rose by nearly twenty times, whereas that of rice, it was about sixteen times more. The price of jowar rose by twenty-four times and that of bajra by about seventeen times. The price of wheat showed maximum rise, i.e. it rose by twenty nine times. The comparison based on seers per rupee from the table confirms more or less, the same level of price changes. Amongst these crops, niger oil seed, the only non-food crop, showed the price rise by thirteen times. These prices have been reviewed into a certain order of necessities. The relative price advantage of ragi has to be viewed against the relative higher per acre yield of rice amongst all crops. Though growing of wheat is profitable at 1963-64 price level and more acreage should have been diverted to wheat during all these years on account of higher price rise in the past alone, wheat acreage cannot be effectively increased beyond a certain limit. The limit is set by the availability of irrigation facilities and/or good quality land to raise the winter crop of wheat. In the case of all crops, the price rise during 1914-15 to 1963-1964 was double to that of the preceding

75 years. It is of interest to add here that price rise in the case of two principal crops, namely, rice and ragi, was almost of the same order, i.e., about six times, during latter period, 1915 to 1964, whereas in preceding years, the rise in ragi prices was leading that in rice prices. It is already noted that substantial changes in area under ragi and rice are recorded prior to 1915-16.

It would be interesting to note how wages have moved with other changing magnitudes.

There is an elaborate comment in Hey's Report (1916) on the wages then prevailing. It would be worthwhile to quote Mr. Hey, at length:

"Statistics of wages are collected from the Engineer in charge of the big dam construction at Bhandardara.

"Wages of unskilled labour range from 4 to 5 annas (24 to 30 np.) a day for men and from 3 to 4 annas (19 to 25 np.) for women; skilled labourers -- blacksmiths, carpenters, masons, and stone-cutters etc. -- earn from 8 annas to a rupee, according to ability. Hawesters and field labourers are largely paid in kind, their net remuneration however worked out at about 4 annas a day.

"Field labourers in permanent service called 'Saldars' are paid Rs. 25 to Rs. 30 a year plus food and an outfit of clothes.

"At the time of revision survey in 1887-88 I find that the average rate of daily wages for unskilled labourers was between 2 to 3 annas for men and 1 1/2 to 2 annas for women.

"This is a taluka where, owing to the large numbers of Kolis and others whose holdings are

too small to support them, there are always plenty of unskilled and field labourers available. Also the taluka being backward and rather out of the way there is no keen demand for labour and ordinary unskilled wages tend to stay at a low level. Even though there is a marked rise since 30 years ago." 6

This passage adequately sums up the position of labour and wages prevailing at the beginning of the century.

For a dependable comparison, the wage rates at the site of the dam construction cannot be taken as representative of normal local employment situation. Yet it is likely that during the thirty years ending around 1916, the wages of unskilled field labourers might have nearly doubled. As compared to 1916 wage level, the present wage rates are nearly four to five times higher. This comparison is obviously tentative since in a nonmonetized tribal economy the payments in kind are a part of exchange economy and thus only wages in monetary terms can be broadly compared without any reference to the degree of monetization at different times.

2.5 Per Acre Physical Productivity of different Crops

The data for earlier years are not available but

⁶ The Hey Report (1916), pp. 9-10.

still a comparison of per acre yields, in quantity as well as value terms, based on the data collected during 1963-1964 enquiry is attempted. The idea is to project backward, into the earlier period of land settlement, the relative profitability of different crops and also to correlate the increasing demand for food on account of increasing population and changes in consumption pattern. In other words, the discussion of relative per acre yield in value terms of land would have a close bearing on the problem of terms of trade and internal availability of foodgrains.

Table 2.10 gives per acre yields of eight crops which include one important cash crop of the region, niger oilseed. Retail prices per quintal have been used to illustrate the relative per acre yield in value terms of different crops.

It is evident that rice is at least three times more profitable than most of the cereals like ragi and bajra. Only in the case of wheat, the difference is less, but still cultivation of wheat is primarily decided by the possibility of second crop during winter which really means that in the absence of assured irrigation facilities, wheat can be grown only in those superior lands which can retain moisture and help to grow wheat. Though niger oilseed has an access to organized market

TABLE 2.10: PER ACRE YIELD OF DIFFERENT CROPS: 1963-64

Crop	Per acre yield in quintals	Average price per quintal	Total value of per acre yield
		Rs.	Rs.
1. Paddy ¹	3.80	61.00	232.00
2. Ragi	1.60	49.00	79.00
3. Varai	1.31	49.00	64.00
4. Sava	0.60	50.00	30.00
5. Bajra ²	1.48	61.00	70.00
6. Niger seed	0.59	125.00	74.00
7. Wheat	1.62	91.00	147.00
8. Gram	1.50	88.00	132.00

1 The per acre yield of paddy would be equivalent to 2 quintals and 47 kilograms of rice, at the conversion ratio of 0.65 of paddy to rice. The average price of rice would be Rs. 93.00 per quintal. Thus per acre yield of rice would amount to Rs. 230 approximately.

2 The Gazetteer has given the per acre yield of bajra, the major crop of Ahmednagar district, as about 300 pounds which amounts to nearly 1.25 quintals per acre. The details for other crops are not available.

Source: "Gazetteer of the Bombay Presidency : Ahmednagar" Volume XVII, Government Central Press, Bombay, 1884, p. 265.

with an assurance of comparatively higher price, the low per acre yield makes it less profitable than ragi. And here it may be remembered that along with rice, ragi occupies an equally important position in the diet of these tribal people. It is already noted that usually niger oil seed being grown in a less fertile land and also not looked after quite systematically -- frequently it is grown as a hedge -- the low yield and low profitability of land under this crop are mutually determined phenomenon.

Thus, a comparison in terms of quantity reveals that rice cultivation is more advantageous as compared to all other cereals by as much as one quintal per acre.

Also, a comparison in terms of value reveals that rice is around three times profitable than most of other cereals.

Thus, in the absence of any market, it is advantageous to grow rice, wherever possible, in preference to other crops, since it would ensure that more foodgrains, in the form of higher yield of rice, are available for internal regional consumption. Relaxing the condition of closed market, if more rice is traded with the outside world, more quantity of other less costly cereals can be imported. This way, a consumer can maximize his utility function both ways, i.e., by producing more of

rice and if possible, exchanging rice for other cereals. All this is, of course, constrained by limited possibilities of diversion of land to rice growing and limited trade. Of these two, the former is a technical constraint and the latter, a market constraint. The second constraint refers to historical stage of development of the region and organization of market.

2.6 Consumption and Trade

In the background discussion of per acre yield, in physical and value terms, and also, the course of prices, the discussion of changes in consumption habits and pattern appears to be logical. The discussion of changes in regional consumption habits and patterns has been presented essentially through comments of land revenue authorities and district gazetteers. Alongside the aspect of trade has been placed as it is presumed to indicate the far-reaching structural changes that were accompanying the movement and growth of population, changing nature of cropping pattern and forest resources and general income position of the region.

The Tytler Report (1848)⁷ begins with the statement:

⁷ The Tytler Report (1848), p. 63.

"The chief products are rice, khorasani (niger seed), nāgali (ragi) and bajra. The first two only are exported, the former in the inner Deccan and the latter to coast for oil..... The exports consist of rice, khorasani (niger seed), ghee and a few cattle; the imports are, common cotton stuffs, sugar, salt and the most ordinary necessities of life."

The Fletcher Report (1888)⁸ while discussing the prices of cereals, details the consumption and trade pattern: -

"Nagali (ragi) is the main foodgrain of the taluka. Bajri is partly consumed and partly exported but wheat and rice are raised chiefly for sale."

The Report continues: -

"The early harvest almost monopolizes the whole produce, but the second crops grown in rice lands after the rice is harvested, find no place in this return; they amount perhaps in proportion to about 1.5% and consist of wheat, vatana, etc. Of the cereals, rice and wheat are the most valuable though their area is not large, they are grown chiefly for export, as also to a lesser extent bajra. Nagali (ragi) and sava are the foodgrains locally consumed. Gram is the only pulse

⁸ The Fletcher Report (1888), p. 5.

exported; the remainder are grown for food. The staple produce of the country is the khorasani (niger seeds) grows luxuriantly in the climate and soil here found and covers, it will be seen, nearly 17 per cent of the total cultivable area. It is largely exported."

The Report⁹ while discussing 'Markets and Trade' says:

"Khorasani (niger oilseed) is the principal product; it is most usually exported in the seed, though the oil is locally expressed in some cases. This may be consumed then. There are 21 oil presses of the usual rude description in the villages under report."¹⁰

The Hey Report (1916) says:

"Wheat, gram, rice, nigerseed, are the money making crops, bajra and nagali (ragi) being grown mainly for food."

The Report (1916) while discussing the geographic

⁹ The Fletcher Report (1888), p. 6.

¹⁰ At present oil pressing takes place only at Rajur where the Teli community has settled down. In those days, around the period of second settle report, it is likely that oil ghanis were situated in the interior villages also, since Rajur as a market centre providing services of traditional craftsmen class may not have developed on account of lack of communications and transport - a feature repeatedly discussed in revenue records. Also it is surprising that the number of oil ghanis has remained more or less the same which means that internal demand for sweet oil is largely met through imports. These points are discussed in the fourth chapter.

differences between two parts of the Akola taluka,¹¹

i.e. Dangli and Desh parts, says :-

".... All the rest of the taluka is pure 'Dang' country, of the hilliest, where rice is the only rich crop and nagali (ragi) and sava take the place of bajra.

In the 'Desh' part, bajra is the main crop mixed with kulith, math, udid, til (sesamum) and some early jowar. Wheat and gram form the bulk of the irrigated rabi crops.

In the 'Dang' part, nagali (ragi), sava and varai etc. take the place of bajra, but rice is the most valuable crop. Khorasani (niger seed) is also grown a good deal for export on the 'mal' lands. There is hardly any well irrigation and what few pits there are only water wheat and gram, some only last long enough to help the rice crop.

Besides this irrigated wheat, a fair amount of wheat and gram is grown as a second crop in the rice 'tals' wherever the moisture lasts long enough. In some cases where the tals are very wet, rice is not grown, only wheat or gram being sown later. These are the only rabi crops."

11

The Hay Report (1916) says: "The eastern side of the taluka, bordering on Sangamner, consists of fairly open dale land, formed by the widening out of the Pravara valley in the middle and of the Ardala valley in the north-east corner. It is broken in places by low ridges and ravines and hemmed in on the north, south and west by high hills, but open and flat to the east. In the south-east there is a narrower strip of flattish land in the Mula valley. These together form what is known as the 'desh' of Akola, where climate, crops and conditions are more or less those of Sangamner and the other Deccan Talukas lying in the east. All the rest of the taluka is pure 'dang' country, the hilliest.", pp. 1-3.

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The Gazetteer has commented on the consumption pattern of Mahadeo Kolis from Akola taluka, "Their staple food is nagali (ragi) or sava bread and vegetables and they are fond of hot and sour dishes. The daily life of Kolis differs little from the daily life of Kunbis. They take three meals a day, one at nine, a second at noon and a third at night. During the hot weather, when they have little field work, Koli men and boys go in for hunting."

13

The Gazetteer, at other place has commented, "Rice is part of the daily food of the upper classes and is eaten by the poor on feast days. Ragi is used as a bread-grain by the poorer classes near the Sahyadris."

The findings of 1963-64 survey data are that consumption of rice is prominent amongst cereals, followed by ragi. Other supplementary cereals, such as bajra,

¹²"Gazetteer of the Bombay Presidency: Ahmednagar", Volume XVII, Government Central Press, Bombay, 1884, p. 198.

The comment on level of living is interesting: "Their household goods include a few copper and brass vessels used for cooking and for boiling water, some small and large earthen pots for holding water, clarified butter, oil, spices and grain, and large number of bamboo baskets, plastered with cowdung. They own poultry and cattle generally stabling the cows into the dwelling house. They are great eaters and poor cooks. They eat all the usual kinds of flesh except beef and pork and drink country liquor to excess." Even to this day, it may be added here, their way of life has hardly changed. *ibid.*, p. 198.

¹³ *ibid.*, p. 267.

jowar and wheat are consumed mainly during monsoon. The consumer expenditure on rice is about twentyfive percent and on ragi, about twelve percent of the total family budget.

The related changes in the consumption of other cereals have to be noted in this context. Not only the consumption of ragi is substituted by that of rice, but also, a region that was formerly more or less self sufficient in domestic cereal requirements such as ragi, sava, bajra, became dependent on imports of these commodities. Thus with the more consumption of rice and the increasing acreage under rice, the export of rice rose to new heights and this was simultaneously accompanied by diminution in acreage under such crops as ragi, sava, and bajra and consequently less production and more imports of such cereals. This generalization in terms of surplus and deficit would be less precise and still less tenable since so easily it ignores the changes in the level of real income and the state of the economy. Any reference to self-sufficiency in domestic requirements of staple foodgrains like ragi, sava, and bajra has to be understood in a historical sense, since no quantitative estimates of consumption requirements of these cereals during the early period of land settlement are available. It is only the descriptive comments

on consumption habits and trade pattern that can be obtained from revenue settlement records submitted by the then district authorities. This historical data is of limited use since neither consumption estimates in terms of requirements are available nor any data on the extent of monetization of the economy are available.

As in the case of rice, wheat, also has become the prominent feature of consumption pattern lately. Initially raised as a cash crop only, it is being consumed substantially and all this has resulted into not only the lack of export of wheat, but also into increasing imports. Particularly on account of low-priced wheat distribution through Government controlled Fair Price Shops, the proportion of wheat consumed in entire diet has gone up considerably. According to 1963-64 enquiry into household budgets, it was found that about 25% are spent on rice consumption, 12% on ragi consumption, 3% on bajra consumption, and 7% on wheat consumption. The higher budget proportion spent on wheat is on account of the fact that during monsoon a fall in consumption¹⁴ is partially substituted by subsidized wheat consumption. Thus, it is possible to argue that in the absence of low priced wheat, consumption of this

¹⁴ Please refer to the fifth chapter on the pattern of seasonality and substitution of cereal consumption.

cereal may not have been as prominent as it is today. The consumption of varai seems to have become part of the diet only after 1916. Also, it is likely that on account of higher productivity in both terms of value and yield of land under rice, the acreage under non-food crops like niger oilseeds may have been diverted to food crops. This is an interesting possibility in the background of increasing population and the introduction of a crop like groundnut which has a fairly organized market from the beginning. This was relevant from the point of view of export capacity.

2.7 Forest Resources

Any discussion of income position of the region would be incomplete without a review of the forest resources.

The Fletcher Report (1888)¹⁵ has this to state regarding the forest resources :-

"The hirada (myrobolam) is largely exported. Mr. Turnball states that the produce of Government trees realized in that year amounted to Rs. 20,000 and he estimates that double of that amount may be set down as the value of the yield from trees in occupied land. These figures refer to the entire taluka, but as a matter of

15 The Fletcher Report (1888), p. 6.

fact almost the whole of the trees must grow in the villages now under report."

So, in the year 1888, nearly Rs. 60,000 worth of forest produce was exported.¹⁶ How these rich forest resources have dwindled over the last hundred years is adequately discussed in the fourth chapter. At present nearly ten thousand bags of myrobolam, worth about one lakh rupees are exported annually. The Gazetteer¹⁷ reported that the average price in 1877-78 was twenty rupees per ton, which comes to little less than one paisa per seer. As against this, with average price of ten rupees per gunny bag, which weighs about two maunds, the average price per seer comes to little over twelve paise at present.

Thus in a period of nearly ninety years, the average price of myrobolam rose twelve times, though the quantity exported was continuously declining during this period. The Bombay Province Cooperative Bank

¹⁶ This estimate of export of myrobolam seems quite acceptable. With an average price of one paisa per seer, the export of myrobolam worth Rs. 60,000 comes to about 75,000 gunny bags. In fact, over the years upto the forties the volume of myrobolam collection and export might have been even increasing though the later years after forties have reversed the trend.

¹⁷ "Gazetteer of the Bombay Presidency: Ahmednagar", Volume XVII, Government Central Press, Bombay, 1884, p. 20.

Report¹⁸ in 1947 has given some indication of the volume of exports. The Report estimated that by the end of the forties the collection and export was approximately 1,00,000 bags of myrobolam. Large scale depletion of forest took place during the Second World War and the post-war period. The exports were reduced to the level of 30,000 bags. And this level may be contrasted with the 1963-64 survey period during which about ten thousand bags were being exported. Thus it would be a valid generalization to state here that over a long period the higher level of prices is accompanied by continuously declining supplies and the income benefits from the rich forest-belt are already being limited in this process. It may be noted here in passing that this source of minor income to the local people is important in the sense that considering the seasonality in their consumption pattern of cereals, the receipt of income on the eve of monsoon makes a difference in their requirements of the necessities of life. The moderate income relief on account of myrobolam collection need hardly be over-emphasized here.

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This report is a pamphlet which gives no details about itself.

2.8 Export Capacity of the Region

In the background discussion of changes in the cropping pattern and consumption habits, it may be useful to investigate how these far reaching changes affected the export capacity of the region. It is already observed that at the beginning of revenue settlement in the latter half of the nineteenth century and even upto the First World War, rice crop was treated as a 'cash crop' or in other words, a major item of export. It is around this time onwards that the consumption of rice started substituting that of ragi. It is also significant that rice exports of this region have been always reaching Sangamner market from early times. An attempt has been made in the following paragraphs to construct an export model with the help of a few statistics obtained from historical records. The statistical comparison is only illustrative of the argument related to the historical view of development of the region; and as such, the statistical argument itself is not rigorous in minor details.

Mr. J. Ghosal in his inquiry dated 15th September, 1903, related to the "Second Revision Settlement of Sangamner Taluka" says:-

"Akola taluka sends to Sangamner about 500 khandis of rice and 150 maunds of ghee. Bajra is not exported

from Sangamner to Akola and Kopergaon as they both produce in sufficient quantity for local needs."

In another context,¹⁹ there is a comment on rice trade at Sangamner :-

"There is a special bazar day -- Thursday -- for rice. About 4,000 persons from 50 villages come to the bazar. The average weekly sale on this day is around Rs. 700."

These statistics may be usefully explored and compared with the present day export of rice. The export of 500 khandis comes to 10000 maunds of rice. The price of rice prevailing around 1900 was ten seers per rupee, or in other words, the average price for one seer was ten paise.²⁰ (Table 2.7). Thus, the average price of rice was Rs. 4.00 per maund. In terms of value 10,000 maunds of rice worth Rs. 40,000, were annually exported from Rajura.²¹ The weekly turn over comes to about Rs. 750. Mr. Ghosal's observation of average

¹⁹"Papers relating to the Second Revision Survey Settlement of the Sangamner Taluka of the Ahmednagar Collectorate". Selections from the Records of the Bombay Government, No. CCCCXL - New Series, Government Central Press, Bombay, 1907, p. 7.

²⁰ *ibid.*, p. 52.

²¹ The exports from Akola may be taken as exports exclusively from Rajur or from the group of tribal villages under study, because it was only in the hilly part of the Akola taluka that rice crop could be raised. The details of the cropping pattern confirm this observation.

weekly sale which was around Rs. 700, closely approximates this estimate. The annual export of rice, to the tune of Rs. 36,000 to Rs. 40,000 at the beginning of the twentieth century may be accepted as a valid estimate of the export capacity of the region in relation to rice.

As compared to this, the production and consumption estimates based on 1963-64 enquiry revealed that trade margin of rice comes to about 7,000 quintals per annum. The total production, about 43,000 quintals worth about forty lakhs of rupees, and the total consumption about 36,000 quintals, worth about thirty-four lakhs of rupees gave the surplus margin of 7,000 quintals, worth six lakhs of rupees, for export from this region. The weekly export turnover comes to an average of twelve thousand rupees.

Thus in last sixty years, the volume of rice exports rose from 10,000 maunds to about 18,000 maunds (or 7,000 quintals). The rate of increase, roughly comes to 130 maunds per year or 13000 maunds every decade. In terms of value of rice exports it rose from Rs. 36,000 -Rs. 40,000 to Rs. 6,00,000. The rate of increase comes to a little over nine thousand rupees per year or ninety thousand rupees every decade. The weekly exports rose from Rs. 700 - Rs. 750 to Rs.12,000, about seventeen times increase in volume of rice trade.

In discussion of prices it was found that from 1900 to 1963-64 rice price rose by nearly eight times, and acreage under rice rose from 13,000 acres in 1914 to 18,000 acres in 1963-64. It is during this period that acreage under rice was continuously increased and also it became the staple food in place of ragi. These changes in area under rice, consumption pattern and value and volume of rice exports when pieced together suggest that with a continuous improvement in income position, a change over of consumption to rice was accompanied by increasing cultivation of rice and increasing volume of exports. Also, this illustrative statistical model of development sums up the hypothesis of steady rise in regional income in the past fifty years.

2.9 Hypothetical model of change in export of rice

A certain hypothetical comment on rice as a 'cash crop' may be added here. Around the period of original settlement of land revenue, i.e. about 1850, it has been repeatedly commented that rice was grown as an export item and approximately 4000 acres were under rice cultivation. The 1963-64 inquiry revealed that about 18,000 acres are now devoted to rice-growing. And out of the total production of rice of about 43,000 quintals, nearly 36,000 quintals are available for domestic con-

sumption and a surplus of nearly 7,000 quintals of rice is the volume of export. This, in other words, means that out of the total production of 43,000 quintals grown on 18,000 acres of land, 7,000 quintals are available for export, which comes to about 16% of the total production. Roughly speaking, it can be argued that out of 18,000 acres under rice, about three thousand acres are devoted to the production of export surplus. Of course, for the sake of argument, it is assumed that the total acreage under rice crop is divided into two sectors, production meant for export and production meant for domestic consumption in the proportion of the present marketed surplus to the quantity domestically consumed. Now, if it is additionally presumed that, at the time of land revenue settlement in 1850 when rice was said to be a 'cash crop', grown mainly for export, and now that whatever rice is exported it is of superior grade, then in terms of acreage it can be argued that over a period of hundred years or so, the proportion of good quality land devoted to the cultivation of superior grade rice has been more or less static, though the total acreage under rice cultivation has increased by more than three times. This, additionally, means that, at present, the less superior land put under rice cultivation is devoted to the production of rice more or

less meant for domestic consumption.

Locally known as 'Jili land' or 'rice-tals' may be taken as good quality land that can grow superior varieties of rice, such as Jirwell, Raibhogi and Ambe-mohor. It is usually these patches of land, which can retain good deal of moisture and thereby make it possible to take winter crop such as wheat. Now from Table 2.1, it is clear that acreage under gram has remained more or less the same, whereas that under wheat has increased from 1400 acres to 3600 acres in a period between 1888 to 1963-64. Thus if this acreage under wheat, is taken as of good quality and texture, since in the absence of any irrigation facility wheat can be grown only in fertile soil like 'rice-tals', the hypothetical argument discussed here holds good. Thus broadly speaking, the acreage under 'cash crop' like rice round 1850 and the present day proportion of land under rice devoted to the cultivation of exported surplus of rice are converging estimates i.e. both are in the range of 3000 acres to 4000 acres. Of course the estimates are essentially used as a hypothetical illustration to indicate the possible trends in the changing character of the export capacity of the region.

Again it may be argued that this hypothetical argument ignores the changing proportion of marketable

surplus in different sizes of land holdings and also the changes in response to the changes in real income and standard of life. Also it assumes that at the time of land revenue settlement around 1850, all the cultivable land was suitably classified and graded according to the fertility of soil, and the margin of cultivation was sufficiently extended already by then. These assumptions, certainly, are not borne out by facts. The author is mindful of these shades, but the historical model has been built up on certain restrictive assumptions.

Thus it is possible that though there have been far reaching changes in the cropping and consumption ^{and} pattern in the export capacity, the proportion of good quality land devoted to the export sector of rice production is more or less the same as it was around 1850 when rice was a cash crop meant for exports only. In other words, it states the fact that good quality land has not increased over a long period on account of possibly lack of capital investment and inadequate infrastructure resulting into underdeveloped market and state of organization of the regional economy. This led to the basic changes in the sphere of consumption rather than trade.

2.10 Hypothesis of Underdeveloped State of Market Organization

At this stage, various strands that have emerged from the foregoing discussion of cropping pattern, population, prices and wages, per acre profitability of different crops, forest resources, levels of income, consumption pattern and import-export capacity of the region, may be synthesized in a certain perspective for development.

As argued earlier, rice becoming the staple food of the local people may be taken as an adequate indication of the secular rise in the level of real income of the region. The fact that there was a manifold rise in value and volume of rice exports, after 1916, when price rise was nearly double that of the earlier period (from 1838 to 1915 it was three times and in the latter 50 years, about six times that of the initial 1938 level or twice that of earlier period upto 1915) accompanied by more imports of other cereals, such as ragi, bajra, wheat and jowar, has to be interpreted in sufficient details.

It is noted in the discussion of per acre productivity of different crops, food as well as non-food, that in terms of per acre yield, rice enjoys a decisive advantage, of about one quintal more, over all other cereals. Also in terms of value of per acre output,

rice is nearly three times profitable in comparison with other crops. Added to this is the fact that the increase in population was nearly three times, from 18,000 in 1848 to 54,000 in 1961, in a period of over hundred years. The wages of unskilled farm labour rose by about four to five times in the last 50 years. The price trends showed that over hundred years, the price of ragi rose by nearly twenty times (in fact a little more than that) and that of rice by nearly sixteen times. The rise in prices of bajra and jowar was nearly of the same order. Only in the case of wheat the extent of price-rise was comparatively higher, about twenty-seven times. In the case of wheat, the possibilities of increasing acreage beyond a certain point were obviously limited by availability of irrigation facilities and good quality soil, but in the case of other crops the important changes in cropping pattern have to be linked up with the movement of other variables.

It is possible to argue that on account of increasing population operating on limited land resources, the possibilities of extension of cultivation were limited, and as such a continuous reorganisation of cropping pattern was logically necessary as is found in the case of the region under study. The higher per acre yield of rice^{was} in itself a sufficiently profitable proposition to increase the area under rice-cultivation and thereby,

ensure the continued availability of more foodgrains on an ever increasing scale to meet the internal demands of increasing population. This was a rational trend in so far as the area under rice-cultivation could be increased. The margin of profit could thus be continuously extended and a certain amount of specialization in cultivation of rice at the regional level became possible. Alongside, the possibilities of improvement in technique of cultivation, productivity of soil on account of increasing manuring and terrace bunding, availability of institutional finance and better extension services have to be noted. But in the absence of adequate data no such assessment is possible here. In a sense, if these possibilities were presumed to be there then they are indices of higher level of income which mean the better investment opportunities in agriculture on account of favourable trends in the prices of agricultural produce.

A consideration of the course of prices of different cereals indicates that the trends in ragi prices were more favourable as compared to those in other cereals prices. Still in value terms, it was found that per acre output of ragi was less valuable to that of rice and thus there was no counterbalancing force against the increasing area under rice.

A logical corollary of the relative advantage of rice, in terms of higher per acre yield was the continued preference of rice over other crops. The same logical necessity would lead one to argue that the consumer could have benefited to the maximum if he had traded his rice for other cereals.²² It is noted that the per acre yield of rice in value terms was nearly three times greater to that of ragi. Thus theoretically, it is conceivable that if all the production of rice, about 43,000 quintals worth 40 lakhs rupees, could have been exported then, in exchange, /nearly three times more could have been imported. This theoretical possibility of maximizing exports and thereby ensuring maximum imports brings out the essence of the argument. It is seen that in reality not all production of rice, but only about sixteen per cent of it was put on the market during 1963-64. This restriction on the possibility of maximizing income comes about on account of inadequate market organization. The history of only local market of the region, Rajur village, has been traced in the fourth chapter and it is established that Rajur not only did

²² Prof. Isard states: ".... the export sector is the sector that primarily determines the level of income and economic welfare of a region, much as in Keynesian doctrine the investment sector is the determining sector in closed regions."

Walter Isard, et al. "Methods of Regional Analysis: An Introduction to Regional Science" (John Wiley, 1960), p. 108.

not develop the way the surrounding region developed but, in fact, exhibited a marked stagnation. This characteristic lack of any movement on lines of some kind of urbanization or greater than village-sized community at Rajur really points towards the conclusion that, over a long period, Rajur did not develop as a market centre to deal in large scale trade, particularly import-export trade in cereals.

This limiting factor of underdeveloped market may have affected the changing adjustments that were taking place in the cropping pattern. It is possible to argue that had the market at Rajur developed and had communications and transport integrated the spatial economy into one market organization then the historical trend of continued preference for rice-cultivation would have logically resulted into more specialization of rice cultivation and consequently more production and more exports of rice would have followed. In a sense, it is possible that the relatively stationary character of Rajur market has stabilized the cropping pattern at the present level.

One interesting finding of the econometric exercise of household budget enquiry may be brought in here.²³

²³ Please refer to the discussion of these results in the seventh chapter, ¶.

The multiple regression with total household expenditure and the size of the household as independent variables, is fitted to consumer expenditure on rice. The position of 'a' constant in the linear multiple regression indicates that the commodity in question is a necessity or luxury at the given level of income.²⁴ The household budgets are differentiated into three geographic categories with a view to assessing the regional influence on pattern of consumer expenditure. The three regions are :-

1. Pathar
2. Pravara valley
3. Mula valley

The position of 'a' in the first two regions shows that the constant is negative, and the consumer expenditure on rice is in the nature of luxury at those regional levels of income. In terms of budget proportions, the expenditure on rice is nearly 25% of the total budget. The high income elasticity shows that even though placed at the subsistence level, consumption of rice is a luxury.

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Allen, R.G.D. and Bowley, A.L. "Family Expenditure - A Study of its Variation", P.S. King and Son, Ltd., London, pp. 10-12.

This statistical finding has an important bearing on the earlier discussion in which it is stated that instead of consuming more of rice, which fetches more price in export sector, more of rice should be exported and more of other cereals should be imported. All this assumes a certain rational consumer behaviour and a rational market organization which has efficiently integrated the spatial economy. The argument on these lines indicates two conclusions.

First, with an efficient market organization the historical trend towards more acreage under rice would have continued and strengthened. In such a case, more production would have meant more exports of rice. The increasing acreage and more exports would have been self-reinforcing trends.²⁵

Second, consumption of rice as a staple food would not have come about with a secular rise in real incomes -- at least, not to the same extent as it is today. Rather, despite the decline in acreage under ragi and bajra, the consumption of these cereals, and to

²⁵ Chisholm says, "Very largely owing to the improvement of transport facilities, agricultural production is becoming regionally more specialized and increasingly production is in the areas which are better endowed for particular crops by reason of their climates and soils."

Michael Chisholm, "Tendencies in Agricultural Specialization and Regional Concentration of Industry", Paper read at the seminar of Regional Science Association; Papers, X, Zurich Congress, 1962. Regional Science Association, Papers, Volume X, 1963, p. 157.

some extent sava and varai, would have persisted or more likely, increased at higher levels of income. As a result of this trend either more intensive cultivation of these cereals internally, would have ensured more availability of ragi, etc. or more imports from outside the region would have taken place. Both ways, more quantity of cereals would have been available for domestic consumption on an ever increasing scale. All this would have been possible on account of continuously augmented income through more exports of rice.

Thus on all counts, had there been an efficient market organization,²⁶ the export of rice could have been stepped up and, in return, the imports of cereals such as ragi, bajra, jowar could have been maximized. In the absence of such a development, with basic changes in cropping pattern, that were mainly prompted by growth of population, they were transmitted in the sphere of consumption rather than, in the same proportion, in the sphere of trade. Still the upward secular trend in the level of regional income is evident through these interactions of different economic relationships in the last hundred years.

²⁶ Prof. Fourie supports this by saying that "in the case of these backward areas regional development would take the form in the first instance of providing an efficient economic organisation.....".

Prof. F.C. Van N. Fourie, "Regional Planning and Development in South Africa", A South African interests group publication, Cape Town, 1947, p. 26.

From the point of view of development planning two findings are relevant :-

(1) The improvement in road communications and transport would bring about all round integration of economic space.

(2) The investment programme in terrace bunding would lead to regional specialization of rice cultivation and also, additionally, the area under second rabi crop would directly increase.

APPENDIX

TABLE 1 : DETAILS OF CULTIVATION, AVERAGE OF FIVE YEARS FROM A.D. 1881-82 TO 1885-86.

Crop	Total per-centage	Kharif Acres	Rabi Acres
Nagli (ragi)	18.1	21867	
Bajra	13.9	16805	
Khorasani (niger)	16.9	20354	
Sava	7.1	8619	
Rice	4.2	5087	
Miscellaneous	2.1	2496	
Bhadli	1.9	2306	
Urid	1.1	1297	
Kulthi	0.6	761	
Toor	0.3	370	
Jowar	0.3	367	
Matki	0.1	128	
Moog	0.1	92	
Gram	1.4	-	1678
Wheat	1.2	-	1421
Miscellaneous	1.0	-	1174
Kardai or safflower	0.7	-	907
Tobacco	0.1	-	67
Grass or fallow	28.9	-	34855
Total	100.0	80549	40102

N.B. "Papers relating to the Revision Survey Settlement of 102 Dangi villages of the Akola Taluka of the Ahmednagar Collectorate". Selections from the Records of the Bombay Government No. CCXVI - New Series, The Government Central Press, 1888, p. 15.

The areas in this statement refer to Government land only. W.M.Fletcher, Superintendent, Poona and Nasik and S.M.C. Revenue Surveys.

TABLE 2 : STATEMENT FOR 102 DANGI VILLAGES (TALUKA AKOLA)

	At 1st Revision (1888)		At present time (1916)	
	Area acres	Percentage of occupied area	Area acres	Percentage of occupied area
Occupied area	130722	100.00	130428	100.00
Nagali (ragi)	21867	18.10	18733	14.36
Bajra	16805	12.85	11527	8.83
Wheat	1421	1.80	2320	1.77
Rice	5087	3.89	12938	9.91
Area irrigated	Area not available		582	0.44
Area fallow	34855	26.66	51371	39.38
	* Average of 5 years from 1881-82 to 1885-86		* Average of 5 years from 1910-11 to 1914-15	
Khorasani (niger)	20534	15.70	13775	10.56
Gram	1678	1.28	2799	2.14

*"Papers Relating to the Revision Survey Settlement of the Akola Taluka of the Ahmednagar District". Selection from the Records of the Bombay Government. The Government Central Press, Bombay, 1916, p. 4. The Hey Report, 1916.

The above figures are the average of 5 years.

This report has added an explanatory comment on the changes in cropping pattern. The report says "The decrease in bajra and Khorasani (niger) and the increase in fallows are to be accounted for by the fact that the 5 years upto 1884-85 were years of very good rainfall, when the cultivation on that land much increased, while the 5 years upto 1914-15 include two years of drought another actual famine, when the 'mal' lands largely lay fallow. But the above are more than offset by the enormous increase in rice - over 2 1/2 times what it was before - and the increase in wheat and gram while in the 'deshi' villages there are large increases in nearly all crops."

This contradictory admission of failure of rains and two and half times increase in acreage under rice is not explained in the reports. Still it seems plausible though it cannot be substantiated that the period between the two reports might have witnessed, in fact, a greater increase in average under rice than was actually reported in 1915. P.S.Mead, Collector of Ahmednagar has commented in his letter dated 19th May 1916, that "until all rice lands are measured the exact increase cannot be ascertained."²

R. D. Bell, Ag. Settlement Commissioner and Director of Land Records, in his letter dated 30th May, 1916, has

1 The Hey Report (1916), p. 5.

2 *ibid.*, p. 72.

criticized Hey's account of fallow lands and has provided the explanation that "improved/registration is certainly the chief cause of the recorded increase."³

Another point of discrepancy relates to the acreage under rice reported by Fletcher. At one place,⁴ the report records the area under rice ~~in~~ as 423 acres in 1848 at the time of Tytler Report and 7666 acres in 1885 at the time of first revision of land revenue. But still, the Fletcher Report (1888) continues to use the figure of area under rice as 5087 acres in subsequent tables. The Hey Report also reproduces this figure 5087 acres as the total area under rice.

The Tytler Report (1848)⁵ itself gives the area under rice as 3645 acres, which is about a thousand acres less than the reported area in the Fletcher Report (1888).

The possible explanation can be found from the Tytler Report (1848)⁶ in which it is argued that "there is one peculiar feature in rice land which calls for some remark I mean, the tendency of rice beds to enlarge. There are usually stone or earth embankments at top and bottom of

3 *ibid.*, p. 76.

4 The Fletcher Report (1888), p. 4.

5 The Tytler Report (1848), pp. 72-75.

6 *ibid.*, p. 69.

these beds, but the industry of the rayat may greatly extend them to the right and left, this extension being limited only by the natural formation of the bed and sometimes, though rarely, by the proximity of a neighbour's field. As the extension is constantly going on, a re-measurement of these lands will be necessary on the expiry of the rice rates which were sanctioned for 30 years. Meanwhile the rayats justly reap the fruit of these extensions in the same way as the cultivators in the champaign country, who turn dry crop into garden crop have the benefit thereof during the 30 years lease. Every encouragement be held out to such extensions. Native officials are too apt to check them."

This partly explains why Mr. Fletcher might have accepted the figure of 5087 acres as the area under rice, at the end of the 30 years lease period, instead of 3645 acres originally noted by the Tytler Report (1848).

Mr. Fletcher⁷ has also said that, "the explanation in this case is that every minute portion of low lying land which seemed likely ever to be made into rice was entered in the old record as a separate 'chak' number, but from not being demarcated or correctly shown on the

7 The Fletcher Report (1888), p. 3.

map, very many of these cannot now be traced at all, while many more, being held by the same cultivator who holds the surrounding that land have now been included in his survey number." This additionally explains the differences in area figures, mentioned earlier, in the Fletcher Report (1888).

This has led to the acceptance of area figure of 5087 acres under rice in the present study. The foregoing discussion brings out the difficulties of comparing the gross cropped area and of computing the rates of change in the cropping pattern. Thus the discussion of changes in the cropping pattern is general and the main emphasis is to correlate these changes with those in the consumption pattern. To this end, these statistics serve the purpose.

CHAPTER III

REGIONAL SOCIAL ACCOUNTS

3.1 Theoretical background

At the outset, it may be noted that the concept of regional social accounting system has been accepted in the present chapter only in a general and descriptive fashion. This is basically determined by the limited data on economic activities at the regional level. Additionally the difficulties on account of the tribal society and the monetization on a minor scale may be mentioned.¹

It is useful to understand the elements of economic accounting systems in their theoretical details. According to Richard Stone² there are two alternative systems of organizing information relating to economic interdependence. These are known as the 'Input-Output' and the 'Social Accounts'.

¹ Gilbert and Stone have commented, "most of the elaboration of social accounting methods has taken place in countries of an economically advanced type, the productive systems of which are characterized in a high degree by the division of labour and the use of money... This has led to many interesting studies and it is well to emphasize the elements in basic economic structure, which are independent of particular forms of economic organization." Milton Gilbert and Richard Stone, "Recent Developments in National Income and Social Accounting," Reprint series No. 80. University of Cambridge, Department for Applied Economics, 1954, p. 3.

² Stone, Richard, "Input-Output and the Social Accounts" Reprint Series No. 102, University of Cambridge, Department of Applied Economics, 1956, p. 155. He has commented, "Two methods of organizing and presenting information on this subject which are of particular importance are the national accounts and the input-output table." p. 155.

Social accounting is understood in the sense of "the quantitative description of an economic system in terms of its constituent transactions suitably classified and aggregated."³ This method of investigation helps to understand the mechanism and working of an economic system of a homogeneous region, in terms of its dominant variables. These are, in other words, the basic forms of economic activity such as production, consumption and the resultant margin, which is variously defined as 'the addition of wealth', 'investment' or 'capital accumulation'.⁴ Based upon the fundamental economic concepts of production, consumption and addition to wealth, corresponding to the accounting notions of income, expenditure and saving (or capital accumulation) respectively, a comprehensive system of social accounts is built up.

³ Gilbert and Stone, *ibid.*, p. 1. They have added that, "a technique of this kind, with its emphasis on consistency, was needed as soon as estimates of income, expenditure and other aggregates of transactions came to be made and compared."

⁴ Richard Stone, "Functions and Criteria of a System of Social Accounting", in "Income and Wealth" Series I, edited by Erik Lundberg, International Association for Research in Income and Wealth, Bowes and Bowes, Cambridge, 1951, p. 1.

Prof. Richard Stone⁵ himself has proposed a system of social accounts by geographical regions. This system shows clearly the capacity of each region to invest from its own resources. The present chapter deals in setting up a system of social accounts of the homogeneous tribal region under study.

5

Richard Stone: "Social Accounts at the Regional level : A Survey", in Walter Isard and John H. Cumberland ed." Regional Economic Planning, Techniques of Analysis." The European Productivity Agency of the Organization for European Economic Co-operation, Paris, 1961, pp. 263-303.

Mehrotra in his doctoral dissertation has summed up Prof. Stone's method. "Prof. R. Stone's paper presents a model of regional social accounting showing, in matrix form, both intraregional and inter-regional activity. He adopts a three-fold functional division of economic activities into production, consumption and accumulation. The (matrix-accounting) framework incorporating these three functions is presented in more simple and general terms by the device of two "building-blocks" relating to intra-regional and inter-regional economic activities. The intra-regional matrix when transformed into the conventional accounting form would give a consolidated product and expenditure account capable of measuring the following five magnitudes:

1. Gross Regional Income.
2. Net Regional Income.
3. Regional consumption and saving.
4. Gross addition to Regional Wealth.
5. Gross Regional Saving.

The second building-block incorporates all inter-regional and rest of the world transactions! At a later stage in the development of his framework Prof. Stone combines both these blocks into one. The two building-blocks are eventually transformed into a rectangular table of matrix-form which represents a set of accounts for the region.

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What is meant by 'accounts'? The notion of 'accounts' is explained as "systematic and quantitative cross-tabulations of economic transactions and claims, primarily in money units and primarily, cross-sectional in nature. Basic to this notion of accounts is the feature of double-entry."⁶

Richard Stone⁷ has elaborated the concept of social accounts thus: "The social accounts may be set up in matrix form on lines which are by now familiar. Each account of each sector is represented by a row and a column pair in the matrix. The elements in the rows are by convention incomings while those in the columns are by convention outgoings. In addition, since types of transaction between accounts are to be distinguished, the row for each account is replaced by a set of rows - equal in number to the number of types of transaction."

(See Table No. 13.9 in Prof. Stone's paper above cited, page 274).

Mehrotra "Social Accounting and Regional Incomes in India". A thesis submitted to the University of Poona, 1966. Gokhale Institute of Politics and Economics, Poona 4, pp. 134-135.

⁶ Hoover, Edgar, M., and Chinitz, Benjamin, "The Role of Accounts in the Economic Study of Regions". Reprinted from Werner Hochwald edited, "Design of Regional Accounts", pp. 253-261, in John Friedmann and William Alonso edited, "Regional Development and Planning, A Reader." The M.I.T. Press, Massachusetts, 1964, pp. 612-13.

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The other technique used is a construction of an input-output table.⁸ Gilbert and Stone have elaborated this concept briefly. According to these authors the input-output table involves a deconsolidation of the single operating (or production) account which is usually to be found in the national accounts.⁹ This table is composed in current money terms and shows not only the contribution of each branch of activity to final product but also the details of the intermediate product flows between branches of activity.

⁷ Stone, Richard, "Input-Output and the Social Accounts", Reprint Series No. 102, University of Cambridge, Department of Applied Economics, 1956, p. 157.

⁸ Meyer has described the input-output analysis in the course of his review of techniques employed in the regional economics. He says that "in broad, idealized outline, the objective of an inter-regional inter-industry input-output analysis is a matrix of input-output coefficients identified not only by industry but also by geographic areas or regions. Such an idealized table however, is usually impossible to realize because of data insufficiencies."

Meyer, John R., "Regional Economics : A Survey in Surveys of Economic Theory, Volume II, Growth and Development, edited by American Economic Association and Royal Economic Society. S.T.Martin's Press, New York, 1965, pp. 252-53.

⁹ Gilbert and Stone, *ibid.*, p. 2.

Gilbert and Stone¹⁰ have commented:

"An input-output table in its simplest form is essentially a system of accounts in which each type of transactor, thought of as an industry, has one account. If the economy is sufficiently simplified by the omission of the rest of the world, a government sector and capital transactions, the system can be thought of as a set of transformation processes, each concerned with converting a set of inputs into a supposedly homogeneous output. This interpretation is quite a natural one in the case of industries proper and transactions with which the system deals are essentially the flow of goods and services between industries. Within this framework of ideas, households may also be thought of as an industry, or process, engaged in converting consumption goods into the supposedly homogeneous, services of the factors of production. By relaxing somewhat the notion of a system of transformation processes the remaining parts of an actual economy and the rest of the world can be introduced into the system."

J.R. Boudeville¹¹ while describing the method of

¹⁰ *ibid.*, pp. 8-9.

¹¹ Boudeville, J.R., "A Survey of Recent Techniques for Regional Economic Analysis", in Walter Isard and John H. Cumberland ed. "Regional Economic Planning, Techniques of Analysis." The European Productivity Agency of the Organization for European Economic Co-operation, Paris, 1961, pp. 380-81.

out geographical differences, the regional system must enable structural differences, external (inter-regional trade) or internal (dominant activities), to be measured spatially, the region is analogous to the industrial sector, in which production characteristics are uniform and measure the technological structure of the economy."

Vera Cao-Pinna has given the reasons for setting up a detailed system of regional economic accounts. She thinks that a critique of the location of choices of public investment may be usefully based on a disaggregated description of the structures of regional economies and of the present and potential capacities of the regional markets.^{12a}

Vera Cao-Pinna has preferred the input-output technique to set up the social accounts of a region.¹³

On what lines the information is required for establishing regional input-output accounting? The fundamental set of information required for setting up a regional input-output table consists of the quantitative

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Vera Cao-Pinna, "Problems of Establishing and Using Regional Input-Output Accounting", in Walter Isard and John H. Cumberland, ed. "Regional Economic Planning Technique of Analysis for less developed areas." European Productivity Agency of the Organization for European Economic Co-operation, Paris, 1961, p. 305.

¹³

ibid., p. 312.

data on current imports and exports of goods and services between the region under study and with the rest of the world.¹⁴

Generally, this set of data is not available and the indirect approach generally followed to overcome this difficulty consists in deriving the net trade balances of the concerned area from the differences between total local demand and total regional supply of individual commodity groups.¹⁵ There is no attempt in the present chapter to construct the input-output table for the region. The primary reason is of course "the data insufficiencies," particularly the lack of detailed data on import-export trade. Thus an attempt is made to establish a direct relationship between the domestic

¹⁴ "From a methodological viewpoint, the input-output approach offers many advantages, since it facilitates the coordination of regional statistics and provides a valuable tool for testing the consistency of the direct estimates of the regional gross products." Vera Cao-Pinna, *ibid.*, p. 305.

Manuel de Torres Martinez, of the University of Madrid and Jose Ramon Lasnen Sanche, of the University of Barcelona, have commented that:

"The principal advantage of the input-output approach for national and regional planning, lies in the fact that it breaks up the economic system into sectors, showing the inter-connections among them; that is to say, it sectoralizes the economic system. It must be remembered that economic policy is always in practice a sectoral policy."

Edited Walter Isard and John H. Cumberland, *ibid.*, p. 339.

¹⁵ *ibid.*, p. 312.

demand and supply. And the margins of surplus and deficit in such a relationship have been broadly corroborated by the data on trade. This supplementary discussion is presented in the following chapter. It may be added here that in accordance with the suggestion of Vera Cao-Pinna¹⁶ the estimates of domestic demand are obtained through family budget enquiry.

Vera Cao-Pinna¹⁷ has suggested a classification of activities. She has defined the 'local sector' exclusively or primarily activated by the local demand, and the 'national sector' in the sense that its location is independent of the localization of demand. Broadly, in the region under study, the agricultural sector corresponds the notion of 'local sector' and a forest product such as myrobolam, and coal belongs to the 'national sector'. Vera Cao-Pinna¹⁸ has said that the importance must be attached to the sectors "whose production capacities exceed the regional demand." Such a commodity is rice here and the implications of its exports vis-a-vis

¹⁶ "..... there is still a large proportion of the local demand which cannot be exactly determined since it must necessarily rely upon the results of more or less accurate surveys on households consumption."

ibid., p. 313.

¹⁷ ibid., pp. 310-11.

¹⁸ ibid., pp. 310-11.

the imports of other cereals such as ragi, bajra, jowar, etc. are discussed in both, quantity and value terms. Also the comparison of domestic supply and demand is primarily confined to the agricultural sector whereas net imports such as clothing and kirana and net exports such as myrobolam, milk products, coal are separately dealt with in the subsequent chapter on trade activities at Rajur village which is the major market town of the region. All the same, these estimates are finally added up, in the present chapter only, to establish the regional system of social accounts.

As stated in the beginning, Richard Stone devised the method of constructing a system of social accounts by geographical regions with the view to arrive at an estimate of the capacity of each region to invest from its own resources. What then is the concept of economic surplus that is statistically measured at the regional level? The economic surplus is understood in the sense of the difference between society's current output and its current consumption. It is thus identical with current savings or accumulation, and finds its embodiment in assets of various kinds added to society's wealth during the period in question: productive facilities and equipment, inventories - foreign balances and gold hoards.¹⁹ The present study is not concerned with the

19 P.A.Baran, "The Concept of the Economic Surplus".

problem of savings and capital accumulation.

The discussion so far has revealed the basic concept of regional system of social accounting in its theoretical details. Obviously, the essential features have to be modified here and there in the light of availability of data and local conditions. Ramkrishna Mehrotra²⁰ has adequately summed up the difficulties of setting up a regional social account.

"Moreover, in the absence of a theory of economic growth applicable to the processes and problems of regional development in India, the question of an ideal framework just cannot be solved. The choice under the circumstances should be to adopt a framework which depicts the actual regional processes of economic 'activity' in general and broad terms and shows the structure, inter-relationship and mutual interdependence of the constituent flows or aggregates of transactions (entries) in the system."

In the present chapter an analysis of the interacting mechanism of basic economic activities²¹ such as

²⁰ Ramkrishna Mehrotra, op.cit., p.467.

²¹ Richard Stone explains: "It will be observed that the term 'activity' is here used in a sense familiar in the literature of social accounting which should not be confused with the sense attached to it in activity analysis or linear programming." The preceding paragraph explains what does he mean by 'social accounts'. He says: "The term

production, consumption and the resultant trade margin, is undertaken to bring out the local features and measure the statistical dimensions of the 'economic space' under study.

The discussion in the present chapter is on following lines: Already the concept of a system of social accounts of a region is elaborated. The sources of data on which the various estimates are based are explained. This is followed by a discussion of the method of estimation of agricultural production and the choice of prices in evaluation of agricultural output.

This course of discussion leads to regional estimates. The estimates of agricultural production and consumption are viewed in a relationship and the resultant margin is arrived at. The commodity balance in the production and consumption of cereals is analysed in quantitative terms; and finally the incidence of variations in prices of cereals and the consumption pattern is evaluated.

Social Accounts may be used to denote an organized arrangement of all transactions, actual or imported, in an economic system. In such a system distinctions are drawn between (i) forms of economic activity that is production, consumption and adding to wealth, (ii) types of transaction such as commodity sales and purchases, current transfers, etc." The present study has analysed the (i) kind of economic activity only.

Richard Stone, "Input-Output and the Social Accounts". Reprint Series No. 102. University of Cambridge, Department of Economics, 1956, p. 156.

The final social account of the region is presented in terms of broad statistical magnitude.

3.2 Sources of Data

The estimates in the present chapter are based on two sources of data. First, there is the village schedule filled in for all the 87 villages at the beginning of the year. Data regarding yield noted in this schedule refer to the year preceding the visit and give only a general idea about the village. Second, there is the family schedule filled in for a sample of 212 sampled households. The family schedule gives general information of the family-members, agricultural production, etc. and the detailed data on household consumption. The estimates based on these two sources of data are, henceforth, referred to as "the village-schedule estimates", and the "family schedule estimates" respectively.

3.3 Method of estimation of agricultural output

During the course of analysis an important difference in the degree of bias in the estimates of agricultural production, is noticed. At the village level, the data on cropping pattern are available from the government records. This data are accepted here. The crucial aspect of the problem is the data on per acre yield of

various crops. The annewari²² estimates accepted at the governmental level²³ are, obviously, unacceptable here on account of a number of reasons. A detailed criticism of this time-honoured method is not relevant here but it

²² The Annewari Committee has described the notion and procedure of arriving at the 'annewari' estimate:

"The village annewari of the crops regulates the recovery of land revenue, it being suspended in bad years in half or full according to a prescribed scale, when the average annewari of the crops in the village (weighed in proportion to the areas sown under the different crops in the village) falls below certain limits and in good years the suspended land revenue being recovered as an additional instalment of one-half or the whole of the normal assessment when the normal annewari exceeds certain limits.

The annewari formula currently in use in the Districts of Western Maharashtra is as follows: Government Circular Memorandum, Revenue Department, No. ANI.1054, dated 24-7-1954 and Government Resolution, Revenue Department, No. ANI.1054-II-C, dated 17th December 1957:

$$\text{Annewari} = 12 \times \frac{\text{Observed yield}}{\text{Standard yield}} \times \frac{\text{Standard soil annas}}{\text{Soil annas of the field}}$$

In this formula, the 'observed yield' means, the yield per acre of the crop in a given field which may be determined either by a crop-cutting experiment by reaping the crop from a measured area such as one guntha or by an experiment, the weight is to be multiplied by a correction factor called 'driage factor' (supplied by the Agriculture Department) to allow for the reduction in weight resulting when the grain becomes dry. Hence, the 'observed yield' represents the field per acre of dried grain.

'Standard soil annas' of the field means the classification value expressed in annas of the soil of the

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may suffice to say that whatever be the merit of this method, it is unacceptable in the present study for the

field which is related to its rate of assessment of land revenue as follows :-

$$\text{Rate of assessment per acre} \left. \vphantom{\text{Rate of assessment per acre}} \right\} \frac{\text{Soil annas of the field}}{16} \times \text{Maximum rate of assessment for the Settlement Group}$$

'Standard soil annas' means the average classification value of the lands in which the particular crop is commonly grown in that District. Thus, the standard yield gives the average yield per acre of the crop which is realised in the District when the average annewari of the crop for the District as a whole is equal to 12. The formula involves the assumption that any particular year the yields of any crop in different fields, are directly proportional to their soil classification values."

"Report of the Annewari Committee for the Determination of Standard Yields", Revenue and Forests Department, Government of Maharashtra, Bombay 4, 1966, pp. 1-2.

23 "Under the traditional method, the outturn of a crop is obtained as a product of area under the crop and the average yield per acre. The latter is usually obtained as a product of what is called the normal yield and the condition factor. The estimates thus obtained are not reliable mainly because the subjective nature of the condition factor and the methods adopted for the determination of normal yields. Under the technique of crop-cutting experiments based on random sampling, a sample of villages and fields growing the crop is selected at random at successive stages and the crop grown on a randomly situated plot in each of the selected fields is actually harvested and the produce is weighed. The average yield per acre is estimated on the basis of the outturn of these harvested plots. The advantage in this method is that not only representative estimates are available but also the margin of error with which the estimates are obtained is known. At present the estimates of production of principal foodgrains are based on the results of the crop-cutting surveys in most of the States, while in respect of other cash crops, the progress has been satisfactory."

simple reason that the factors considered at the taluka place, are completely unrepresentative of the hilly-tribal part of the taluka.²⁴ The region under study is entirely different from the other part of the taluka, particularly the difference in the rainfall pattern is more relevant. The average rainfall at the taluka head-quarter, is hardly 20 inches whereas about thirty miles to the west in the shadow of Sahyadri ranges, the average rainfall is about 200 inches. At Rajur, the market place of the tribal tract under study, it is about 40 inches. Thus, the western part of the taluka enjoys the highest rainfall and with a movement eastwards the average declines rapidly. The 'annewari' calculated by the revenue authority is exclusively based on the rainfall data collected at Akola rain gauge.²⁵ For this reason alone, the 'annewari' estimates for the Akola taluka are not acceptable for building up the regional account in terms of resource-flows.

Choudhary, S.C., "A Survey of the Improvements in Agricultural Statistics since Independence" in Rao, V.K.R.V., Sen, S.R., Divatia, M.V., Datta Uma, edited "Papers on National Income and Allied Topics", Volume I, Indian Conference on Research in National Income", Asia Publishing House, 1960, p. 20.

24

Please refer to the discussion of topography of the taluka in the first chapter.

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At the village level, therefore, a different method was attempted. The investigator assessed the consensus of senior elderly people from the village on the matter of average per acre yield of various crops. As confirmed later, the estimates of agricultural production based on this source of data, proved to be consistent with other statistical dimensions of consumption and trade in the process of building up the commodity balance within the region. The method of talking to the people and listen them discussing the range of average yield per acre is fairly free from the possibility of under-statement. Such a possibility is obviously there in the replies given by the sampled households.

The advantage of consensus method at the village level is obvious. In the small-sized tribal village,

25 In fact, this government machinery looking after the routine administration as well as development activity, does not even receive the rainfall data recorded at different places within the taluka. The scattered rainfall gauges report to various departments such as Irrigation, Revenue, etc. and that too situated in neighbouring districts.

26 The extent of under-estimation is evident in the case of rice, the principal export of the region, where according to the estimate of rice production based on the 'family schedule' data, it is equal to the internal consumption of rice and thus leaves no export margin. This is unlikely in the face of traditional item of export of rice to the tune of seven thousand quintals annually. This corroboration on the basis of data collected on trade, reveals the extent of under-estimation in the data on production.

homogeneous in the social organizations and family relations on account of common cultural heritage, the possibility of arriving at a common objective view is inherent in the situation. The knowledge of household's income position, and particularly the farm produce of the household, within the village, is common to all the members of the village, since there are many occasions of mutual cooperation in the use of inputs such as bullocks, ploughs, etc. Of course, during certain operations like interculture, in the cultivation of rice, the requirement of human labour is crucial and thus the mutual help through labour cooperation is secured. All this leads to the fact that the knowledge of agricultural situation being common and satisfactory within the bounds of the village, the reliability of consensus method at the village level is considerable. It may be added here that this degree of objectivity is likely to be lost in the context of certain State policies like levy-collection and monopoly procurement, as in such circumstances the village as a whole may have a definite interest in understating the agricultural production. But in the kharif season of 1963-64 no such government policies were initiated.

27

27 In fact, during 1964, the Maharashtra Government started the monopoly procurement purchases which had the effect of non-cooperation from sampled households to give the data on marketed agricultural production during the year 1963-64. Thus the investigation of marketing of produce at the household level had to be abandoned half-way.

A comment on the possible bias in the collection of consumption data is relevant here. As the data on consumption were collected every month and the bulk consumption of staple food being made out of homegrown stocks, the possible error is likely to be small. The data on the behaviour of consumption pattern has been primarily useful to establish the relationship of macro-economic magnitudes such as consumption, production and the consequent trade-margin, and levels of living.

3.4 Procedure of Valuation

The problem here is that on one hand the production data of such commodities internally produced are available in physical quantities and on the other hand the consumption data of 212 sampled household are available through monthly valuation by rural retail price. Had the family consumption data been valued by annual average price, then the same price list could have been immediately useful to convert the annual production data into expenditure in terms of money.

In other words, two sets of valuation of estimates of consumption are obtained, viz., a direct valuation of total annual household consumption valued by a simple annual average price, and the other is, through an addition of monthly household consumer expenditure for a

period of one year wherein monthly rural retail prices are utilised. An exercise presented in the Appendix I shows that the variations in prices of cereals are implicitly weighted and no explicit weights, such as monthly consumption of cereals, need be added to arrive at the weighted annual average price of a commodity. Thus on this ground, simple average annual prices of agricultural commodities have been accepted for the purpose of overall valuation of agricultural output. It may be added here that this is primarily necessitated on account of the monthly valuation of consumption data of sampled households and it was necessary to know beforehand that the method of working out the import-export capacity of the region is not vitiated or influenced by the technique of analysis and estimation procedure.

The discussion of the procedure of valuation is, of course, not important from the point of view of cross-section analysis of family budgets. The technique of regression analysis based on the least squares method to estimate the parameters of multiple regression can be carried out even with the help of notional prices since the relative constancy of prices at a point of time is the basic assumption of cross-section data on family consumption.

As explained earlier, the estimates of agricultural

production are valued by rural retail prices (simple annual averages), a procedure primarily necessitated by the method of valuation of the data on household consumption. The conventional choice of either harvest prices or wholesale prices is not followed in the present study on account of the fact that the prices of two major agricultural crops of the region, namely rice and ragi obtained at the district level are not representative. The region under study being basically different from the rest of the district and since no price reporting agency is located at Rajur, which is the principal local market, not much reliance could be placed on the conventional harvest prices. The harvest prices from other neighbouring districts such as Nasik were found to be equally unacceptable as the region under study has more and regular economic relations with the district to which it belongs.

From the view point of present study, the regional social accounts can be set up provided a consistent choice of prices, either wholesale or retail, simultaneously in respect of production and consumption estimates is maintained. The discussion is relevant in such studies wherein a comparative view of regional incomes is attempted. Some of the implications arising out of the choice of prices are discussed in the Appendix II.

3.5 Estimates of agricultural production

The estimates of agricultural production valued by simple average annual retail price, based on two sources may be presented. Table 3.1^{*} gives per acre yields of various crops. Amongst food crops, the average per acre yields show that the average yield of paddy is nearly double that of other crops like ragi, wheat etc. The difference in average yields between rice and ragi is as much as nearly one quintal. The implications of these differences in the productivity of land are already discussed in the second chapter. The difference between the per acre yields obtained from two sources is that the family schedule data consistently give lower level of production. It is only in the case of groundnut that the per acre yield based on the family schedule is higher. As compared to groundnut, per acre yield of other oil-seed viz. niger, is low. Also, the difference between village schedule estimates and family schedule estimates of rice and ragi is uniform, about fifty kilograms.

The data on per acre yields in this tribal tract may be compared with that of the neighbouring taluka, Igatpuri, from Nasik district. This taluka is also

^{*} Tables for this chapter are presented at the end, but their relevant summaries are placed in the text.

populated by Mahadeo Kolis and the main crops are rice and ragi. In fact, there is a concentration of Kolis in the Nasik district and the Kolis from Akola taluka may be said to be the extension in the Ahmednagar district. Otherwise the tribal tract under study has nothing in common with the rest of the Ahmednagar district in any respect. Whereas from the point of view of culture, climate, topography, crops, rainfall etc. the people of Igatpuri taluka have more in common with the hilly part of Akola taluka. The per acre yields of paddy are comparable since the difference is less than thirty kilograms. The difference in respect of ragi is notable. The per acre yield in Igatpuri taluka is over five quintals, which is more than three times that of per acre yields in the Akola taluka.

The per acre yield of ragi is leading in the Igatpuri taluka whereas it is rice in the Akola taluka. The average yield of wheat is more or less same at both places. The per acre yields of sava and varai are nearly double in Igatpuri taluka than that of yields in Akola taluka. The average yields in respect of groundnut are comparable.

The distribution of land under cultivation of various crops, that is gross cropped area, is already presented in the second chapter while discussing the

STATISTICS OF PER ACRE YIELDS OF MAJOR CROPS*

(Quantities are in quintals)

Sr. No.	Crop	Average yield per acre in the tribal tract of 87 villages from Akola taluka	Average yield per acre in the Igat-puri taluka of Nasik district
1	Paddy	3.80	4.08
2	Ragi	1.60	5.29
3	Wheat	1.62	1.75
4	Groundnut	2.59	2.13
5	Sava	0.60	1.02
6	Varai	1.31	2.04
7	Udid	1.47	1.45
8	Gram	1.50	1.32
9	Bajra	1.48	1.36
10	Jowar	1.19	1.77

For details, please see Table 3.2

* Only important crops are quoted here. The original data in pounds is converted here into quintals. All the crops in this table are unirrigated.

Report of the Annewari Committee has given certain data on average outturn per acre for Ahmednagar and Nasik district, on pp. 286-87.

Crops	Ahmednagar Dist.	Nasik Dist.	(Quantities are in quintals)
1. Paddy	4.68	4.86	
2. Wheat	2.07	2.07	
3. Jowar	2.43	2.34	
4. Bajra	1.62	1.53	
5. Ragi	3.83	4.06	
6. Gram	1.58	1.72	

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changes in the cropping pattern that have come about in the last hundred years. The resume of Table 3.3 is presented here:

TOTAL AND PER PERSON ACREAGE UNDER MAIN GROUPS OF CROPS

Sr. No.	Group of crops	Area (in acres)	Percentage share	Average per person (approx.) (in acres) *
1	Cereals	50369	72.96	0.975 (37 gunthas)
2	Pulses	8902	12.90	0.175 (7 ")
3	Oil seeds	8794	12.75	0.150 (6 ")
4	Miscellaneous crops	962	1.39	Not significant)
	Total	69027	100.00	1.250 (1 acre and 10 gunthas)

* Forty gunthas equal one acre, and one guntha is equal to 0.025 acres.

Excepting the average yield of bajra and gram, the average yield for other crops is uniformly higher than the findings of 1963-64 survey of 87 tribal villages from Ahmednagar district.

The committee has revised the standard yields on page 62.

Crops	Ahmednagar dist.	Nasik dist.
1. Paddy	4.06	4.06
2. Wheat	1.46	1.58
3. Jowar	1.60	n.a.
4. Bajra	1.01	1.35
5. Gram	1.46	1.46
6. Groundnut	2.70	3.15

These data are comparable with the data obtained in 1963-64 survey. The respective per acre yields of paddy and groundnut are nearly the same in both the districts.

"Report of the Annewari Committee for the Determination of Standard Yields". Revenue and Forest Department, Government of Maharashtra, 1966.

The leading position of cereals is evident, since nearly 73.0% of the gross cropped area is occupied by them. This is followed by other two groups, pulses and oilseeds, with 13% each. Amongst cereals, the total acreage under rice and ragi alone comes to as much as 35,000 acres out of about 50,000 acres under cereals. This works out to be about 70% of the area under cereals, or about 51% of the gross cropped area. The consumption pattern for this region, particularly the structure of cereal consumption analysed in the fifth chapter has basically reflected this cropping pattern. The total acreage under sava and varai is significant, about 7,000 acres. This comes to approximately 15% of the area under cereals and 10% of the gross cropped area under all crops. The average gross cropped area per person is one acre and ten gunthas. Of this, per person under cereals is little less than one acre, whereas it is 7 gunthas and 6 gunthas under pulses and oilseeds respectively.

The table on page 127 gives the distribution of gross cropped area according to the two seasons of the agricultural year, kharif and rabi.

The dominant share of kharif crops implies indirectly the dependence on monsoon, since the assured water facilities are almost non-existent. The rabi crops, wheat and gram, are about 8% which shows that in the absence

DISTRIBUTION OF ACREAGE UNDER KHARIF AND RABI SEASONS

Sr. No.	Crops	Acres	Percentage share	Average per person (approx.)
1	Kharif	62278	90.22	1.150 (one acre and six gunthas)
2	Rabi	5787	8.38	0.100 (four gunthas)
3	Miscellaneous	962	1.39	Not significant
	Total	69027	100.00	1.250 (one acre and ten gunthas)

of irrigation facilities, the winter crop can be raised only on such patches of land that can retain moisture even after the kharif crop is harvested. Usually such lands are of better quality and texture, locally known as rice tāls.

The estimated total agricultural production based on 'village schedule' is about eighty-eight lakhs of rupees, and the other estimated production based on family schedule is about sixty-eight lakhs of rupees.²⁸ The difference in the two estimates is of twenty lakhs

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Table 3.4 and Table 3.5 respectively present these estimates.

of rupees. The under-estimation in the latter estimate is on account of the lower per acre yields reported by the sampled households in respect of major crops like rice, ragi and wheat and gram. Only in the case of groundnut, the estimated production based on the family schedule data is higher. The per capita agricultural production works out to be approximately Rs. 161.00 and Rs. 125.00 respectively. The under-statementⁱⁿ per capita is of the order of Rs. 36.00 in the latter case.

In terms of physical quantities, the estimated total agricultural production based on village schedule is approximately one lakh and ten thousand quintals and the one based on family schedule is approximately little over eighty-three thousand quintals. The latter estimate is lower by as much as twenty-seven thousand quintals. Per capita agricultural production comes respectively to about little over two quintals and little over one and half quintals respectively.

These estimates of total agricultural production for the group of 87 tribal villages have to be upgraded to some minor extent as the acreage under miscellaneous crops, viz., 962 acres, has remained unaccounted. A commonly used method²⁹ has been applied to take note of

²⁹ "Agro-Industrial Balance - An Expository Survey of Sirur Taluka", Samaj Prabodhan Sanstha, Popular Prakashan, Bombay, March, 1964, pp. 36-37.

this unaccounted acreage, which is less than one and half percent of the gross cropped area. These 962 acres are presumed to have contributed in the same proportion as the average contribution of all other crops put together under about 68,000 acres. Since there are two estimates of total agricultural production, in value as well as quantity terms obtained through two sources of data, i.e., at the village level and sampled household level, the respective average contributions are supposed to hold good in the case of miscellaneous crops also.

The final estimates of total agricultural production come to eighty-nine lakhs of rupees and sixty-nine lakhs of rupees respectively based on the 'village schedule' and 'family schedule' data.

The average per capita agricultural production comes to about Rs. 163.00 and Rs. 126.00 respectively.

The average production per acre comes to about Rs. 129.00 and Rs. 99.00 based on the data from two sources.

The corresponding averages in quantity terms may be added here. The estimated total agricultural production is about one lakh and twelve thousand quintals based on the village schedules data. An alternate estimate is eighty-five thousand quintals, based on the family

schedule. These estimated productions come to about two quintals and six kilograms and one quintal fifty-six kilograms, per person respectively. And the per acre contributions come to one quintal sixty-two kilograms and one quintal twenty-three kilograms per acre.

Table 3.4 referred to earlier indicates that oilseeds, niger and groundnut together, contribute about sixteen percent whereas amongst the food group, the percentage contributions of rice and ragi are 46.00% and 16.00% respectively. The importance of rice crop is highlighted by such a high contribution on account of higher unit price of rice. The production estimate based on the family schedule data shows still higher percentage contribution of rice at about 52.00%.

Table 3.4 shows that out of one lakh and twelve thousand quintals, about eleven thousand quintals are contributed by oilseed crops. Amongst the rest of the food crops, out of about one lakh quintals, the contribution of rice and ragi is forty-three thousand quintals and twenty-eight thousand quintals respectively. Next comes the share of wheat and bajra with six thousand quintals each. All other crops produce less than four thousand quintals. The detailed statistics are presented with the view to underscore the position of rice, and partly that of ragi, in the regional pattern of agricultural production.

3.6 Estimates of Consumption

The regional estimates of consumption are presented in Table 3.6. Here only those food items are considered which are, at least, partly produced within the region. Many of the non-food items whose consumption is noted in the family budget enquiry, such as condiments, chillies, tobacco, sugar, tea, clothing, kerosene, etc., are wholly imported from outside and hence they need not be considered here in relation to indigenous agricultural production. Of course, at a later stage, these commodities from the list of imports have been introduced to estimate the total consumption expenditure of the region, since these imports are paid out of the export earnings. Thus to arrive at the final regional balance, in terms of imports and exports, the exports of forest produce, myrobolam, and coal, poultry and eggs, milk and milk products have to be estimated. The following chapter deals in these problems of estimation of export earnings. The consumption aspect, as in the case of milk, has been dealt with therein only.

As regards the consumption estimates, they have to be deflated since their total annual consumption has been arrived at through month to month valuation by rural retail price. It is noted in respect of the consumption of seven cereals that when the total annual consumption

is valued by the simple annual average retail price, the actual total consumption expenditure is less than one arrived at through monthly valuation, the exception being that of rice. This explains the margin of inflated estimates of total expenditure. Excepting the seven cereals in whose case the consumption data being available in the quantitative form, all other items of consumption³⁰ are minor since their total expenditure is around 15% of the total consumption expenditure. These expenditure items have been deflated on the basis of margin obtained through the valuation of cereal consumption. Out of the thirteen items of foodgrains' consumption, the consumption of rice, ragi, bajra and wheat together amounts to 79.0%. The consumption of rice and ragi together constitutes nearly 63%.

The consumer expenditure on wheat is revalued since about twenty percent of the total wheat consumption and more than three-fifth of total consumption of wheat out of market purchases costs less than what it would

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Excluding rice, the total expenditure on six cereals, namely, ragi, bajra, jowar, wheat, sava and varai, arrived at by annual valuation is Rs. 32,72,305 and the total expenditure arrived at by monthly valuation is Rs. 34,17,957. The ratio of these two, 0.95739, is used to deflate the consumer expenditure, arrived at by monthly valuation, on niger seed, groundnut, udid, moog, hulaga, gram.

look like if the retail price is used in the valuation. The price prevailing in the Fair Price Shops run by the Government being usually stable around Rs. 42.00 per quintal^{*} it may be preferred to the annual average rural retail price, Rs. 91.00 per quintal.

MONTHWISE DISTRIBUTION OF WHEAT THROUGH FAIR PRICE SHOP FOR THE YEAR NOVEMBER 1963 TO OCTOBER 1964 **

Sr. No.	Monthly sale of cereal, wheat	Total quantity distributed (in quintals)	Total value (in Rs.)	Average price per quintal (in Rs.)
1	Nov., 1963	125	5250	42.00
2	Dec., 1963	130	5460	42.00
3	January, 1964	80	3360	42.00
4	February, 1964	150	6300	42.00
5	March, 1964	100	4200	42.00
6	April, 1964	320	13440	42.00
7	May, 1964	70	2940	42.00
8	June, 1964	275	11550	42.00
9	July, 1964	80	3360	42.00
10	August, 1964	210	8820	42.00
11	September, 1964	190	7980	42.00
12	October, 1964	190	7980	42.00
	Total	1920	80640	42.00

** For details, please see Table No. 3.7.

* Please refer to Table 3.7.

Here only that part of consumption of wheat, 1920 quintals that is supplied by the Fair Price Shops is valued at the rate of Rs. 42.00 per quintal.³¹ The original magnitude of total consumer expenditure on wheat is Rs. 8,70,324, if the total wheat consumption is valued by simple annual rural retail price of Rs. 91.00 per quintal. After adjusting the part of wheat consumption the price of which is Rs. 42.00 per quintal, the total expenditure on wheat comes down to Rs. 7,76,244.00. The extent of over-valuation is about ninety-four thousand rupees.

The appropriately deflated total consumption expenditure for the region is presented in column 5 of table 3.60. Thus the estimated total consumption expenditure comes to seventy-nine lakhs of rupees. In other words, the per capita consumer expenditure comes to about Rs. 145.00. The total consumption expenditure of all households in the region, in relation to gross cropped area gives the consumption expenditure per acre about Rs. 114.00.

³¹ Not all the total consumption of wheat, about 9600 quintals, is valued by Fair Price Shop-price, in the interest of consistency in the valuation procedure used for other commodities. Otherwise the use of price, Rs. 42.00, in place of retail price, Rs. 91.00 would have necessitated the revaluation of production of wheat accordingly. This way also, the margin in value term between production and consumption would have remained the same by either of the prices used.

3.7 Relationship Between Estimated Production and Consumption

The two production estimates may be linked up with the consumption estimate for the region under study. These estimates are presented in Table 3.6.

The estimated production based on the village schedules is approximately eighty-nine lakh rupees and the alternative estimated production based on the family schedules is sixty-nine lakh rupees. As against this is the estimate of consumption, approximately seventy-nine lakh rupees. This is one lakh rupees less on account of revaluation of the consumption of wheat, distributed through Fair Price Shops. Also, these consumption estimates do not include the non-food items and milk and milk products. These sources of income and expenditure, in addition to certain exports such as myrobolam and coal, etc. are balanced at a later stage.

Thus, there is a surplus of ten lakh rupees per annum if the estimate of total consumption expenditure is linked up with that of village schedule estimate of agricultural production. This surplus works out to be approximately Rs. 19.00 per person and Rs. 15 per cultivated acre.

If the family schedule estimate of production is accepted, the deficit is of ten lakhs rupees, which comes

to approximately Rs. 19.00 per person and Rs. 15.00 per cultivated acre.

These details are noted below in the summary form.

(The estimates are approximate)

		Per capita	Per Acre
		Qtl.Kg.	Qtl.Kg.
1. Village schedule estimate of prod.	89 lakh rupees (one lakh, twelve thousand quintals)	2.06 (Rs.163.40)	1.62 (Rs.128.55)
2. Family schedule estimate of prod.	69 lakh rupees (eighty-five thousand quintals)	1.56 (Rs.126.40)	1.23 Rs. 99.44
3. Estimate of consumption (value of consumption of wheat readjusted)	79 lakh rupees	Rs.144.96	Rs.114.00
(The difference between the first and third rows)	The surplus of 10 lakhs rupees	Rs. 19.00	Rs. 15.00
(The difference between second and third rows)	The deficit of 10 lakhs rupees	Rs. 19.00	Rs. 15.00

3.8 Commodity Balance of Cereals

In the background of foregoing discussion of the relationship of agricultural production and consumption at the regional level, an analysis of major cereals in quantitative terms is presented in Table 3.8. This procedure

would clearly bring out the basic commodity balance obtained in this region under study. Its features and implications from the point of view of trade pattern are discussed in the subsequent chapter on Rajur, the local market centre. The pattern of import-export capacity of agricultural commodities is important in itself because it is the major index of regional income-level.

Vera Cao-Pinna has discussed the necessity of 'Commodity Balances in quantitative terms':³²

"Another basic condition for preparing a qualified tool of operational analysis is finally, that the commodity balances be as much as possible, established first in quantitative terms, and then tested in value terms. Actually whatever be the price system used for arriving at the cross-section balances (producers' prices, or purchasers' prices), it must be remembered that prices are only fictitious veil covering the real interconnections among technical requirements of specific products and that the final purpose of input-output accounting should not be confined to the description (in money terms) of the present structure of national or regional economies, but rather that of indicating feasible and realistic solutions for practical problems of regional economic development, such as those in relation to perspective energy requirements, import requirements, or substitutions of specific commodities, exportable surplus of regional products, employment targets, etc."

The implications of "exportable surplus of regional products" are highlighted in the discussion of incidence

³² Vera Cao-Pinna, "Problems of Establishing and Using Regional Input-Output Accounting", in Walter Isard and John H. Cumberland, edit. "Regional Economic Planning, Techniques of Analysis for Less Developed Areas", European Productivity Agency of the Organization for European Economic Co-operation, Paris, 1961, p. 312.

of seasonal variations in the pattern of cereal consumption and trade. Finally, the statistical model of an interacting economic space in terms of certain basic activities such as production, consumption and consequent trade movement, may help visualize the potential for regional development of an area. The major cereals considered here are rice, ragi, bajra, jowar, wheat, sava and varai. The estimates of production and consumption for these commodities are based on two sources of data, as mentioned earlier. From the point of view of internal consistency it is seen that the estimates based on village schedule data may be accepted as representative of the agricultural situation, for further analysis.³³

The comparison of two sets of production estimates with that of consumption estimates shows that the consumption is in excess of production. This is only in respect of the indigenously available cereals. The order of gross deficit between the family schedule estimate of production and consumption is approximately twenty-four thousand quintals. In the case of rice alone, the indicated surplus margin is of about one thousand quintals.

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The data on trade, discussed in the fourth chapter provided a test of consistency in the overall magnitudes of production, consumption and margin of import-export. The estimates based on village schedules are accepted on this group.

Obviously this is unlikely since there is a conclusive evidence from the local transport agency as regards the export of rice to Sangamner every Wednesday throughout the year.³⁴

The comparison between village schedule estimate of production and consumption reveals that the extent of gross deficit is about three thousand quintals annually. In respect of all seven cereals, excepting wheat, the trade margin, which is the difference between the total domestic consumption and indigenous production of cereals, is broadly corroborated by the trade statistics discussed in the fourth chapter. The estimated total consumption of cereals is little over ninety-three thousand quintals and the estimated internal production is ninety thousand quintals. The net deficit of three thousand quintals is met through imports. This small magnitude at the aggregate level of total cereals conceals the scale of movements of exports and imports that are necessitated by the interaction of domestic requirements and the internal availability of foodgrains within the region.

Table 3.8 also presents the proportions obtained amongst seven cereals in different estimates. A comparison of proportionate shares of each cereal in their respective

³⁴ Please refer to the following chapter on Trade at Rajur market.

total cereals, estimated on the basis of village-schedule and family schedule data, shows that excepting the shares of rice, and sava, the shares of other cereals, such as ragi, bajra, jowar and wheat are uniformly higher in the estimates based on village-schedules data. But in respect of rice, it is the other way round and the difference is as much as six percent. But both the estimates show that the collective share of rice and ragi is 84% and 79% respectively. As against this the column of percentage shares of each cereal consumption shows that the shares of rice and ragi are 39.00% and 35.00% respectively. Then follows the share of wheat with 10.00%. Other cereals' collective share is less than 16%. Amongst cereals that are in surplus, rice is the most prominent. Whereas amongst cereals that are in deficit, the percentage share of ragi is higher, about 42.00% followed by that of wheat with 35.00%. The percentage shares of bajra and jowar are about 12.00% each. These proportions are relevant to the discussion of pattern of trade of this region.

The broad magnitudes of major items of exports and imports may be mentioned here.³⁵ The highest magnitude, around six thousand quintals is of rice exports, and the

³⁵ The proportions of surplus and deficit margins give indication of export-import trade. These are presented in Table 3.9.

percentage share of exports in the total production of rice is about sixteen percent. In value terms, this amounts to seven lakh rupees. It is of interest to note here that this major export of the region really covers the imports of all other cereals. And yet as much as 84.00% of total production of rice, is devoted to the internal domestic consumption. The preceding chapter dealing in the historical evolution of consumption, cropping pattern and trade margin or in other words, generally the levels of regional income, has explored the implications of this phenomenon. After rice, comes the export of sava. Though the percentage share of surplus margin of production over consumption is higher, about 22.00%, it is hardly around 500 quintals. In value terms the export is worth about twenty-seven thousands rupees.

The list of imports is longer comparatively. Ragi, bajra, jowar and wheat all are in deficit in varying degrees. The maximum imports are in the case of ragi, about 4500 quintals or in value, two lakh twenty thousand rupees. The proportionate share of import in the total consumption of ragi is around fourteen percent. This in other words, means that the internal production of ragi is sufficient to meet the substantial portion of domestic demand since as much as eighty-six percent of total consumption of ragi is met out of domestic production.³⁶

³⁶ The domestic production of ragi is not put on

The other significant deficit is that of wheat, around three thousand and seven hundred quintals or in value three lakh thirty-three thousand rupees. In the case of wheat, it may be again remembered here that out of thirty-seven hundred quintals nearly two thousand quintals are provided through Fair Price Shops. This has number of implications in terms of relief to agriculturists during the monsoon when the price of wheat has a distinct advantage over all other imported cereals such as ragi, bajra and jowar. Then follow the imports of bajra and jowar which are twelve hundred and thirteen hundred quintals respectively. In value, the imports are worth seventy-four thousand and sixty-eight thousand rupees respectively. As regards bajra, its proportionate consumption met out of indigenous production is comparable with that of ragi. The imported bajra is hardly around seventeen percent of total consumption requirement, whereas in the case of jowar, the position is exactly reversed. Nearly sixty-four percent of total consumption requirement is met through imports of jowar. This is the highest percentage contribution of consumption met out of imports when the seven cereals are independently considered.

the local market and the entire import of ragi takes place during the monsoon. These details are discussed in the subsequent chapter on trade. The implications of variations in prices are discussed at a later stage while discussing the commodity balance of cereals in value terms.

3.9 Seasonal Interaction of Commodity

Balance and Consumption of Cereals

The phenomenon of seasonal variations in the consumption pattern of cereals being analysed in details in the fifth chapter, it is appropriate at this stage to trace the correlation of seasonal variations in the consumption of cereals and corresponding prices. Generally speaking, the export of rice is counterbalanced by the imports of ragi, bajra, jowar and wheat and these imports again, are concentrated in a particular season, viz., monsoon.³⁷

The main interest is to investigate how the advantages of higher unit price of rice, a principal commodity export from this region, are balanced by the disadvantages of high-priced imports of cereals during the monsoon season.

The table presented on page 144 is extracted from Table 3.6. Both the estimates of agricultural production of cereals and consumption are directly obtained by the product of estimated annual quantitative consumption of individual cereals and simple annual average rural retail price. It is evident from the columns, giving percentage shares in either the total production or consumption and not just in the total cereals, that generally whenever the percentage share of production is higher as compared to

³⁷ Please refer to the discussion of foodgrains' trade in the fourth chapter.

Sr. No.	Cereal	Village schedule estimate of production (in Rs.)	Percentage	Estimate of total consumption	Percentage	Surplus margin	Deficit margin
1	Rice	40,44,000	46.22	34,05,000	52.75	6,31,000	
2	Ragi	13,81,000	15.79	16,00,000	20.08		2,19,000
3	Bajra	3,52,000	4.02	4,26,000	5.35		74,000
4	Jowar	38,000	0.44	1,06,000	1.33		68,000
5	Wheat	5,37,000	6.14	8,70,000	10.94		3,33,000
6	Sava	1,25,000	1.42	97,000	1.22	28,000	
7	Varai	1,78,000	2.04	1,72,000	2.17	6,000	
		66,55,000	76.07	66,76,000 94,000*	83.84	6,73,000	6,94,000 94,000*
				65,82,000			6,00,000

The estimate of total consumption of cereals is properly adjusted against the margin of overvaluation Rs.94,000, of wheat consumption. Please see explanatory note to the earlier table. On account of these adjustment the net deficit of Rs. 21,000 is being replaced by the net surplus of Rs. 73,000 on the agricultural production account.

that of consumption an export may be expected. The exception of sava is of minor importance. The surplus margin of three and half percent in the case of rice is equivalent to the export of approximately seven thousand quintals or in value, about six lakh and thirty-nine thousand rupees. As against this, the deficit margin of over four percent in respect of ragi and nearly five percent in respect of wheat result into imports of Rs. 2,19,000 and Rs. 3,33,000 respectively. The margin of overvaluation of wheat that is distributed through Fair Price Shops, approximately two thousand quintals, is finally deducted from the estimate of total consumption of cereals.

The overall estimated agricultural production of cereals is Rs. 66,55,000 and the overall estimated total consumption of cereals is Rs. 66,76,000 per annum. There is a net annual deficit of Rs. 21,000. But this deficit disappears as soon as the margin of overvaluation on wheat account is adjusted. And a net export surplus of Rs.73,000 results. It may be added here that in quantitative term, a net deficit of approximately three thousand quintals is shown.³⁸

The table presented here consists of relevant details from Table 3.6. As the consumption data are valued by monthly rural retail price, it may be presumed here that the estimated total consumption of cereals arrived at through monthly valuation takes note of higher prices of cereals prevailing during the monsoon. Since it is during the monsoon that imports of ragi, bajra, jowar and wheat take place and also the major share of consumption during this period being that of consumption out of market purchases, the difference between the estimates of production and consumption of cereals may be expected to indicate the overall magnitude of either surplus or deficit.

An exception has been made in the case of rice; here, instead of higher value of total consumption of rice that may be expected on account of the procedure of monthly valuation and as is the case in respect of all other cereals - the actual consumption estimate of rice thus obtained is less than the product of total consumption (in quintals) of rice and annual average price. This happens on account of higher level of rice consumption during the marketing period, November 1963 to April 1964, when the average price is much lower. Thus, instead of taking the anomalous valuation such as the one in the case of rice, the direct annual valuation has been taken here.

The estimated total production of cereals is Rs. 66,55,000 and the corresponding estimated total consumption is Rs. 68,23,000. The annual deficit is of the order of Rs. 1,68,000. But if the margin of overvaluation of Rs. 94,000 is deducted from the estimated total consumption of cereals the net deficit of Rs. 1,68,000 is being replaced by the reduced deficit of Rs. 74,000 on the export account.

The difference of Rs. 74,000 may be attributed to the higher unit prices of imports of ragi, bajra and jowar. It is the stable unit price of wheat, Rs. 42.00 per quintal, that is maintained throughout the year and particularly during the monsoon, through distribution of subsidized wheat, that makes an important difference of approximately one lakh rupees in the export-import relationship of cereals. If this arrangement of Fair Price Shop were absent then the magnitude of net deficit would have still been higher, Rs. 1,68,000. Approximately, this relief works out to be less than two rupees per person, in this region.

The conclusions arrived at in the preceding discussion are corroborated in a more direct manner here. The method of indirect estimate arrived at through monthly valuation of consumption of cereals is found to be substantially valid. The accompanying table illu-

Sr. No.	Cereals	Village schedule estimate of production (in Rs.)	Percentage	Monthly valued total consumption (in Rs.)	Percentage	Surplus margin (in Rs.)	Deficit margin (in Rs.)
1	Rice	40,44,000	46.22	34,05,000		6,39,000	
2	Ragi	13,81,000	15.79	16,31,000	20.20		2,50,000
3	Bajra	3,52,000	4.02	4,58,000	5.67		1,06,000
4	Jowar	38,000	0.44	1,16,000	1.43		78,000
5	Wheat	5,37,000	6.14	9,11,000	11.29		3,74,000
6	Sava	1,25,000	1.42	1,04,000	1.29	21,000	
7	Varai	1,78,000	2.04	1,98,000	2.46		20,000
	Total	66,55,000	76.07	68,23,000		6,66,000	8,28,000
				- 94,000 ↵			- 94,000 ↵
				67,29,000			7,34,000

↵ As explained elsewhere, 1920 quintals of wheat, supplied through the Fair Price Shop gets overvalued on account of use of monthly rural retail price of wheat. The price being stable around Rs. 42.00 per quintal throughout the year, the margin of overvaluation, approximately Rs. 94,000 has been deducted here from the estimate of total consumption as well as the overall deficit. The magnitude of deficit comes down from Rs. 8,28,000 to Rs. 7,34,000. Thus the net deficit of Rs. 1,68,000 is being reduced to Rs. 74,000.

strates the phenomenon of variations in prices and consumption of cereals and how consequently the apparent surplus margin is affected through the higher value of consumption during monsoon.

The method followed is as follows: It is already established that the export of rice to the tune of seven thousand quintals or worth about six lakh and thirty-nine thousand rupees, takes place. Added to this is the margin of sava and varai which together comes to about six hundred and fifty quintals or thirty-three thousand rupees. As against this, the total imports of nearly ten thousand and six hundred quintals of ragi, bajra, jowar and wheat take place and the additional feature of this import is that it takes place during the monsoon. Thus, the cereals such as rice, sava and varai are valued by the mean average retail prices prevailing during May 1964 to October 1964. All the imported cereals that are consumed through market purchases during the latter half of the reference year, are thus appropriately valued considering the higher level of prices.

The following table presents the mean average prices of cereals during two six-monthly periods - November 1963 to April 1964 and May 1964 to October 1964.

SIX MONTHLY MEAN AVERAGE RETAIL PRICES OF CEREALS

Sr. No.	Cereal	Mean Average price for the period of six months Nov. 1963 to Apr. 1964 (in Rs. 00.00)	Mean average price for the period of six months - May 1964 to Oct. 1964 (in Rs. 00.00)	Mean annual average price Nov. 1963 to Oct. 1964 (in Rs.00.00)
1	Rice	0.80	1.05	0.93
2	Ragi	0.41	0.56	0.49
3	Bajra	0.49	0.84	0.62
4	Jowar	0.48	0.60	0.54
5	Wheat	0.74	1.08	0.91
6	Sava	0.41	0.56	0.49
7	Varai	0.41	0.56	0.49

The average prices in the latter half of the reference year for ragi, bajra, jowar and wheat are utilized to arrive at the total value of imported cereals during the monsoon, which comes to Rs. 8,24,000. As against this, the value of exports is Rs. 6,72,000 and thus the net deficit margin in overall cereals commodity account comes to Rs. 1,52,000. This gives an index of incidence of higher unit prices of cereals during the monsoon. The magnitude of deficit has to be adjusted since, as

much as Rs. 94,000 are the margin of overvaluation in respect of that part of wheat consumption that is distributed through Fair Price Shops. The net deficit comes down to Rs. 58,000.* It may be remembered that in spite of the deficit of three thousand quintals in the overall commodity balance established earlier, there is an apparent surplus margin of Rs. 73,000 when no account is taken of seasonal variations in prices and their incidence on cereal consumption that takes place through market purchases of imported cereals. In the same argument it is independently established, by using the estimated consumption arrived at through monthly valuation, that the magnitude of deficit is Rs. 74,000. The other alternative magnitude of deficit is Rs. 58,000. It can be seen that these two estimates of probable deficits on account of higher incidence of prices during the monsoon are of the same order. The minor difference may be on account of the surplus margin of sava and varai which are of less importance in the consumption pattern of cereals and also no trade data are available for these two cereals.

3.10 Final Regional Account

Finally, the broad social account of the region may be completed here. To complete the system, the estimates

* Table presented on page 152.

Sr. No.	Cereal	Village schedule estimate of production (in quintals)	Estimate of consumption (in quintals)	Surplus margin		Deficit margin	
				in quintals	in Rs.	in quintals	in Rs.
1	Rice	43,482	36,615	6,867	6,39,000	-	-
2	Ragi	28,188	32,650	-	-	4,462	2,50,000
3	Bajra	5,767	6,984	-	-	1,217	1,02,000
4	Jowar	708	1,969	-	-	1,261	76,000
5	Wheat	5,902	9,564	-	-	3,662	3,96,000 ↵
6	Sava	2,491	1,947	544	27,000	-	-
7	Varai	3,638	3,519	199	6,000	-	-
Total		90,176	93,248	7,530	6,72,000	10,602	8,24,000
						- 7,530	- 94,000 ↵
						3,072 (net deficit)	Rs.7,30,000 (effective deficit)
						(Net adjusted deficit) Rs.	58,000

↵ The margin of overvaluation, Rs. 94,000, in respect of consumption of wheat has been adjusted in the total deficit.

of such items of imports and exports which are presented in the following chapter have to be added here. The feature of these estimated exports is that they are more or less independent of local domestic demand. The gross imports are of clothing and Kirana.

Exports	Value (in Rs.)	Imports	Value (in Rs.)
1. Tomato	1,15,200	Clothing	15,00,000
2. Poultry - eggs	1,51,000	Kirana	10,00,000
3. Coal	6,40,000		
4. Niger seed	1,43,000		
5. Groundnut	7,31,000		
6. Myrobolam	1,00,000		
7. Milk products	3,00,000		
8. Ghee	19,200		
Total Rs.	21,99,400	Total Rs.	25,00,000
or approximately Rs.	22,00,000		

The surplus of about ten lakh rupees on the agricultural production account may be added to the total worth of exports i.e. approximately twenty-two lakh rupees. The total surplus comes to about thirty-two lakh rupees.

Deduction of net imports worth about twenty-five lakh rupees gives the net surplus of about seven lakh rupees. This works out to be about thirteen rupees per person. The surplus derived here refers to the initial idea of 'actual economic surplus' suggested by Paul Baran. It does not take into account the incidence of seasonal variations in the prices of cereals and its effects on the import-export trade of cereals.

TABLE 3.1 : AVERAGE PER ACRE PRODUCTION OF VARIOUS CROPS

Sr. No.	Crop	Per acre production according to village schedule	Per acre production according to family schedule
		[in quintals]	
1	Paddy	3.80	3.29
2	Ragi	1.60	1.18
3	Sava	0.60	0.60
4	Varai	1.31	0.42
5	Niger seed	0.59	0.31
6	Groundnut	2.59	2.73
7	Bajra	1.48	0.92
8	Jowar	1.19	0.52
9	Toor	0.70	0.70 ⁺
10	Math	0.74	0.30
11	Udid	1.47	0.39
12	Moog	0.62	0.62 ⁺
13	Hulaga	0.65	0.50
14	Wheat	1.62	0.89
15	Gram	1.50	0.47
16	Bhadali	0.56	0.56 ⁺
17	Val	0.37	0.37 ⁺
18	Chillies	0.37	0.37 ⁺

⁺ Average per acre yields of these crops were not available from the sampled family-schedules. Hence, the average per acre yields noted in the village schedules are substituted.

TABLE 3.2 : STANDARD YIELDS OF UNIRRIGATED
CROPS FOR NASIK DISTRICT *
(in quintals)

Sr. No.	Crops	1960-61
1	Rice	4.08
2	Wheat	1.75
3	Jowar	1.77
4	Bajra	1.36
5	Ragi	5.29
6	Varai	2.04
7	Sava	1.02
8	Bhadali	1.02
9	Gram	1.32
10	Moog	1.81
11	Toor	3.63
12	Udid	1.45
13	Val	2.27
14	Groundnut	2.13
15	Sesamum	1.51
16	Chillies	1.81

* Season and Crop Report, Maharashtra State, 1960-61, Government of Maharashtra, Bombay 4, 1965, pp. 96-132.

TABLE 3.3 : ACREAGE UNDER VARIOUS CROPS

(Source: Village Schedule)

Sr. No.	Crop	Acres	Percentage
1	Rice	17,640	25.56
2	Ragi	17,662	25.59
3	Sava	4,152	6.01
4	Varai	2,777	4.02
5	Khurasani	5,864	8.50
6	Groundnut	2,930	4.25
7	Bajra	3,900	5.65
8	Jowar	595	0.85
9	Udid	1,668	2.42
10	Moog	36	0.05
11	Hulaga	5,054	7.32
12	Wheat	3,643	5.28
13	Gram	2,144	3.11
14	Miscellaneous	962	1.39
	Total	69,027	100.00

TABLE 3.4 : ESTIMATES OF PRODUCTION FOR THE REGION

(Source: Village Schedule)

Sr. No.	Crop	Production in quintals	Percentage	Valuation according to rural retail prices			Valuation according to harvest prices		
				Price per quintal (in Rs.)	Total value of production (in Rs.)	Percentage	Price per quintal (in Rs.)	Total value of production	Percentage
1	Paddy	66,895		60.45	40,43,802.		50.66	33,88,901.	
2	Rice	43,482	39.46	93.00	40,43,826.	46.22	77.94	33,88,987.	47.94
3	Ragi	28,188	25.58	49.00	13,81,212.	15.79	40.31	11,36,258.	16.08
4	Sava	2,491	2.26	50.00	1,24,550.	1.42	38.63	96,227.	1.36
5	Varai	3,638	3.30	49.00	1,78,262.	2.04	40.31	1,46,648.	2.08
6	Niger seed	3,451	3.13	125.00	4,14,120.	4.73	92.05	3,17,665.	4.50
7	Groundnut	7,593	6.89	125.00	9,49,125.	10.85	85.09	6,46,088.	9.14
8	Bajra	5,767	5.23	61.00	3,51,787.	4.02	50.10	2,88,927.	4.09
9	Jowar	708	0.64	54.00	38,232.	0.44	47.79	33,835.	0.48
10	Udid	2,445	2.22	110.00	2,68,950.	3.07	67.19	1,64,280.	2.32
11	Moog	22	0.03	117.00	2,574.	0.03	53.75	1,182.	0.02
12	Hulaga	3,294	2.99	54.00	1,77,876.	2.03	53.75	1,77,053.	2.50
13	Wheat	5,902	5.36	91.00	5,37,082.	6.14	86.38	5,09,815.	7.21
13	Gram	3,205	2.91	88.00	2,82,040.	3.22	50.18	1,60,827.	2.28
	Total	1,10,186	100.00		87,49,636.	100.00		70,67,792.	100.00
	762 acres under miscellaneous crops	1,158.			1,23,665.			99,894.	
	Final total	1,11,744.			88,73,301.			71,67,686.	
	Per person	2.06			163.40			131.99	
	Per acre	1.62			128.55			103.84	

TABLE 3.5 : ESTIMATES OF AGRICULTURAL PRODUCTION (SOURCE: FAMILY SCHEDULE)

	Average per acre yield (in quin- tals)	Total acreaqe under the crop	Total production (in quin- tals)	Estimate of the value of pro- duction according to rural retail prices			Estimate of the value of production according to harvest prices		
				Annual rural retail price per quintal	Total produc- tion (in Rs.)	Percent- age	Harvest price per quintal	Total production (in Rs.)	Percent- age
1. Rice			37,723.52	93.00	35,08,287.36	51.84	77.94	29,40,171.15	53.67
1. Paddy	3.29	17,640.175	58,036.18	60.45	35,08,287.36	-	50.66	29,40,112.88	-
2. Ragi	1.18	17,661.650	20,840.75	49.00	10,21,196.75	15.09	40.31	8,40,090.63	15.34
3. Sava	0.60	4,151.800	2,491.08	50.00	1,24,550.00	1.84	38.63	96,230.42	1.76
4. Varai	0.42	2,776.650	1,166.19	49.00	57,143.31	0.84	40.31	47,009.12	0.86
5. Khurasani	0.31	5,864.475	1,817.99	125.00	2,27,248.75	3.35	92.05	1,47,345.98	3.06
6. Groundnut	2.73	2,930.375	7,999.92	125.00	9,99,900.00	14.77	85.09	6,80,713.93	12.43
7. Bajra	0.92	3,900.075	3,588.07	61.00	2,18,872.27	3.23	50.10	1,79,762.31	3.28
8. Jowar	0.52	594.975	309.39	54.00	16,707.06	0.25	47.79	14,785.75	0.27
9. Udid	0.39	1,667.950	650.50	110.00	71,555.00	1.06	67.19	43,707.10	0.80
10. Moog	0.62	36.025	22.34	117.00	2,613.78	0.04	53.75	1,200.78	0.03
11. Hulga	0.50	5,053.575	2,526.79	54.00	1,36,446.66	2.02	53.75	1,35,814.96	2.47
12. Wheat	0.89	3,643.125	3,242.38	91.00	2,95,056.58	4.36	86.38	2,80,076.78	5.11
13. Gram	0.47	2,143.750	1,007.56	88.00	88,665.28	1.31	50.18	50,559.36	0.92
Total		68,064.800	83,836.48	-	67,68,242.80	100.00	-	54,77,468.27	100.00
Miscellaneous		+ 962.000	1,183.26	-	95,661.28	-	-	77,412.14	-
Final total		69,027.000	84,569.74	-	68,63,904.08	-	-	55,54,880.41	-
Per person	Acres	1.250	1.56 Quint.		Rs.126.40			Rs. 102.29	
Per acre			1.23 Quint.		Rs. 99.44			Rs. 80.47	

TABLE 3.6 : ESTIMATES OF PRODUCTION AND CONSUMPTION FOR THE REGION

Crop	Estimates of Production based on village schedule		Estimates of production based on family schedule		Estimates of consumption			
	Estimates of production (in Rs.)	Percentage	Estimate of production (in Rs.)	Percentage	1 A (in Rs.)	Percentage	2 B (in Rs.)	Percentage
1. Rice	40,43,826	46.22	35,08,287	51.84	34,05,195	42.75	33,10,433	41.00
2. Ragi	13,81,212	15.79	10,21,197	15.09	15,99,850	20.08	16,30,779	20.20
3. Sava	1,24,550	1.42	1,24,550	1.84	97,350	1.22	1,04,266	1.29
4. Varai	1,78,262	2.04	57,143	0.84	1,72,431	2.17	1,98,213	2.44
5. Khurasani	4,14,120	4.73	2,27,249	3.35	2,70,873	3.40	2,82,929	3.50
6. Groundnut	9,49,125	10.85	9,99,900	14.77	2,18,362	2.74	2,28,081	2.82
7. Bajra	3,51,787	4.02	2,18,872	3.23	4,26,024	5.35	4,57,791	5.67
8. Jowar	38,232	0.44	16,707	0.25	1,06,326	1.33	1,15,670	1.43
9. Udid	2,68,950	3.07	71,555	1.06	2,73,473	3.43	2,85,644	3.54
10. Moog	2,574	0.03	2,614	0.04	33,794	0.42	35,298	0.44
11. Hulaga	1,77,876	2.03	1,36,447	2.02	1,68,971	2.12	1,76,491	2.19
12. Wheat	5,37,082	6.14	2,95,057	4.36	8,70,324 ³	10.94	9,11,238	11.29
13. Gram	2,82,040	3.22	88,665	1.31	3,22,865	4.05	3,37,234	4.17
Total	87,49,636	100.00	67,68,243	100.00	79,65,838	100.00	80,74,067	100.00
962 acres under miscellaneous crops ⁵	1,23,665		95,661					
Final Total	88,73,301		68,63,904		78,71,758 ⁴			
	Rs.163.40 per capita		Rs.126.40 per capita production		Rs.144.96 per capita consumption			

1] Estimates of consumption of seven cereals, namely, rice, ragi, sava, varai, bajra, jowar and wheat are based on the direct valuation of annual consumption. The prices used are simple annual average rural retail prices obtained from the N.S.S. The other commodities are deflated from the 'B' series.

2] Estimates of consumption are available from the monthly valuation of consumption data for 212 sampled households.

3] Final total includes a revised estimate of wheat consumption which takes account of controlled price of wheat distributed through the Fair Price Shop.

5] Estimates of production of miscellaneous crops grown in 962 acres are added after taking a general average value of the per acre production for 68065 acres under various crops.

TABLE 3.7 : MONTHWISE DISTRIBUTION OF FOOD ITEMS THROUGH FAIR PRICE SHOP FOR THE YEAR NOVEMBER 1963
TO OCTOBER 1964 *

Sr. No.	Month	Wheat		Rice		Jowar		Wheat flour		Sugar	
		Quantity (in quintals)	Value (Rs.)	Quantity (in quintals)	Value (Rs.)	Quantity (in quintals)	Value (Rs.)	Quantity (in quintals)	Value (Rs.)	Quantity (in quintals)	Value (Rs.)
1	November, 1963	125	5,250							176	21,472
2	December, 1963	130	5,460							180	21,780
3	January, 1964	80	3,360							180	21,780
4	February, 1964	150	6,300							180	21,780
5	March, 1964	100	4,200							180	21,780
6	April, 1964	320	13,440							196	23,716
7	May, 1964	70	2,940							180	21,780
8	June, 1964	275	11,550							164	19,844
9	July, 1964	80	3,360	10	480	60	3,600			180	21,780
10	August, 1964	210	8,820	25	1,200	35	2,100	63	3,150	180	21,780
11	September, 1964	190	7,980	30	1,440	111	6,660	18	900	180	21,780
12	October, 1964	190	7,980	10	480	-	-	-	-	195	23,595
Total for the year		1,920	80,640	75	3,600	206	12,360	81	4,050	2,171	2,62,867

* Fair Price Shops receive supplies from the Government and are under obligation to distribute them at controlled prices.

TABLE 3.8 : QUANTITATIVE COMPARISON OF TWO PRODUCTION ESTIMATES WITH CONSUMPTION ESTIMATES FOR THE REGION

Sr. No.	Crop	Production estimate based on family schedule (in quintals)	Percentage	Production estimate based on village schedule (in quintals)	Percentage	Consumption estimate (in quintals)	Percentage	Balance between production (i.e. based on family schedule) and consumption (in quintals)	Balance between production (i.e. based on village schedule) and consumption (in quintals)
1	Rice	37,724	54.39	43,482	48.22	36,615	39.27	+ 1,109	+ 6,867
2	Ragi	20,841	30.05	28,188	31.25	32,650	35.01	- 11,809	- 4,462
3	Bajra	3,588	5.17	5,767	6.40	6,984	7.49	- 3,396	- 1,217
4	Jowar	309	0.45	708	0.79	1,969	2.11	- 1,660	- 1,261
5	Wheat	3,242	4.67	5,902	6.55	9,564	10.26	- 6,322	- 3,662
6	Sava	2,491	3.59	2,491	2.76	1,947	2.09	+ 544	+ 544
7	Varai	1,166	1.68	3,638	4.03	3,519	3.77	- 2,353	+ 119
	Total	69,361	100.00	90,176	100.00	93,248	100.00	- 23,887 (net margin)	- 3,072 (net margin)

TABLE 3.9 : DIMENSIONS OF SURPLUS AND DEFICIT FOR SEVEN CEREALS EXPRESSED AS PERCENTAGES ☆

Cereal	Surplus			Deficit		
	Percentage of consumption to production	Percentage of export to production	Production = Consumption + Export	Percentage of production to consumption	Percentage of imports to consumption	Consumption = Production + Imports
1. Rice	84.21	15.79	100.00			
2. Ragi				86.33	13.67	100.00
3. Bajra				82.58	17.42	100.00
4. Jowar				35.96	64.04	100.00
5. Wheat				61.71	38.29	100.00
6. Sava	78.16	21.84	100.00			
7. Varai	96.73	3.27	100.00			

☆ The original production estimates are based on village schedule.

The original consumption estimates are based on family schedule.

TABLE 3.10 : COMPARISON OF WEIGHTED AND UNWEIGHTED ANNUAL AVERAGE PRICES OF SEVEN CEREALS *

(SOURCE: MONTHLY RURAL RETAIL PRICES (IN Rs.) FOR THE PERIOD OF NOVEMBER 1963 TO OCTOBER 1964)

Month	Rice	Retail price	Ragi	Re-tail price	Bajra	Re-tail price	Jowar	Re-tail price	Wheat	Re-tail price	Sava	Re-tail price	Varai	Re-tail price
<u>1963</u>														
November	8270.0	.75	5823.5	.39	1595.5	.45	121.0	.45	1484.0	.72	469.0	.39	986.5	.39
December	8221.0	.79	6324.0	.40	1327.5	.50	119.0	.45	1343.0	.72	434.0	.40	746.0	.40
<u>1964</u>														
January	7737.5	.82	6727.5	.41	1256.5	.50	89.0	.47	1445.5	.75	316.0	.41	718.0	.41
February	7769.5	.82	6770.0	.42	951.5	.50	82.0	.50	2251.5	.75	300.0	.42	705.0	.42
March	7290.5	.82	6411.5	.43	990.0	.50	122.0	.50	2542.0	.75	276.0	.43	496.5	.43
April	7260.0	.82	6701.5	.43	1031.5	.50	97.0	.50	2288.0	.75	234.0	.43	704.0	.43
May	6995.5	.94	6818.5	.49	1201.0	.50	265.0	.50	1854.5	.81	298.0	.49	481.0	.49
June	6726.0	.97	7513.0	.55	1593.0	.69	254.0	.62	1562.5	.91	387.0	.55	484.0	.55
July	6388.0	1.00	6917.0	.56	1553.0	.69	811.0	.62	1779.5	.94	431.0	.56	511.0	.56
August	5452.0	1.13	6177.0	.56	1540.0	.72	1042.0	.62	2038.0	1.03	399.0	.56	335.0	.56
September	5109.0	1.12	5224.0	.56	1399.0	.88	906.0	.62	2108.0	1.31	553.0	.56	856.0	.56
October	6011.0	1.12	4738.0	.63	1136.0	.85	595.0	.62	1951.5	1.50	665.0	.63	1577.0	.63
Total	83230.0	11.10	76145.5	5.83	15574.5	7.28	4503.0	6.47	22648.0	10.94	4762.0	5.83	8600.0	5.83
The weighted average annual price	0.91 paisa		0.48 paise		0.62 paisa		0.58 paisa		0.92 paisa		0.50 paisa		0.49 paisa	
Simple average annual price	0.93 "		0.49 "		0.61 "		0.54 "		0.91 "		0.49 "		0.49 "	

* Total monthly consumption of individual cereals by 212 sampled households is used as weights for the respective monthly rural retail prices for the period of November 1963 to October 1964.

TABLE 3.11 : LIST OF AVERAGE PRICES (NOVEMBER 1963 TO
OCTOBER 1964)

Crop	Harvest prices per quintal (in Rs.) <u>1/</u>	Rural retail prices per quintal (in Rs.) <u>2/</u>
1. Rice	77.94	93.00
Paddy	50.66	60.45
2. Ragi	40.31	49.00
3. Sava	38.63	50.00
4. Varai	40.31	49.00
5. Niger seed	92.05	125.00
6. Groundnut	85.09	125.00
7. Bajra	50.10	61.00
8. Jowar	47.79	54.00
9. Toor	89.12	105.00
10. Math	53.75	110.00
11. Udid	67.19	110.00
12. Moog	53.75	117.00
13. Hulaga	53.75	54.00
14. Wheat	86.38	91.00
15. Gram	50.18	88.00
16. Val	80.63	93.00
17. Chillies	216.50	222.00
18. Potato	63.31	74.00
19. Tobacco	331.63	354.00
20. Bhadali	75.00	90.00

1/ Unpublished Season and Crop Report of the Government of Maharashtra State, Bombay.

2/ Unpublished series of weekly rural retail prices collected at the taluka headquarters by the National Sample Survey (NSS). Simple annual average prices are noted here.

APPENDIX I

A small exercise is presented here to find the difference between a simple annual average price based on twelve-monthly price series and a weighted average annual price. In the latter case, each month's price has been weighted by the appropriate total monthly consumption (in quintals) by 212 sampled households. The consumption of cereals being the dominant part of the household budget and additionally, the element of seasonal variations being the characteristic feature of cereal consumption, the major seven cereals, rice, ragi, bajra, jowar, wheat, sava and varai, have been selected for illustration in the exercise.

The two prices, one simple annual average and the other, weighted annual average, are presented in the Table 3.10 for each of the seven cereals selected. The general conclusion seems to be that the two kinds of annual average price are approximating. And excepting the price of jowar in all other prices of cereals the difference is never more than two paise. Even in the case of jowar the difference in two averages is of four paise. In the analysis of the seasonality in the behaviour of consumption pattern it is established that amongst all the seven cereals considered, jowar is the

only prominent item of consumption in whose case more is consumed out of market purchases i.e. over 75% and that too during monsoon.¹ In the case of other cereals the proportionate share of the consumption out of home-grown stocks is always above 75%. The results of this exercise have proved indirectly that the procedure of taking the respective monthly consumption of cereals as weights is superfluous, and thereby does not necessarily give a better average. The rural retail prices themselves seem to have been weighted implicitly in the in the very process in which they get determined through the market mechanism.

The relevant conclusion for the immediate purpose seems to be that the method of simple arithmetic average annual price for each commodity based on the twelve-monthly price series is a valid and acceptable procedure.² It is proved conclusively that the variations in the prices are implicitly weighted in such a fashion that any other explicit weighting procedure like taking the monthly consumption of foodgrains makes no difference. These

¹ Please refer to the relevant discussion in the fifth chapter.

² The acceptance of this procedure makes it unnecessary to retrace the consumption data into original quantities. The convenience and the saving of labour need hardly be emphasized here since the original data are in the quantities with different units, for 45 items of consumption by 212 sampled households and that too, for each month the difference in the origin of consumption is noted.

simple annual average prices of different agricultural commodities can be justifiably accepted for the purpose of overall valuation of agricultural production. It may be added here, that this is additionally necessitated by the method in which the consumption data are valued. The primary necessity in the analysis of working out the import-export capacity of the region is to arrive at the regional balance which is not vitiated or influenced by the technique of analysis and estimation procedure.

APPENDIX IITHE CHOICE OF PRICES

Before proceeding to estimate and construct the social accounts of the region, the implications arising out of the choice of prices viz., whether harvest prices or consumer prices, may be discussed here. An explanation as to how and why harvest prices or wholesale prices are collected and used in the estimation of agricultural output is in order. In the agricultural sector, the National Income Committee in the final Report¹ states that "our estimates are based, generally, on median of harvest period prices and the estimation is made at the state level." V.V.Divatia² says: "It has been made clear that the prices (used by the National Income Committee) are wholesale prices during harvesting period and that average price for each State is the average of a number of weekly quotations from a large number of centres." He continues: "Thus each one of the States has used wholesale prices at harvest period whenever these are available, but the averaging of these prices differs."³

¹ National Income Committee, Final Report, p. 29.

² V.V.Divatia, "On computation of State Income". First Indian Conference on Research in National Income, July, 1958, Calcutta. Papers on National Income and Allied Topics, Volume I, 1960, p. 42.

³ *ibid.*, p. 43.

The Directorate of Economics and Statistics, Ministry of Food and Agriculture have explained the definition of harvest price and the method of collection in the following paragraph:

"The defects in the system of reporting harvest prices have also been studied and measures for improvement suggested. The harvest price of a commodity has been defined as the average wholesale price at which the commodity is disposed of by the producer to the trader at the village site during the specified harvest period. For each commodity, two or three villages from each tehsil or at least 10 villages from a district have been selected and the harvest period consisting usually of four to six weeks has been specified. The prices at which the crop is disposed of during this period is to be reported to the district headquarter where they are averaged into the district harvest prices by taking their simple mean at successive levels. The State average is to be obtained as weighted average of the district harvest prices."

The concept of harvest prices is limited and open to a serious criticism. S.G.Tiwari⁴ has said that it is accepted on the ground that no better alternative is available.

3a Chaudhary, S.L., "A Survey of the Improvements in Agricultural Statistics since Independence", Directorate of Economics and Statistics, Ministry of Food and Agriculture. The First Indian Conference on Research in National Income, Calcutta, July 1958. Papers on National Income and Allied Topics, Volume I, 1960, pp. 21-22.

⁴ "Coming to sectoral estimates, the income from agriculture is estimated by multiplying the gross output by prices and then making deductions for seed requirements, wastage, field ridges, interest on agricultural debt, operational cost and depreciation of agricultural implements. Although harvest should in reality be used for estimating the value of agricultural output but the available data on harvest prices given in Season and Crop

Contd./

The difficulties of using either whole prices or harvest prices are serious and much more so when an economic activity such as agriculture is not a specialised activity. M. L. Sudan has critically commented on these difficulties. He says:

Reports relate only to wholesale prices at the time of harvest. In the absence of a better alternative such a price has to be used. Any arbitrary deduction from this to arrive at the harvest price is not at all scientific. But it should be borne in mind that the income so estimated will not be the income generated in agriculture purely. It will include some of the activities of marketing as undertaken by the cultivators. It may be added in this connection that the wholesale price at harvest time has certain limitations. The produce coming to market need not be representative of the quality of the actual produce. In some cases, especially in the case of poor cultivators and cultivators having small holdings, produce of good quality, is immediately brought to the market while produce of bad quality is utilised for consumption needs, but in the case of rich cultivators and cultivators with large holdings, produce of poor quality in large cases is brought to the market at the time of harvest and produce of good quality is kept over to be sold when the prices are high. With the growth of cooperative marketing there is every possibility of increasing the divergence between the wholesale price at harvest time and the price actually received by the cultivator for his produce. In the absence of any data on the subject it is difficult to say what margin of error enters into the present estimates of income from agriculture. The power of agriculturist (except agricultural labour) to hold their produce has increased with a rise in the price of agricultural produce and they have started consuming more and better quality of cereals. It is therefore, advisable that we should examine if there is any change in the hitherto accepted trend, as indicated by the Marketing Report of Marketable surplus of agricultural produce which is taken into account for estimating the income of certain section of traders with the product method and trade margin.

S.G. Tiwari, "Issues in the Estimation of State Income". First Indian Conference on Research in National Income. Mimeographed Paper, July 1958, pp. 3-4.

"If we use primary wholesale prices we shall be over-estimating the amount received by the farmer to the extent that the entire production is not marketed. The use of primary wholesale price will thus require the deduction of the input cost of transport from village to the primary market for the part of the produce which is not marketed, from the gross value of output of agriculture. On the other hand, if we choose to use harvest price for the total produce then we are confronted with the problem of estimating the farmer's cost for the transport of the marketable surplus to the primary market. The difficulty of estimating the extent of deduction in the former case and addition in the latter primarily arises from the very nature of our economy where the functional distribution of the economic activity is not specialised to a high degree." 5

In respect of consumption, the use of harvest prices in evaluating the household consumption data would theoretically mean that the cultivator is presumed to have sold all his farm produce at the time of harvest period, without holding back anything to meet the domestic requirement of food, and then during the subsequent period he starts buying back from the market to meet his family demand. This assumption is unrealistic when harvest prices are used to evaluate the consumption demand though it may be a satisfactory method of evaluating the agricultural output. Two objections may be stated here. One is related to the downward bias in income estimates that arises on account of the choice of harvest prices.

⁵ M.L.Sudan, "Prices Used for Evaluation of Output: Agricultural Sector". First Indian Conference on Research in National Income, Calcutta, Mimeographed paper, July, 1958, p. 3.

The harvest prices are usually the lowest during the year,⁶ and thus they are not really representative of the price trend during the agricultural year.

The other objection arises out of a theoretical possibility, that is, if all the farm produce were really put on market as soon as the harvesting season begins, it is easy to contend that the harvest price would be much too different. In fact, the harvest price may be expected to be still more depressed than the one normally obtained.

⁶ B. Roy has compared the wholesale prices of some of the major agricultural crops during the harvest seasons with their annual averages, and has come to the rather novel conclusion. She says: "For National income estimation in the agricultural sector, the average harvest period wholesale prices of the important agricultural centres all over India are used. It may be a reasonable supposition that due to abundant supply the harvest period price of agricultural produce is lower than the annual average of wholesale prices during the year. But the subsequent analysis of the price statistics shows that generally the harvest period price is not lower than annual average prices." From the relevant monthly averages three types of yearly averages relating to calendar year, financial year and agricultural year have been calculated. In fact, the index numbers series for wheat in the second table and for jowar in the third table show that the price ratios related to the agricultural year contradict the conclusions reached by B. Roy. And it is the agricultural year that may be expected to provide the basis for valid comparison of agricultural prices. Thus the conclusion that the harvest period price is not lower than the annual average wholesale price cannot be accepted, unless it is proved on the basis of conclusive evidence.

B. Roy, "A Note on the Relation between Harvest Period and Annual Average Prices". Studies relating to Planning for National Development (Sept., 1958), Mimeographed Paper. Indian Statistical Institute, Calcutta-35, pp. 1-5.

Additionally the method of evaluating an agricultural output by harvest prices overlooks an important feature of the traditionally organised backward agriculture. On account of the predominantly 'subsistence' nature of agriculture and imperfect market organization reflecting inexact interaction of demand and supply and largely non-monetized activity, the concept of income is not adequately visualised.

This deficiency is overcome in the present study through the use of rural retail prices which evaluate the consumption data. Karl Fox says:

"If the income accounts are to measure the relative consumption levels or "welfare" of farm and non-farm people, a strong argument can be made for valuing home-produced food at retail prices rather than (as at present) farm prices. Some farm families buy these same foods at retail prices. Home-produced foods pass through what might be called an equivalent retail farm on the way to the family table. Equivalent amounts of "food-on the fork" should clearly be given the same economic weight in non-farm comparisons." ⁷

Also S.M.Kansal ⁸ has justified the use of consumer prices as against that of harvest-prices.

⁷ Karl A. Fox, "The National Income and Expenditure Accounts : Agricultural Aspects". Conference on research in income and wealth. November 18-19, 1955. National Bureau of Economic Research, New York, U.S.A., p. 2.

⁸ "Moreover on 'a priori' grounds the use of consumer prices seems to be more logical for deflation of consumer expenditure than wholesale prices. So we preferred to use the former series (the consumer price indices as given in the 'Indian Labour Gazette', published by Labour Bureau) for deflation of consumer expenditure."

The additional difficulty of obtaining representative prices, either harvest prices or whole-sale prices, of rice and ragi at the district level may be noted here. As explained elsewhere, these two major agricultural crops of the region under study are not represented at the district level and as such no reporting agency is located at Rajur which is the major local market. Thus on account of these theoretical and practical difficulties rural retail prices (simple annual averages) are used for the purpose of valuation of agricultural output.

Tables 3.4 and 3.5 present two sets of valuations of two production estimates -- one based on 'village-schedule' and the other based on 'family schedule'. The two sets of prices presented in Table 3.11 are annual rural retail prices and harvest prices respectively. In the table on the following page the percentage contribution of each crop to the total agricultural production is presented.

The percentage share of crop-wise contributions shows that the difference in the two sets of valuations in the 'village-schedule' estimates is maintained in the 'family schedule' estimates also. Thus in the case of rice, the

S.M.Kansal, "On the Deflation of the National Income in India by the Final Expenditure Approach". Mimeographed paper. First Indian Conference on Research in National Income, Calcutta, July, 1958, pp. 6-7.

PERCENTAGE SHARES OF ESTIMATED PRODUCTION

Sr. No.	Crop	Percentage contribution based on rural retail price		Percentage contribution based on harvest price	
		Village schedule estimates	Family schedule estimates	Village schedule estimates	Family schedule estimates
1	Rice	46.22	51.84	47.94	53.67
2	Ragi	15.79	15.09	16.08	15.34
3	Sava	1.42	1.84	1.36	1.76
4	Varai	2.04	0.84	2.08	0.86
5	Niger seed	4.73	3.35	4.50	3.06
6	Groundnut	10.85	14.77	9.14	12.43
7	Bajra	4.02	3.23	4.09	3.28
8	Jowar	0.44	0.25	0.48	0.27
9	Udid	3.07	1.06	2.32	0.80
10	Moog	0.03	0.04	0.02	0.03
11	Hulaga	2.03	2.02	2.50	2.47
12	Wheat	6.14	4.36	7.21	5.11
13	Gram	3.22	1.31	2.28	0.92
	Total	100.00	100.00	100.00	100.00

This table is based on Tables 3.4 and 3.5.

difference of two percent in the former estimates is maintained in the latter estimates also. The same order of difference is evident in the case of groundnut. The only crop, udid, is an exception. For all other crops, the percentage shares of each crop are more or less the same, irrespective of the method of valuation or the origin of estimates.

CHAPTER IV

RAJUR : THE MARKET CENTRE OF THE REGION

4.1 Introduction

The chapter is divided into two parts: The first part deals with the early history of Rajur village, which is a traditional market centre of the region since over hundred years. In the second part the discussion relates to the important trade activities with their local details. This serves as a descriptive comment on the organization of the trade and the trading community at Rajur. Additionally, the estimates of imports and exports of main commodities such as cloth, kirana, tomato, myrobolam, charcoal, poultry and eggs, oilseeds, milk and milk products are now presented. The import and export margins in respect of food grains arrived at in the third chapter in the discussion of commodity balances, are broadly corroborated by the evidence collected from the trading community and transport owners.

The discussion of the concept of centre-periphery relationship has been prominent in the literature on regional planning.¹ In the Indian context, the emergence

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Boudeville says:

"The nodal region is defined by a description of interregional trade, analysis of the localised transmission of economic fluctuations, and by the interconnection between the hierarchy of cities and town-planning.

A pole is defined as a spatially integrating focal point. The integrated unit should be defined as the locus of points having most of their external trade

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of market towns or what are called 'mandi centres'², is an important factor in the historical analysis of the development of a region. A publication of the National Council of Applied Economic Research has elaborated this concept in its preface. The concept is basically different from the one implied in the discussion of western analysts. The interest in urbanization and metropolitan growth of a centre is absent here.³ P.S.Lokanathan in his preface says:

with the pole and its orbit. Hence the region constitutes the optimum spatial framework for an input-output matrix.

The classic German notion of the central place (Christaller, Losch) corresponds to the most traditional function of agglomerations justified by the wealth of a region or agricultural state. Their function is to provide commercial, administrative and government services for their hinterland. On the other hand, development poles of the French School of Thought (Perroux) are industrial centres creating wealth and markets for their satellite areas.

Thus, the regional centre dispenses regional goods and services to its surrounding area, from which it gets regional goods and services back. Its own special characteristic is that it covers the whole range itself. Incidentally, it is at the same time a country centre and a local centre."

Boudeville, J.R., "A Survey of the Recent Techniques for Regional Economic Analysis" in Walter Isard and John H. Cumberland edited, "Regional Economic Planning : Techniques of Analysis for Less Developed Areas". The European Productivity Agency of the Organisation for European Economic Cooperation, Paris, 1961, pp. 381-85.

² Gadgil, D.R., "District Development Planning", Kale Memorial Lectures, Gokhale Institute of Politics and Economics, Poona 4, 1967.

"The term market town is significantly used here. No doubt, it will be a functional unit providing facilities for marketing the village produce on a considerably larger scale and on an improved basis. It will be both a service centre and also an agro-based light engineering centre. Besides it will meet a number of other needs of the villager, now denied to him or only inadequately provided, such as, credit and cooperative facilities and agricultural extension work. The market town will, in addition, be both a health centre and an educational centre. Above all, it will be a basic planning unit.

As conceived here, this centre will be linked by a net-work of roads to the surrounding villages and the villagers will bring their produce here, make use of the extensive facilities given and, this is important, return to the villages they came from. If they migrate, the market towns will soon have a large employment problem to face and, failing to meet it, will deteriorate eventually as any of the existing towns. On the other hand by insisting on a reciprocal relation between the market town and the village, the scheme, as developed here, improves on the impersonal and remote functioning of the blocks and, simultaneously, avoids being the share that the urban centres generally are to the rural people."

4.2 Rajur in the past

One comes across the elaborate comments on Rajur, the market place of the tribal tract under study, in the relevant early land revenue settlement reports. These

³ Rather the emphasis is simply on "the role of the greater-than-village sized community".
"Market Towns and Spatial Development in India", National Council of Applied Economic Research, New Delhi, October, 1965. p. 2.

⁴ Ibid., Preface, p. v.

comments are generally descriptive explaining the position of Rajur as the chief marketing centre of the hilly region; they also detail some of the features of the trade and the trading community.

The Fletcher Report (1888)⁵ has described Rajur, "as the village which is the principal market in the district,⁶ lies immediately to the west of the group.⁷ Its climate is somewhat moisturous and its lands are more hilly but these drawbacks are partly counterbalanced by its advantages as a market town situated on a road."

The report further continues: "The produce of the country, however, is chiefly collected by itinerent traders who have their head quarters at Rajur and Kotul and visit the villages with strings of bullocks soon after the harvest. Khorasani (niger oilseeds) is the principal product, it is most usually exported in the seed, though the oil is locally pressed in some cases. There are 21 oil presses of the usual crude description in the

⁵ "Papers Relating to the Revision Survey Settlement of 102 Dangi Villages of the Akola Taluka of the Ahmednagar Collectorate". Government Central Press (1888), Bombay. page 10, para 39. This Report is referred to as "The Fletcher Report (1888)".

⁶ The Land Revenue Settlement Reports seem to be using 'taluka', 'district', 'country' with more or less the same meaning.

⁷ The western part of Akola, a group of 102 tribal villages, and also the subject matter of present study.

villages under report. The hirada (myrobolam) is largely exported."⁸

It may be mentioned here that at present, the total number of oil-ghanis is about twenty and these are all located in Rajur. A few more^{are} at Khirvire village, situated on the plateau in the north-western part of the taluka. The stationary position of this traditional village industry does partly explain how the indigenous supplies of niger seeds and groundnut are still largely exported and the internal consumption requirements of sweet oil are met through imports from outside, mainly Bombay and Sangamner. Also, it may be added here that over the years, the practice of traders moving in the interior is gradually disappearing. Presently the bulk of marketed produce is brought to Rajur. In the case of rice the processing of paddy is, however, not necessarily done at Rajur but at different places where the rice-mills have spread out. Usually the agriculturists themselves, at their cost, get the paddy processed and then hand it over to the traders. The usual phenomenon of moneylender-trader cum miller is absent. This has a number of implications in the context of undeveloped trade and market, which are dealt with at a later stage.

⁸ The Fletcher Report (1888), p. 6.

The comment quoted from the Fletcher Report (1888) does not fully explain the extent and variety of trade and it has to be supplemented by comments from other related records.

The Hey Report (1916)⁹, while discussing the markets and fairs, comments:

"Rajur is the most important, being a receiving and distributing centre for rice, wheat, khorasani (niger oilseeds) and hirada (myrobolam). All other markets in the taluka with the exception of Rajur, are subsidiary ones, the main market to which the produce ultimately goes lie outside, by far the most important being Choti in Igatpuri taluka, whither goes the great bulk of bajra exported from Akola 'desh'¹⁰ besides most of the surplus produce of the 'dangs'. Next to it is Sinner, in Nasik district, the market for all the Ardala valley¹¹ region, whither to the rice of the northern dangs is largely sent."

Selections from the records of the Bombay Government No. CCCI V-New series.

⁹ "The Second Revision Settlement of the Akola Taluka of the Ahmednagar District", Government Press, Bombay, 1916, page 8, para 26. This report henceforth is referred to as the Hey Report (1916).

¹⁰ Akola 'desh' refers to a group of about fifty villages from the Akola taluka. 'Desh' means relatively a plane geographic land as distinct from 'Dang' area which is characterised by hills and usually goes with heavy rainfall and rice crop. The present study is confined to this latter 'Dang' part of the taluka only.

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The present day position of rice exports is discussed in details elsewhere but here it may suffice to state that the bulk of surplus rice goes mainly to the Sangamner market, a place about twenty miles to the east of Rajur. There is no evidence to believe that the export of rice is in the direction of either Ghoti or Sinner in neighbouring Nasik district. The preceding quotation from the Hey Report (1916) is likely to create the impression that at the beginning of the present century, all exports, including rice were sent to the Ghoti market. But the Hey Report (1916) has specifically commented that then also rice was exported to Sangamner since it fetched higher price there. Also, the discussion in the second chapter wherein a certain dimension, namely, approximately ten thousand maunds of rice export to the Sangamner market, is mentioned, may be recalled here.

The Hey Report (1916) has commented on local village industries then in the Dāng region :

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Ardala valley broadly refers to the northern part of the taluka.

"There are no industries beyond a few hand presses for extracting oil from niger seeds. The only trade is the export of agricultural produce. Ghoti, in Igatpuri taluka, on the G.I.P. 12/ main line is the market wither the bulk of the produce goes for sale, along the high road from Sangamner through Akola, Rajur and the Bari pass. 13/ Niger seed and myrobolams are largely brought up by the traders in Rajur and sent to the Ghoti station to be railed direct to Bombay. A fair amount of rice goes the opposite way to Sangamner and the eastern districts, where it fetches higher prices.

Rajur is the chief trading centre, where the produce of all the surrounding 'dangs' is brought in and sold. There are a number of Gujarathi banyas 14/ and other traders there who buy in the local produce for export both ways and control most of the import trade. There is no trade to speak of elsewhere.

Imports are only of things like cloth and garments, iron, copper, and brass utensils and cheap trinkets from Bombay and dried fish, coconut oil from the Konkan. 15/ They nearly all come up the high road from Ghoti." 16/

It is evident from earlier historical records that Rajur has been the chief centre of trade for over more than hundred years and from the beginning, the non-tribal business community has continued to live in Rajur. The present day position and characteristics of trade may briefly summarised now.

¹² The initials of the then railway organisation - Great Indian Peninsula Railway.

¹³ In the direction of east to west.

¹⁴ Traders.

¹⁵ This is a reference to the neighbouring Thana district. To this day, this practice of imports of dried fish continues.

¹⁶ The Hey Report (1916), pp. 8-9.

4.3 Rajur at present

To this day, the list of exports from Rajur is characterized mainly by agricultural produce. The major exports are of rice, groundnut, niger seed, tomato, myrobolam, coal, poultry and eggs and finally, milk products like ghee, khoa, sweets. As against these, the principal items of imports are cereals like ragi, bajra, jowar, wheat, then non-food items like kerosene, dry fish, sweet oil, tobacco and tobacco products, sugar, gur, tea and other kirana items. The item of clothing has to be added here. The major outside markets with which Rajur has trade links are Sanganner, Shrirampur, Ahmednagar, Ghoti, Nasik, and Bombay. The detailed estimates of turnover and particular local features of each trade are elaborated at a later stage. Also, these estimates are useful to complete the balance of payments accounts of the region under study. The estimates of food-grains trade have generally confirmed the margin arrived at through a direct construction of relationship between estimates of production and consumption in the third chapter.

A close look at the business community of Rajur reveals that the main trading classes consist of Gujarathis, Vanjaris and Telis. Broadly speaking the Gujarathi-Jains are interested in the wholesale kirana-

trade,¹⁷ and some of them are cloth-merchants. The other two majority castes, viz., Vanjaris and Telis, deal in foodgrains and additionally in coal and myrobolam. The principal commodities on the export list are rice and oilseeds, such as niger seeds and groundnut. The bulk of rice exports are marketed at Sangamner. Amongst the imports of cereals, ragi is important. Of course, other cereals such as bajra, jowar and wheat are no less important, though relatively their magnitude may be small, since these imports during the monsoon - when the overall deficiency in the levels of consumption of cereals is acute - serve a useful purpose.¹⁸ The peculiarities in the case of ragi and wheat may be noted here. Though ragi is an important staple foodgrain in the consumption pattern and equally important in the cropping pattern, the internal production of ragi does not appear in the market and during early monsoon, particularly in May and June, the imports of ragi are on a significant scale. These are reflected in the consumption pattern.¹⁹ In the case of wheat a major portion of imports is distributed through Fair Price Shop at Rajur.

¹⁷ A provision-store.

¹⁸ Please refer to the discussion of seasonal variations in the consumption pattern of cereals in the fifth chapter.

¹⁹ Please see the relevant discussion of the consumption of ragi in the fifth chapter.

The rice-mill owners confine themselves to rice-milling activity in the main and one of them, who belongs to Teli community deals in niger seeds. The other rice-miller also belonging to Teli community, is one of the major rice-traders. But here again, his rice purchases are confined to the open market during the post-harvest season of rice and he does not undertake money lending activity on any significant scale. The important point to remember here is that the normally expected link up between credit processing and marketing activities is found to be absent in this region. This presents a relatively simple situation to deal with from the point of view of development authority.

4.4 Financial Position of Traders

The prominent feature of business activity at Rajur is that nearly all of the traders require on an average rupees five hundred to one thousand annually, as a working capital during the trading season. This feature has basically set the pattern of weekly turnover of the foodgrains' trade. This is evident from the necessity of arranging the weekly exports of rice to Sanganner market, in the absence of withstanding capacity on the part of the traders. In case, the trends in prices are unfavourable, this pattern of trade still continues.

The possibilities of institutional accommodation on such occasions are also not there. It is found that 'Rajur Urban Cooperative Society', financed by the 'Ahmednagar District Cooperative Bank, Ahmednagar', is the source of this much needed working capital.

In all there are 130 members who have collectively contributed about twenty-two thousand rupees in the form of share capital. The following table gives the different size-groups of share-holders.

CLASSIFICATION OF MEMBERS ACCORDING TO THEIR SHARE-CONTRIBUTION

Sr. No.	Share-groups Rs.	No. of share-holders
1	0.00 - 20.00	24
2	20.00 - 50.00	8
3	50.00 -100.00	7
4	100.00 -150.00	10
5	150.00 -200.00	14
6	200.00 -250.00	65
7	250.00 and above	2
Total No. of share-holders		130

The table shows that half of the total number of members have individually contributed in the range of Rs. 200.00 to Rs. 250.00 as share capital.

CLASSIFICATION OF MEMBERS ACCORDING TO THE OUTSTANDING CREDIT

Sr. No.	Size of the credit Rs.	No. of creditors
1	0.00 - 100.00	3
2	100.00 - 300.00	12
3	300.00 - 500.00	12
4	500.00 - 800.00	16
5	800.00 - 1000.00	38
6	1000.00 - and above	3
Total No. of creditors		84

The table shows that about half the traders have borrowed funds in the range of Rs. 800.00 to Rs. 1000.00. And two-third of traders have borrowed funds in the range of Rs. 500.00 to Rs. 1000.00. Also, about sixty per-cent of share-holders are on the list of borrowers. The total credit granted is approximately sixty-thousand rupees, which works out to be on an average of nearly seven hundred rupees per borrower.

4.5 Comparative View of Changes in Rajur

An attempt is made to trace the history of development of Rajur village. The statistical data are usually

separately given for Rajur village alone in the earlier land revenue settlement records²⁰ concerned with a group of 102 Dang villages from the Akola taluka.

Different aspects of village organization such as population, livestock, cropping pattern are dealt with here in an attempt to see how the growth of Rajur village compares with its surrounding villages in the region.

4.5.1 Population

CHANGES IN THE POPULATION OF RAJUR

Sr. No.	Year	Population of Rajur	Total population of the group of 85 villages
1	1848	1623	17654
2	1888	2262	29738
3	1961	3033	54305

The relevant population figures of the group of 85 villages that form the region under present study, are separated from the original revenue settlement reports dealing with a group of 102 villages.

The population of Rajur increased in first forty

20 The Tytler Report (1848)
The Fletcher Report (1888)

years from 1848 to 1888 by 639 persons. In the subsequent period of about seventy five years, it increased by 771 persons. The overall increase in over hundred years is 1410 persons. In percentage terms, the increase in the first period is by 39.00% and in the second by 34.00%. The overall increase is by 87.00%.

During these periods how the population of the 85 villages changed may be compared. In the first period of forty years the population increased by 12084 or 69.00%. In the second period of seventyfive years it increased by 24,567 or 83.00%. The overall increase in these two periods together is 36,451 or 205.00%.

These different percentage rates of growth of population sum up the basic difference between Rajur and the surrounding villages in the region. These changes may be put in a tabular form.

Period	Percentage increase in the population of Rajur	Percentage increase in the population of 85 villages
During first 40 years	39.00	69.00
Subsequent period of 75 years	34.00	83.00
The entire period of 115 years	87.00	205.00

It is evident from the above table that it is particularly during the second period of 75 years that the percentage growth of population of Rajur village has been much lower. Also, comparatively, the growth of population of Rajur has lagged behind the growth of population of the entire region - this again more markedly during the second period of 75 years.

The overall percentages for the entire period of 115 years show that the percentage growth of population of Rajur has been less than half the percentage growth of population of the entire region.

This consistently different demographic performance between Rajur and the rest of the region may be viewed against the background of far-reaching changes that have come about in the cropping pattern, consumption pattern and the import-export trade. A possible hypothesis to explain this phenomenon may be suggested here. In the course of expansion of the economy and the increasing population of the region a definite emigration from the region to urban centres outside the region must have taken place. In fact, there is reason to believe that on account of continuously expanding income and trade of the region and consequently on account of structural changes in the economy, relatively higher population

growth at Rajur market centre would be expected to have come about. In that case, the outflow of population from Rajur to other outside urban centres must have been much more than what is indicated by the above discussion. In the absence of data on the long-term movements of population, no definite conclusion can possibly emerge. But on the basis of personal enquiries made during the course of survey, a general statement is justified here. In search of employment opportunities a continuous migration to Bombay and Nasik has been evident. Particularly at Bombay, the number of immigrants from this region is considerable.

4.5.2 Livestock

LIVESTOCK IN RAJUR

Year	Agricultural cattle	Cows-buffaloes	Goats
1848	1369	480	349
1888	1118	588	n.a.
1963	300	501	349

Agricultural cattle show a continuous decline in the entire period. During the first period it declined by 251 or 18 percent. During the second period, it declined

by 818 or 73 percent. The overall decline is by 1069 or 78 percent.

The number of cows-buffaloes showed an inconsistent trend. During the first period it increased by 188 or 39 percent. During the second period it declined by 87 or 15 percent. The overall increase was just about 21 or 4 percent. The conclusion is that during the period of 117 years the number of cows and buffaloes hardly showed any increase.

In the case of goats the same conclusion holds good.

This position of livestock stands in contrast with the rest of the region under study.

For the group of 85 villages, the number of agricultural cattle, during the first period increased from 8467 to 8913, by the difference of 446 or 5.3%. During the second period, it increased by about 4710 or 52%. The overall increase in 117 years is about 5156 or 61%.

In the case of cows and buffaloes, their number increased during the first period, by 2801 or 27.8%. During the second period, it increased by 14,651 or about 94%. The overall increase in 117 years is by 17452 or 135.5%.

COMPARISON OF PERCENTAGE-CHANGES IN THE NUMBER OF
AGRICULTURAL CATTLE AND COWS-BUFFALOES OF THE REGION

Period	Agri. Cattle		Cows-buffaloes	
	Rajur	85 villages of the region	Rajur	85 villages of the region
1848-1888	-18%	5.3%	39%	27.5%
1888-1963	-73%	52%	-15%	94.0%
1848-1963	-78%	61%	+ 4%	135.5%

This comparative picture reveals that in the case of agricultural cattle, the percentage decline is continuous for Rajur whereas it increased continuously for the entire region. The difference is more pronounced during the second period when the percentage decline in agricultural cattle for Rajur is as high as 73% and for the entire region the increase is as high as 52%.

In the case of cows and buffaloes, the percentage increase for Rajur has been higher than that for the entire region only during the first period, whereas during the second period, the percentage declined for Rajur by 15% and it increased for the entire region as high as 94%.

For both, agricultural cattle and milch cattle, the percentage increase for the entire region is more prominent during the second period than the one during the first period. Again, the percentage increase for cows

and buffaloes for the entire region is more than double that of agricultural cattle. The general land-use pattern confirms this. Since the area under fallow being around one-third of the total area the possibilities of higher growth rate for milch cattle are evident.

As against this, the percentage decline of agricultural cattle is more significant than the relatively stagnant position of cows and buffaloes in respect of Rajur village.

The inference of this discussion is that the position of Rajur as against the entire region has been worse off, in both the respects, agricultural cattle and milch cattle. In the case of milch cattle, the position is at least static, though the corresponding percentage increase for the entire region is as high as 135.5%. In the case of agricultural cattle, the negative trend is more significant for Rajur village against the moderate rise of 61% for the entire region.

4.5.3 Bullock Labour Utilization

Years	Acres under cultivation	Pairs of bullocks	Average acres per pair of bullocks
1848	2661	685	3.89
1888	2555	559	4.57
1963	2852	150	19.01

Over the years, the area under cultivation has increased by about two thousand acres or approximately eight percent, but the total number of pairs of bullocks has fallen by 535 or approximately seventy-five percent. As a result of this, average area cultivated by a pair of bullocks has increased from about four acres to nineteen acres, during the period of 115 years. For the entire region the Fletcher Report ²¹ has given the figure as 17 acres per pair of bullocks in 1888 and the Hey Report ²² has given the figure as 13 acres per pair of bullocks.

4.5.4 Cropping Pattern

The broad details of cropping pattern are available for Rajur village separately.

Years	Acreage under		
	Rice	Dry crop	Garden crop
1848	85	2566	n.a.
1888	177	2355	177
1963	533	1356 ²³	33

²¹ Ibid., p. 6.

²² Only gross cropped area is considered in these comparisons. In the Hey Report (1916) the relevant figures are given for the entire Akola taluka which then consisted of 156 villages. Ibid., p. 6.

²³ The earlier figures for dry crop acreage may not be correct as it is not clear whether these figures include the fallow land also.

It is significant that the acreage under rice crop has increased by as much as six times over the period of 115 years. During this period for the entire region the acreage under rice has increased by more than three and half times.

According to the 1963-64 survey data the total area under cultivation is 2852 acres out of which the gross cropped area is 1922 acres and 930 acres are under fallows; or about 67 percent and 33 percent respectively. The number of landholders is 340; thus the average land per landholder comes to about eight acres. The land revenue per acre comes to Rs. 0.66 and the respective figures for 1846 and 1886 survey years are Rs. 0.33 and Rs. 0.53. The area under forest is 174 acres and that under pasture 104 acres, the permanent fallows come to 241 acres.

4.6 A Suggestion of Hypothesis

The overall view that emerges from the preceding discussion of the development of Rajur, the chief trading centre of the region, is that the relatively static position of Rajur is appreciably different from the expanding economy of the region. Some of the organizational aspects considered here are population, livestock, bullock labour utilization, and cropping pattern. In each of these

aspects the Rajur village has shown different characteristics of growth than the rest of the region surrounding it.²⁴ The second chapter has elaborately outlined the basic changes that have been witnessed in the sphere of cropping and consumption pattern, production and trade. The secular trend of rising income is also evident from the fact of enlarged value and volume of rice exports.²⁵ It is also established in this chapter that the position of Rajur as a market-place of the region has all along remained more or less static as compared to the developing trade and economy. There is even reason to believe that the position of Rajur remained not only stagnant but in some respects, even regressed. This can be taken to have worked as an obstacle to an expanding economy.

As a consequence of these lags in the development of Rajur and the region as a homogeneous development entity, the import-export pattern of trade is not rationalized and thus it can be further argued that the far-reaching forces of change and development that were taking place in the basic economic relationships are not carried out to their logical end. This hypothesis is

²⁴ "The village economy is the historical product of modes of transport on the one hand and the system of land ownership and tenure on the other".

"Market Towns and Spatial Development in India", National Council of Applied Economic Research, New Delhi, October 1965, page 2.

²⁵ The discussion in the second chapter has revealed that the value of exports of rice in the last sixty years has gone up from forty thousand rupees to six lakhs rupees.

helpful in explaining the otherwise inconsistent historical situation in which it is observed that instead of increasing the export of rice and in turn, increasing the imports of other cereals such as ragi, bajra and jawar,²⁶ there has been a change-over from the consumption of ragi to that of rice as the staple food in diet.

It is possible to argue that on account of higher unit price of rice as compared to other crops such as ragi, jowar, etc., the expansion of trade particularly the import and export of cereals or what is called as the changing "commodity composition of both domestic and foreign trade",²⁷ would have, on the one hand, accelerated the changes that were coming about in the cropping pattern-increasing acreage under rice - and on the other hand, maximized consumers' income and utility function. To the extent, these logical processes in the spheres of production and trade were obstructed by the relative underdevelopment of market, these were translated in the sphere of consumption. Thus, the basic change over that has come about in the consumption pattern indicating a higher

²⁶ Wheat cannot be included here since its consumption has been maximized only on account of the fact that wheat is being distributed through Fair Price Shops at a stable price throughout the year and this results into a certain distortion of market and preference for wheat vis-a-vis cereals like ragi and jowar.

²⁷ "Market Towns and Spatial Development in India", National Council of Applied Economic Research, New Delhi, October, 1965, pp. 1-2.

level of living, is not only on account of increasing demand as a collective consequence of pressure of population, rising incomes and differences in per acre yields of cereals, but also for an equally important reason viz., the relative underdevelopment of the market. The foregoing discussion of Rajur market has confirmed the essential validity of this hypothesis. One may add a few other likely reasons such as the topography characterized by hills and forests and heavy rainfall resulting into difficulties of communications and transport, the cultural isolation of tribal people and the financial difficulties of business community at Rajur, continuous loss of forest resources in the absence of any systematic attempts at afforestation and depletion of myrobolam supplies, etc.

In the context of the preceding discussion of the development of Rajur market, the course of changes in the evolution of cropping, consumption and trade patterns may be recapitulated here. It is observed that in the course of about hundred years, the consumption of rice gradually replaced the consumption of ragi. It is possible to argue that at the beginning of land revenue settlement in 1850, rice was cultivated only as an export product and subsequently, in course of time, it was found that it was as good a food and had a higher yield per acre. And therefore, its production was increased even

beyond the point where it was a cash crop. Additionally, it is also possible to argue in the light of the hypothesis, namely, the relative underdevelopment of market organisation, that with a progressive rise in income, rice, being a superior cereal, replaced an inferior cereal like ragi.

There is no superiority of rice over other cereals, unless one prefers to discuss the evolution of consumption in terms of habits and subjective preferences and tastes only. Some others have contended that with a rise in income, there is a certain switch over to the consumption of rice. This approach has a limited perspective since the entire problem of consumption has to be analysed in terms of its relationship with resource endowment and level of living. Also it is difficult to accept that a crop like rice was cultivated with the view to export only without knowing that in the other regions this cereal was consumed and therefore highly valued. This being unlikely, the possible argument that the introduction of rice in the local diet was late, is untenable.

At this stage, then two problems come up. In the first place, at what level the acreage under rice, that is continuously increasing in the last hundred years or so, would be stabilized? Alternatively, if it would increase only to a certain extent, why is the present

quantum of rice production not increasingly traded for other cereals such as ragi, bajra, etc.? These two questions here have been treated together, though in a sequence.

The failure of Rajur, a market centre of the region, to grow and the general lack of development of the market organization in the region together explain the question posed here. The assumption is that the distance at which rice is grown is uniform from Rajur and the unit cost of bringing the product to Rajur is approximately the same. The failure of Rajur to grow is based on the argument that the extension of rice acreage beyond a certain distance from Rajur involved transport cost that neutralized the trading advantages. Accordingly, the farmer so placed in the interior, would find it profitable to grow and consume rice, rather than export rice and import less valued cereals like ragi and bajra. Thus, in these circumstances, such a rice growing and self-consuming area would be lying beyond the effective trading zone. It is to be expected that the spatial integration of the region through an elaborate network of transport and communications would, in the course of development, enlarge the effective trading zone and more or less completely exhaust the economic space.

Thus, the idea of unintegrated space is comprehen-

sively explained by the underdeveloped state of market organization, which, in the first instance, means the relatively static position of Rajur, but additionally, it also means that communications and transport system did not develop adequately in the region. The other institutional complex that goes with a market centre, such as banking, finance, storage and warehousing, etc., did not emerge. Alongside, at such a place, a certain level of integration of business life and a hierarchy of business class interests may be expected. In the discussion on Rajur as the traditional market of the region, it will be noticed that though a certain degree of specialization had developed into broad categories of business, such as foodgrains, kirana, textiles, etc. yet an important section of the non-tribal society, namely, Gujarathis, Telis and Vanjaris, were found to be undertaking a variety of business operations like foodgrains trade, myrebolam trade, moneylending, etc. In a sense, the leading role of the non-tribal community was expected but an emphasis on caste interests turned out to be considerable. In the case of the important trade of rice, it was found that there was hardly any hierarchy of different size groups of traders. In fact, this major export trade was characterized by lack of capital, inadequate godown facilities and brisk turnover, usually over a week. Also,

the variety of business operations were characterized by the cycles in agricultural activity, such as the export of rice during post harvest period and the imports of other cereals during monsoon. All this really adds up to the conclusion that the underdeveloped state of market organization is a constraint that limits the possible specialization of rice cultivation. At every successive stage of regional development with an integration of economic space that will come about, the comparative advantage in terms of costs in rice cultivation will be translated through an ever increasing marketing and export of rice.

Then in such a development stage, what are the other possible constraints to the increase in the area under rice? The most formidable constraint seems to be related to topography of the region. The region being hilly, the area under rice cultivation can be increased only when rice-beds can be raised on slopes of the hills. This, in other words, means that a large scale investment programme in terrace-bunding would ensure the specialization of rice cultivation in this region. Also a similar investment in nala-bunding would increase the good-quality 'rice-tals' (lands with assured water supply locally known as 'jili vavare') in which superior grades of rice like Ambemohor and Raibhog can be grown. The

investment in terrace-bunding would also enhance the moisture retaining capacity of soil and, in general, improve the water capacity of wells. All these measures would result into increasing the acreage under minor irrigation and would lead to the cultivation of second winter crop like wheat.

The foregoing discussion reveals that the programming of investment in transport and communications network and terrace-bunding and nala-bunding would logically lead to increasing marketing of rice and subsequently higher volume of rice exports. This would ensure, in turn, higher volume of imports of cereals like ragi and bajra. Thus, the margin of profit being pushed up, on account of activation of market, a continuous reorganization of cropping pattern is imperative. This may be expected to bring about a progressive specialization of rice cultivation in this region.

The following section deals in the estimates of trade and the local features of trade and trading community.

4.7.1 Foodgrains

In this section all the foodgrains viz., rice, ragi, bajra, jowar, wheat, sava, varai, are considered together. The mutual dependence of the consumption of these cereals with regard to substitution over the seasons has been quantified and analysed in the fifth chapter. These basic relationships of production and consumption and the resultant magnitude of trade have been estimated.²⁸ The main interest here is to find out as to what extent these estimates are corroborated by the evidence collected from the trading community. Since rice and ragi are the staple items of consumption, their positions are elaborately detailed.

Broadly speaking, there is a net export of rice, sava and varai. In terms of magnitude and value of exports, the latter two items can be overlooked. The other four cereals, viz., ragi, bajra, jowar and wheat are imported in varying degrees. Of these, the wheat imports

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Please refer to Table 3.8 in the third chapter.

need a separate treatment since their sources are institutionally different from the normal market channels. In quantitative terms, the overall exports are about 8000 quintals and the overall imports about 11000 quintals. There is a net deficit of approximately 3000 quintals. Alongside it may be noted that the estimated total production of all cereals is approximately 90,000 quintals and the estimated total consumption, approximately 93,000 quintals.

The major part of rice exports consists of regular auction at Sangamner on every Thursday. As soon as harvesting of paddy is over around November end, the marketing season begins. The agriculturists bring either rice or paddy to Rajur for milling and marketing on every Monday, a bazar day. A group of about 15 traders, belonging mostly to either Vanjari or Teli community, make purchases of rice. These purchases vary from person to person from twenty-five quintals to five quintals. In the first three months from November to January, on an average, every week about 200 quintals of rice are purchased by this group of traders. Some part of these purchases are stored at the godown of the Ahmednagar District Cooperative Bank as a pledge against which the Bank advances money to the traders. One house owned by a Vanjari has been rented out to Rajur Urban Cooperative

Society for Rs. 400 annually. This has been converted into godown which can stock as much as 700 to 800 quintals. Other traders utilize part of their house to store the stocks. These traders who already get some credit advances from Rs. 250 to Rs. 1000, depending upon their shares, from Rajur Urban Cooperative Society, receive additional finance, nearly 60% of the pledged goods from the Bank. Thus for an average trader, a working capital to the tune of Rs. 1000 for a year is more than enough to trade in rice, to the extent of ten to fifteen quintals every week. As a logical consequence of this availability of limited working capital, the exports of rice from Rajur to Sangamner are essentially on weekly basis. Since this finance which is invested in rice purchases has to be made liquid immediately on Thursday at Sangamner which is about twenty miles away from Rajur. Otherwise the purchases in the subsequent weeks are held up. The position, therefore, is that while on one hand, the rice market at Sangamner is entirely dependent on arrivals from Rajur market since the rest of the Ahmednagar district does not produce rice and on the other hand, the traders cannot afford to wait for better prices in case the ruling prices are found to be unattractive. Thus the traders from Rajur, enter into a sellers' market where they can decisively influence the course of prices to

their advantage, and at the same time occasionally have to accept the price, however unattractive, set by the buyers.

It is reported by almost all traders that there are, broadly speaking, four periods of three months each during which rice exports vary.²⁹ From November to January about 125 quintals are moved out to Sangamner every Thursday. Then during February to April, every week about 75 quintals, from May to July about 75 quintals and lastly, from August to October 60 quintals every week are exported. This together comes to an yearly export of 43^{hundred} quintals approximately. In addition to this two traders exported during the year under study nearly 1000 quintals to some of the cooperative societies at Ahmednagar. The other trader exported nearly 500 quintals of superior quality rice to various customers at far off places. Some of the traders reported an export of nearly 500 quintals from Khirvire to Sangamner directly. And about 1000 quintals are sold locally at Rajur and Akola, a nearby taluka place. The group of tribal villages under study has only this much contact with the rest of the taluka economy. Thus nearly seven thousand quintals of rice are exported annually from Rajur.

²⁹ These approximations refer to the year, November 1963 to October 1964.

It is to be noted that this estimate of export agrees with the quantitative trade margin arrived at by subtracting the estimate of consumption from the estimate of production of rice.

Almost the entire imports of ragi, bajra and jowar take place during monsoon when the level of consumption of rice is declining. These three cereals together amount to about seven thousand quintals. The traders who are dealing in rice exports are the ones who are busy from the middle of May onwards in importing these cereals. For nearly four months, upto September every week, about 200 quintals of ragi are imported; later on upto middle of October another 500 quintals are imported. Around this period, the early maturing variety of rice, which is usually of low grade, starts entering the diet and the demand for ragi in market shows a definite slump from this period onwards. The case of bajra and jowar is somewhat different. These two cereals together are imported to the tune of 3000 quintals. The consumption of jowar is particularly prominent only during two months. Ragi is imported from Nasik where it is a major crop. Jowar is imported from Shrirampur and Sangamner, the other taluka places from the Ahmednagar district. Bajra is imported mostly from Sangamner.

It is interesting to note that though consumption

of wheat is a major feature of the consumption pattern of these people, very few people have any idea about the extent of wheat consumption. It is only in recent years, on account of Governmental arrangement of subsidized wheat distribution through Fair Price Shops that the consumption of wheat has forced its way into the diet of the people. The descriptive answers, giving the broad features of consumption of cereals by sampled households also revealed that in the earlier period, consumption of wheat was occasional, usually on festival days, but in recent times, it is becoming a regular feature. The households interviewed are not explicitly aware of the fact that the consumption of wheat has come to stay, though mainly on account of the government policy to distribute wheat at a stable and low price. As a consequence of all this, no estimate with regard to consumption of wheat is available from any source. A few traders did however give a broad indication of the overall deficit to the order of ten thousand quintals. As the available information on imports of ragi, bajra and jowar gives the total deficit figure as seven thousand quintals, the rest has been taken as an estimate of wheat imports.

It is necessary to outline the reasons why the estimates given by traders could be so nearly approximate the reality. The imports and exports of cereals are

handled by almost the same group of persons belonging to either Teli or Vanjari community. The mode of transport is invariably two trucks from Rajur and one truck from Vithe, a nearby village. Also these two activities are very much related to the post-harvest period of rice and monsoon, indicating broadly the corresponding movements of exports and imports in response to the surplus production of rice and the requirements of consumption, at different periods.

As noted elsewhere, the requirement of finance being nearly the same for most of the traders, the turnover of trade is around one week. Thus no one trader in a week, excepting two traders who did not export rice to Sangamner, would export sizeable quantity, say fifty quintals. The truck load comprises of exports of a group of traders who apparently come to know the overall magnitude of trade for the region as a whole. Thus in personal interviews, a deliberate emphasis was given on estimates of overall trade of different cereals, instead of detailing the quantum of imports and exports handled by each trader. This method considerably eliminated the possibility of downward bias in trade estimates given by the trading community. As the basic interest of inquiry being centred around an assessment of import and export capacities of the region, this method of collection of data proved useful. Alternatively even in the absence of indirect

sources of data, the overall estimates of trade have amply corroborated the margins estimated through the estimates of indigenous production and consumption of cereals.

Price-spread

The price of ordinary variety of rice was Rs. 65 per quintal from November 1963 onwards. This price was steady upto the month of May, then it rose upto Rs. 100 a quintal during July and August. The price of higher quality rice was Rs. 75 per quintal initially. Rising slowly upto May it then reached Rs. 125 per quintal during July and August.³⁰

With regard to credit advances made to agriculturists to meet their consumption needs, it was found that a gunny bag of ragi or jowar (about 80 seers) accepted during July has to be repaid in terms of two and half gunny bags (about 200 seers) of paddy after November. This relation translated into values would be approximately a gunny bag of ragi costs about 60 rupees in the month of July and the price of two and half gunny bags (5 maunds) would come to about 85 rupees. (assuming 35 rupees per bag of paddy). Thus about 25 rupees are charged for the

³⁰ Here in this region, fine quality rice consists of varieties like Jirwale, Raibhog, Ambemohor. The coarse varieties are Kolapi and Varangal, etc.

period of six months over the original credit of 60 rupees. The rate of interest works out to be about 85 per cent.

4.7.2 Rice Mills

There are nearly thirteen rice mills operating in this area. These include three rice mills which are located outside the tribal villages but where paddy processed comes from neighbouring tribal villages. These rice mills are spread evenly, three mills at Rajur, two at Khirvire, and one at Chinchondi that covers nine villages that are situated on the periphery of Bhandar-dara lake, and the rest in the interior of Pravara and Mula valleys. Only one is owned by Mahadeo Koli and the other by Kanadi but the rest are all owned by non-tribal castes, particularly Telis. The important feature of this trade is that excepting one Teli, the others do not deal in foodgrains trade and in addition, also do not deal in money lending activity on a significant scale. This, as noted in the case of whole-sale kirana traders, does not create any complication in respect of consumption and marketing of cereals, particularly rice, and thus this rice-milling activity as such is of minor importance from the point of view of regional planning.

As there is an unrestricted licensing of rice mill,

even the present number of rice mills is of doubtful relevance. Most of the mills are idle during monsoon and it is only after the harvesting of paddy from November onwards that these mills start working. At Rajur and Khirvire the situation is much better since Rajur is the only marketing centre for rice in this region.

There are nearly 17,600 acres under paddy cultivation and the per acre production of paddy is reported to be around ten maunds in a normal year. The total production of paddy comes to about 1,80,000 maunds or 90,000 gunny bags. The two rice mill owners who have an experience of twenty years in this profession, said that the total production of paddy varies from 75,000 gunny bags to 95,000 gunny bags whenever there is a poor and bumper crop respectively. During the year under review, out of the total production of paddy of 90,000 gunny bags, nearly 65,000 gunny bags are processed at various rice mills, the rest is processed at home in the traditional way of hand pounding. Again, nearly ten to fifteen thousand gunny bags of paddy are processed at Rajur. As noted elsewhere, there are nearly seven thousand quintals of rice exported from this region and most of this export is handled by about ten to fifteen traders from Rajur. It is customary for the producers of paddy to bring their produce, whenever they market it, to Rajur and undertake

the milling operation at their own cost. The cost of milling is one rupee per bag of paddy which weighs about two maunds. They sell it to rice traders afterwards. As the bulk of rice marketing takes place from week to week after November, very little of stocks are maintained by traders and thus milling activity is also regularised accordingly.

The rice millers at Rajur reported that the residual of paddy (bran) fetches price around one rupee per gunny bag during November to May and around four rupees during monsoon. Some of them even reported an export of paddy bran to Nasik where, when it is mixed with lime, the price is as high as Rs. 18 per maund. The magnitude of export could not be estimated in the absence of data.

4.8 Cloth Merchants

There are in all twenty cloth merchants stationed at Rajur and five at Khirvire. The merchants belong to Gujarathi, Shimpi (Tailor) and Sonar (Goldsmith) communities. Three Sindhi refugees have settled down in Rajur as cloth merchants.

Conversion ratios:

In terms of weights, two maunds of paddy when processed come to one and half maunds of rice and in terms of volume two maunds of paddy when processed come to one maund of rice.

In a year the estimate of total expenditure on clothing of all variety and use, comes to approximately fifteen lakhs of rupees. Out of this, nearly three to four lakhs rupees worth textile is sold by moving Sindhi salesmen who come from outside the region during December to May. This overall figure of expenditure on clothing is closely confirmed by the estimates derived from family budget enquiry of 212 households. Broadly speaking, it is found that an average annual household expenditure on clothing comes to nearly Rs. 150/-. As there are nearly ten thousand families in this region, that comprises of 87 tribal villages under study, the overall magnitude of demand for clothing comes to nearly fifteen lakhs rupees per annum. In terms of budget proportions, this expenditure on clothing is around ten percent of the total annual family budget.

The annual turnover of all the cloth merchants varies considerably from trader to trader. Out of about twenty-five traders, at least three traders have their business to the order of one lakh rupees to one and half lakh rupees individually. All other traders may be described as small sized merchants with annual sales less than fifty-thousand rupees each.

The typical feature of woman's clothing is a printed cloth used to cover the head.³¹ This is in good demand

³¹ This piece of cloth is locally known as 'phadki' and is a typical feature of the tribal culture.

demand here. In addition, rough woollen blankets,³² total worth about fifty thousand rupees, are sold by five merchants annually. One major merchant, who covers about half of the blanket trade, is found to be importing these blankets from as far places as Andhra and Madras States. These rough blankets worth ten to fifteen rupees each are used extensively as a cover from heavy monsoon. Often the same is used as a carpet to sit and sleep. Farmers with assured income purchase during winter the better quality blankets with price ranging from twenty to thirty rupees a piece. This variety is not used during the monsoon.

These traders make frequent bulk purchases at various places and all these transactions are on the credit basis. The purchases are made at places like Bombay, Nasik, Sholapur, Dhulia, Malegaon, Yeola, Sinnar and Sangamner. Most of the handloom textiles are brought from Malegaon, Nasik and Sholapur. There are three seasons that are evident from sale-purchase transactions. During monsoon the sales are minimum. Only woollen blankets are sold during the early part of monsoon. From November onwards the business starts expanding, since then the income position of the agriculturists starts

³² In all rural areas, these woollen blankets are called 'kamble'.

improving with the marketing of agricultural produce. From January to late May is the busy business period as this is traditionally the season when marriages and festivals take place. All the traders are found to have developed special links with certain groups of villages. This considerably facilitates the credit transactions and the repayments after harvesting of crops. Most of these traders are having their intermediaries in those respective villages who would persuade the possible clients from their village communities to deal with a certain merchant only. It is possible that some small commission might be paid to these intermediaries who are usually better off Kolis from villages. Also, this clientele, as a result of these family bonds, are well received whenever they visit Rajur on the bazar day.

Another prominent feature of this trade is that most of these traders are involved in making credit advances to the agriculturists. Particularly the large traders whose turnover is above one lakh rupees were found to be major money lenders in the area. The special feature of the business of these traders is the sale of costly textiles meant for marriage ceremonies. These elaborate purchases are locally called 'bastā' and it is reported that the profit margin is higher in these kinds of transactions. Usually the cost price is recovered at the time of sale

only and the high profit margin, that is, as high as hundred percent over the original price is recovered subsequently during the post-harvest period. Of course, excepting two traders, these repayments are made in cash and thus do not in any way affect the behaviour of marketed agricultural produce. Of the two traders, only one is directly exporting rice to some of the cooperative societies in Ahmednagar and the other cloth merchant sells rice to the local traders who in turn export it to Sangamner for auction on the weekly bazar day. It is found that many of these merchants had borrowed money to the extent of one thousand rupees from the Rajur Urban Cooperative Society. Generally speaking, there is no particular problem of finances facing this trade.

4.9.1 Kirana Trade³³

The kirana trade in Rajur may be split into two sizes of operation. There are nearly seven traders, with/^{an} annual turnover of about ten lakh rupees. Then there are nearly 18 traders who buy their kirana articles, locally from the seven traders of the former category. The former class of traders may be described as the wholesale dealers in kirana and the latter ones as the retail dealers.

³³ Broadly a provision store.

They serve the particular group of villages from which their clientele comes. This kind of village groupings based on the bonds of confidence around each trader helps everybody and ensures that competition is to the minimum and defaulters few. Here kirana trade is understood as the trade that deals in such articles of consumption as sweet oil, coconut oil, copra, chillies, condiments, salt, tea, gur, soap, matches, tobacco and tobacco products like bidi and cigarettes, medicines of ordinary use, stationary, pulses like gram-dal etc. It is necessary to remember that none of these traders, wholesaler or retailer, deals in foodgrains trade as such. This has a direct bearing on the problem of credit, particularly the kind of credit that directly satisfies the consumption, on the eve of monsoon. This separation of credit activity from the kirana trade presents a relatively simple picture of trade activities within this region. Of course, it may be mentioned here, that most of the traders of all types in Rajur undertake credit advances on a moderate scale - to the order of Rs. 200, on an average - to those farmers who have the traditional family links, and make the recoveries of loans in kind, usually rice. This much of rice is all that trader needs for his domestic consumption during the year. This phenomenon is essentially different from the typical money-lender-trader complex, since in

the latter, to a considerable extent, the moneylender influences the marketing pattern, production and consumption capacities and profit margins, in brief, the total agricultural situation. The peculiarity of trade described earlier, has an insignificant effect on the marketing and producers' incentives in the economy. In the absence of data, no estimation has been attempted.

All the whole-sale traders are involved in the joint family enterprises comprising of brothers and other near relatives.

It is observed that almost all traders are men with little educational background. A few of them have, at most, reached upto the matriculation standard. Only two persons have completed their education upto intermediate years at the college level. All the wholesale dealers own their house of residence and shop, worth about Rs.25,000 individually. Usually the part of residence itself is used as a godown to maintain the stocks. All the whole-sale dealers employed usually one servant as an assistant to do the maintenance and manual work in the shop. On an average, this servant, invariably illiterate, is paid about Rs. 450 to Rs. 500 per annum. The other retail shops, as a rule, did not employ an assistant since whenever an extra hand is required as on bazar days, the help comes from the female members of family. Children with

age above 10 years also participate in marketing, particularly on the bazar days. Majority of wholesale traders is Gujarathi-Jains and other two are Shimpis (tailors). It is found that most of the kirana shops are run by non-tribal communities from Rajur. These are usually Gujarathi-Jains, Marvaris, Vanjaris, Telis, Shimpis, etc. Not many Marathas are there as traders. As noted elsewhere the consumption requirements of kirana items are relatively less during monsoon, and thus there is a slump in kirana trade during this season. On the eve of monsoon, during three days in the last week of May when a local festival takes place, major purchases of kirana are undertaken to maintain the stock during monsoon, when visits to Rajur Bazar are infrequent. During these three days, kirana worth Rs. 50,000 is sold at Rajur and then follows the slack season.

Rajur has important links with Bombay for Kirana trade. Nearly seventy-five percent kirana trade, i.e. about seven and half lakhs of rupees, is supplied from Bombay. The major mode of transport is truck and comes through Bombay-Ghoti road. The other supply centres are Nasik, Ghoti, Sangamner, Sinner from the neighbouring districts.

Some items can be identified with their source of origin. Chillies and gur are brought from Sangamner.

Dry fish and tobacco and tobacco products are brought from Bhivandi and Ghoti. Tobacco is, also supplied, by Nasik and Sangamner. There are five major traders who import tobacco worth Rs. 2,50,000 annually, and in turn sell it to nearly 45 traders in Rajur, eight traders in Shendi and a few small village retail traders scattered all over in the interior villages. Amongst the five wholesale traders, one trader alone sells tobacco worth one lakh rupees. This trader sells tobacco worth about fifty thousand rupees to kirana traders from Rajur itself and the rest to villagers on bazar days and to the village retail shops. All these transactions are based on the credit for the period of one week and thus not much risk of default is involved.

Paraboiled rice³⁴ is brought from Ghoti and Nasik. A particular raw material namely, coal used by railways, is brought from Kalyan to use it in brick-making. Kerosene and salt are brought from Bombay and sweet oil from Sangamner. Sugar is provided through Fair Price Shop and is usually directly imported from factory sites that are situated in the other parts of Ahmednagar district.

³⁴ Paraboiled rice is locally known as 'murmura'. The Gazetteer has commented on the preparation of murmure from rice. "For murmure, rice is partially dried in the sun after a three days' soaking and subsequent scalding. It is slightly parched, thrown over it, and the grain is again parched in hot sand. Both 'pohe' and 'murmure' are sometimes used as ready-cooked food for a journey."

Gazetteer of the Bombay Presidency: Ahmednagar, Vol. XVII Government Central Press, Bombay, 1884, p. 267.

4.9.2 Retail Kirana Shops at Village Level

Most of these shops are run by Telis and Vanjaris. An occasional exception of Kanadi or Koli may be there but they are few in number.

Their initial requirement of finance is small, usually around Rs. 300. Their shops are small, which do not require any special construction. These shops do not employ any paid servant, since in the very nature of their business, they are an extension of the family activity often in addition to agriculture. More often than not, these shops are either run by old members of the family, who are otherwise unable to participate in any farming activity, or female members or some disabled person in the family. Thus no extra labour requirement is there in this trade. Over the year, the volume of trade is not uniform. The seasonal variations in the consumption of cereals observed during the year is reflected in this kirana trade. During the rainy season from early June to late September and October the turnover in kirana trade at village level shows a marked fall, and immediately afterwards when the harvesting and marketing of crops start the turnover shows an upturn.

It is essential to understand that since most of the marketing activities are concentrated at Rajur on Monday, a weekly bazar day, the requirements at village

level are obviously much less and infrequent. Also, these shops are replenished every week and all these retail shops have their traditional links with a few kirana traders who are described earlier as the whole-sale traders in kirana trade. These small shops make their weekly purchases on credit. As the difficulties of transport and communications are particularly severe during monsoon and as the other retail purchases at Rajur itself are low, it is obvious as to why there is very little trading activity at village level.

It is of interest to note that this small scale business at village level is not usually concerned with the food-grains trade. Though some kind of credit locally known 'khavati' advances are undertaken on a small scale, still it is repaid in cash and thus not much link-up of credit to marketing of cereals is evident. This way, the possibilities of barter are much less in this context. During the post-harvest period cash transactions take place and during the lean period credit purchases are made.

These shops usually serve the surrounding villages also, but again, very marginally. It is noted that unlike other villages, a few traders from Khirvire village have trade links with Thangaon and Sinner, the market places from neighbouring Nasik district. Also a few traders from

Khirvire take part in foodgrains trade along with kirana trade. And they occasionally deal directly with the neighbouring markets such as at Sangamner and Sinnar. This is a direct consequence of the difficulties of transport between Khirvire village which belongs to a plateau in the Ardhala valley and Rajur that is in the Pravara valley. The mode of transport is either donkeys or carts or human labour.

The prices of kirana articles prevailing at village level are usually higher than those at Rajur. As the difficulties of transport and the necessity of making credit deals which entails a certain element of risk, are taken into consideration, the prevalence of high prices is to be expected.

4.9.3 Hali-Pati Trade

The peculiar feature of retail trade in Rajur is a practice, locally known as 'hali-pati'. The female members of Teli and Vanjari community from Rajur move out in the neighbouring villages with a head-load that consists of articles such as dried fish, condiments, copra, sweet oil, sweets and biscuits for children, etc.

It is found that some of the women from Teli community who are strictly vegetarians sell only sweet oil and refrain from trade in dried fish. It is usually the women

from Vanjari community who are more in number and also trading in more articles of consumption. These women buy these articles from their respective kinsmen on credit and then sell them in villages. Sometimes these transactions are effected in barter at both ends, but relatively these are infrequent instances. In this way it is possible that some minor part of marketing of cereals like rice, takes place through barter deals. In these deals, the retail traders are not likely to be in a position to make good profits since their credit deals are related to a small period, usually a week, and so they cannot stock the foodgrains and wait for better prices. Also it is likely that a part of these receipts in kind are retained for domestic consumption by these small traders. These are various possibilities and the estimates cannot be made as statistical data are not available on these scores.

These moving retail traders in kirana move into certain villages and there also, deal with certain households only. There seems to be an informal understanding amongst the traders to contact only those villages where one is established. This to some extent ensures that under-cutting of prices does not take place at the village level. It is the experience of these traders that as the selective contacts with households presuppose a bond of mutual confidence, though transactions are on

credit basis, the losses from default are reported to be small.

This 'hali-pati' trade is found to be more prominent in the neighbouring 'Desh' villages, where non-tribal Maratha caste is in majority, than in the tribal villages surrounding Rajur. The reasons given for this peculiarity are interesting. These traders believed that on account of better standard of living in Maratha villages, the ground for retail trade is good as compared to the tribal villages. Also, the other non-economic reason is that since most of the tribal women folk come to Rajur on the weekly bazar day, unlike their counterparts from the Maratha villages, they make their weekly purchases, however, meagre, at Rajur only. Whereas in the Maratha villages, the occasional purchases in the village itself are more frequent since the male members of family may not have adequately covered the weekly domestic requirements. As is evident from the limited food basket of a tribal family, the scope for 'hali-pati' retail sale is equally limited. These traders gave the rough idea of the differences in the weekly purchases of minor articles of consumption by the tribal and non-tribal families. On an average, the minor purchases on bazar day, by the Maratha family amount to nearly five rupees. And that by the tribal family it is around two rupees. This also in-

directly reflects the standard of living of respective communities.

A broad indication of the weekly turnover of 'hali-pati' may be given here. On an average, a woman trader may sell articles worth Rs. 75 to Rs. 100 during a week. This comes to nearly Rs. 300 to Rs. 400 per month. The profit margin is said to be around 25% of the turnover. Thus, deducting the monthly transport expenses which come to about Rs. 20 to Rs. 25, the net income of the trader comes to Rs. 75 per month. It is to be remembered here that this 'hali-pati' trade is closed during two months of heavy monsoon. The problem of transport and communication is acute during this period. Also, during these months the market at Rajur is slack.

It is noted during the interviews of 'hali-pati' traders that many of the women are the only earning members of the family who have to support their children. Many of them are widows and most of them middle aged, between 30 and 50 years of age. Few of them have land for cultivation and those who have a piece of land have to lease it out to supplement their income from 'hali-pati' trade. As these women do their business on credit and are used to have trade links with their own community-traders, very little of initial capital is found to be necessary. Also, these traders observed that the profit

margin on dried fish is considerable as compared to other minor articles of consumption like sweet oil. A typical variety of dried fish called 'bombil' costs Rs. 3 per bundle of hundred at Rajur market, but will cost Rs. 4 per bundle of hundred at the village level from retail traders. As many of the villages in the interior have small shops wherein minor articles of consumption are available, the scope for 'hali-pati' trade is limited to the villages surrounding Rajur or to the villages on both sides of the road that passes from Rajur to Ghoti in the west. There is a regular daily state transport bus service. The 'hali-pati' traders make use of this mode of transport.

4.9.4 Small Traders at Rajur

There are a number of small traders, all Vanjaris and numbering about twenty who supply dried fish, imported from Satpati, Palghar taluka, to those 'hali-pati' traders who move from village to village. These traders mainly import these articles during November and December, about Rs. 300 per week individually. The total value of imports of dry fish comes to about Rs. 48,000 during two months. There is only one trader who imports dry fish worth about Rs. 7,000 and unlike other traders, sells it during the lean season, viz. during the year excluding November and December.

There were a few 'hali-pati' traders who move out to trade in salt only. There was one Vanjari trader whose earlier family history revealed that his family was one of the prominent trading houses in myrobolam trade. Out of the total turnover of one lakh bags in 1940, this family's share of trade was around fifteen thousand bags. But on account of wide fluctuations in prices of myrobolam this family lost its leading position in trade. Now, this trader deals in myrobolam trade to the tune of about 200 bags annually. As a result of these losses this person moves out in ten villages from Mula valley to sell salt. The usual business season is from November to May and during monsoon on account of breakdown of communications and transport, the business is held up. The usual mode of transport is donkeys. A donkey can carry half the gunny bag of salt and has to be paid half a rupee per trip. There are about five potters in Rajur who own in all about forty to fifty donkeys. These are hired out to traders.

The usual nature of trade is barter and the terms are as follows:- Salt weighing about 12 seers has to be paid in terms of 4 seers of paddy. So when about 500 bags of salt are sold out, nearly 125 gunny bags of paddy - equivalent to 250 maunds - are collected.³⁵ These bags

³⁵ One bag of paddy contains 80 seers or 2 maunds and one bag of salt contains 60 seers or one and half

of paddy are sold to Rajur traders dealing in rice trade. On an average, a net margin of one rupee after one bag of salt sold is secured. Also one rupee more is available on account of the sale of gunny bag itself. Thus an yearly profit of one thousand rupees seems plausible for the trader interviewed. It is evident from this case study that a good portion of 'hali-pati' trade may be in the nature of barter. On account of its imprecise nature of business, no estimates are attempted.

There is another group of traders whose nature of business is so small and varied that they can be termed as retail traders, essentially belonging to the class of those who do 'hali-pati' or trade in foodgrains to the tune of five quintals per week.

This group which consists of members belonging to Teli or Vanjari community, every week goes to Akola bazar and there about another ten traders from Sangamner join them. These together make purchases of cereals and finally sell it to Sangamner in the manner of an informal co-operative marketing society. The profits realized at

maunds. Now when 12 seers of salt fetch 4 seers of paddy, it is obvious that 60 seers of salt would fetch 20 seers of paddy or more simply, four bags of salt would fetch one bag of paddy. Thus, 500 bags of salt would in return earn 125 bags of paddy, or 250 maunds.

Sangamner market are shared equally by all these traders. Some of them reported that from Rajur to Akola, every week on an average 20 quintals of rice are regularly exported. But the trade in the direction of Rajur from Akola is almost insignificant, excepting of course, some vegetables like potato. The estimates of trade have not been attempted here since the separate estimates of retail trade are not required here and also the scale of operation of this trade being small, the estimates are found to be unsatisfactory.

4.10 Tomato

The market for tomato has developed in recent years to such an extent that there is reason to believe that this is not adequately reflected in the cropping pattern.

Every week during the season, three auctions, locally called 'modhā', take place at Rajur. Lately, this market is being organized in the interior at Randha also. The main market for tomato is Bombay. But lately it has been taken to a far off place like Nagpur. The merchants from Bombay themselves do not attend the market at Rajur but are represented by their outside agents. They number in all about twenty.

The busy season is spread over two months, viz. November and December. During this period other supplies reaching Bombay market decline and tomato exports from

Rajur replace them.

A price spread may be imagined from the following table which is taken from the sales' register of Digambar Co-operative Farming Society, Rajur.

Period	No. of baskets sold	Total value Rs.	Price per basket * Rs.	Price per Kilo Rs.
During October 1963	87	587	6.75	0.68
During November 1963	557	2536	4.55	0.46
During December 1963	619	1981	3.20	0.32
Total	1263	5104	4.04	0.40

* These baskets are not precisely weighed, but on an average each open basket contains ten kilos of tomato.

The increasing arrival of tomato crop in the Rajur market results into the falling price. This is evident from the table. The price comes down to half when there is a three-fold increase in the value of tomato put on the Rajur market.

Some estimates of the turnover of tomato exports can be presented. These are based on conversations with the agents and some of the traders dealing in tomato trade.

It is reported that every week three truck loads of

tomato are exported for the period of over two months. One truck carries about hundred well packed crates (one crate weighs forty seers or one maund). Thus in about eight weeks as many as 7200 crates are exported (or 7200 maunds in weight) to Bombay. An approximate average price of 16 rupees per crate of one maund can be used to value the export of 7200 maunds. The table referred to earlier, has given the average price for the season as four rupees for a basket of ten seers. Thus the total exports in two months amount to Rs. 1,15,200 approximately. The transport costs per truck load are in the range of Rs. 500 to Rs. 550, which comes to Rs. 1.75 to Rs. 2.00 per crate of one maund of tomato.

Some of the progressive farmers interviewed are of the opinion that tomato crop cannot be grown on rich soil since a wild crop over-burdens the branches and part of the crop is lost thereby. On the contrary, on medium quality soil, the tomato crop grows better since tomato can be plucked more frequently during the season. In the villages under study, this kind of soil being most common the spread of tomato crop has been far-reaching. It is feared that unless some elaborate marketing and transport arrangement is evolved, this market will show sudden fluctuations in demand. In the case of tomato, perishability being very high, the loss of tomato crop and

thereby loss of income in such situations can be considerable. Another oft repeated concern over the loss of tomato on account of pests and plant diseases underlines the importance of research and adequate extension service, particularly providing pests control programme and plant protection schemes.

4.11 Poultry and Eggs

There are about fifteen to twenty traders from Rajur involved in this trade. One family with six brothers has a bigger turnover than all other traders put together. Some of these traders move in villages and collect table birds and eggs. These traders attend weekly markets at places like Shendi, Khrivire, Kotul, etc. and bring back their collection to Rajur. Also they draw on credit from Rajur Urban Cooperative Society to the tune of Rs.400 to Rs. 500 individually and use it as a working capital. Occasionally they have to borrow from local moneylenders also. The extent of this private borrowing is not revealed in the enquiries. Most of these traders belong to either Muslim community or Scheduled Castes. The earnings from this trade are meagre. With almost no income from agriculture, these traders have to supplement their inadequate earnings through minor activities such as selling of fruits or minor kirana items as street vendors

on the bazar days. During monsoon the volume of trade is reduced to one-fourth of the total trade of the rest of the year. The dry spell is essential for poultry trade.

The weekly estimates are based on answers from some of the prominent traders. A package of birds consists of about 25 table birds with an average price of Rs. 2.50 per bird. It is customary that one bird in each package is treated free of cost. It may be a conventional version of insurance against risk to life during the transit. Every week around 30 packages are transported from Rajur, mainly through truck transport or occasionally state transport for short distances.

The weekly turnover of trade comes to 750 birds valued by Rs. 2.50, an average price per bird, i.e. Rs. 1875 per weekly exports of table birds for about eight months or thirty-two weeks. The total eight monthly exports add up to Rs. 60,000.

A package of eggs consists of 400 eggs. On an average nearly 40 packages are exported from Rajur. On bazar days, the traders pay one rupee for eight eggs to farmers, i.e. twelve paise for each egg. The weekly exports of eggs amount to Rs. 61,440.

Thus the total exports of poultry birds and eggs come to Rs. 1,21,440 for the period of eight months. As noted earlier one fourth of this turnover may be assumed during monsoon. The total annual export earn-

ings comes to about Rs. 1,51,000.

It is reported that packaging and transport charges come to four rupees per package of 400 eggs. This works out to be one paisa per egg. These charges are borne by the intermediaries. The traders from Rajur were of the view that this entire trade is monopolized by traders from Bombay. The weekly minor cash purchases of the tribal household are met from this source of income. It was reported that there is a widespread loss of poultry, at least twice in a year, on account of diseases. The poultry is of native variety numbering about thirty-eight thousand and there are hardly hundred birds of improved variety.

4.12 Char-coal making

There are nearly ten traders in the charcoal trade. One Vanjari family of six brothers shares the major part of the trade. Most of the traders belong to the Vanjari community. There are two traders from Nasik whose share of the trade is nearly half of the total turnover. Forest Labourers Cooperative Society's share is hardly three percent of the total turnover. The Society alone has the access to reserve forest area auctioned out annually by the Forest Department. The other traders' coal-making activity is in the area of privately owned forests. This activity is concentrated around two belts

one around Harischandragad fort in Mula valley and the other around villages on the periphery of Bhandardara lake. Quite often, coal is transported from the place of coal making like Ghatghar, Khadaki, Shisvad, Tale, Lavhali and also from Rajur where stocks are maintained. The main mode of transport is motor lorries. One truck load comes to about hundred bags equivalent to hundred and twenty-five maunds of coal. The Vanjari family mentioned earlier themselves owned one truck which was employed round the year to transport coal from Rajur to Sangamner where these Vanjari brothers run their sales depot. It is possible that traders from Nasik also employ their own truck.

From the inadequate data made available by the vehicle owners it is evident that during April-May, and again during August-September the season is busy, i.e. out of the total annual transport load of 5600 bags of coal nearly 4000 bags were transported during these months. This coal is taken to various places like Nasik, Sinner, Shrirampur, Kopergaon, Sangamner, Kolapewadi, Kolhawadi, Rahata, Ahmednagar etc. Most of these are cooperative sugar factory sites from Ahmednagar district.

Some overall estimates obtained from traders and transport drivers may be mentioned here. Out of fifteen traders, who together trade in about 80,000 bags equivalent

to 1,00,000 maunds of coal, there are two parties, one local Vanjari family of six brothers, and the other traders from Nasik in partnership, who can be considered as the major traders. The traders from Nasik transport coal to Nasik to the tune of 40,000 bags (or 50,000 maunds). These two parties together share about 85% of the total turnover. As mentioned earlier, the Forest Labourers Cooperative Society's share is about 2200 bags and that of other traders share comes to about 2000 bags individually. Assuming an average price of Rs. 8 per bag the valuation of total export earnings comes to six lakhs and forty thousand rupees. Of these, nearly three lakhs rupees are the earnings of the outside trade agency. The turnover of the Society comes to about Rs. 18,000.

4.13 Oil Seeds - Groundnut and Niger Seeds

As noted in the third chapter it is seen that the total acreage under groundnut and niger seeds is 2930 acres and 5864 acres respectively or oilseeds in general occupy 8794 acres, which come to nearly 13 percent of the gross cropped area.

One vehicle owner provided certain details, though they do not cover the entire export. Groundnut is taken to Sangamner where there is an organized processing market. This transport owner gave the details of about three

thousand gunny bags of groundnut export. The exports are concentrated in the months of November and December and about seventeen hundred gunny bags are transported to Sangamner in this period. Also one other foodgrains' trader estimated that in November alone about three thousand bags of groundnut were exported. Assuming an average price of fifty rupees per maund the value of this export in the month of November comes to one lakh and fifty thousand rupees. Of course these are not the entire exports.

Some of the estimates of groundnut and niger seeds may be presented here. As noted in the third chapter, with an average per acre yield of 2 quintals and 59 kilos, the estimated total production comes to 7593 quintals (or 20,406 maunds). In value terms, this total production is approximately nine lakh and forty-nine thousand rupees. The estimated total consumption of groundnut oil is approximately two lakh eighteen thousand rupees. The difference of seven lakh thirty-one thousand rupees may be taken as the export of groundnut.

In the case of niger seeds, the average per acre yield of fifty-nine kilos gives the estimate of total production as 3451 quintals (or 9275 maunds). In value terms this is approximately four lakh and fourteen thousand rupees. The estimated total consumption of niger oil is

two lakh seventy-one thousand rupees. The surplus margin of one lakh forty-three thousand rupees may be taken as the export of niger seed. Two traders alone from Teli community export about one thousand quintals equivalent to one lakh and twenty-five thousand rupees of niger seeds.

There are about twenty oil ghanis of traditional type in Rajur run by the members of Teli community. One small trader gave some details. Niger seed is crushed in Rajur and usually niger oil is preferred to groundnut oil by the tribal households. In a day one can press about one maund (or half the gunny bag) of niger seed. Out of one quintal crushed, about twenty-eight kilos of sweet oil is procured. The rest is oil cake, which fetches forty rupees per quintal in the local market. The estimate of niger seed production is broadly corroborated by this trader. In a period of eight months in the year, when only oil-ghanis are operating, one ghani can press about two hundred bags. The twenty ghanis together would crush in all about four thousand bags which comes to approximately eight thousand maunds of niger seeds. The estimated production is about 9300 maunds. The exports of over thousand maunds is the surplus margin. Thus these estimates are generally confirmed indirectly. The profit margin given by the worker engaged in oil pressing is about ten rupees per bag of two maunds. The new design

of oil ghanis involves less manual labour and yields more oil by as much as three percent. But only one ghani is of this type; all others are of traditional type made of stone. The costs incurred are as follows. The cost of average bullock is three hundred rupees. Its feed cost comes to one and half rupee per day. The maintenance cost of ghanis comes to about one hundred rupees. The human labour is usually paid two rupees a day, though in many cases the owner himself does the manual labour. The prices of niger seed and oil are usually higher in monsoon season but still not many ghani-operators can avail themselves of this opportunity since only a few of them can afford to invest in stocks during the marketing season, usually around November and December. Often bullock is purchased in the early age and then fed and put to work for about two years. After this period, with a margin of hundred to hundred and fifty rupees over the original price of bullock, it is sold away and the new one is purchased. Some of the families are engaged in 'hali-pati' trade in sweet oil. This is usually undertaken by the female member of family. Thus a good margin in marketing also is added to the household income.

4.14 Myrobolam Collection (Hirada)

From the discussion of forest resources in the second

chapter, it is evident that a note of forest resources and sources of income for tribal people from this commercial exploitation of forest resources has to be taken here. Commercially the only valuable forest resource is 'myrobolams' or locally known as 'hirada'. This is collected from two forest-belts, one around Harischandragad in Mula valley and the other around Bhandardara Lake.

The Gazetteer has commented elaborately on this forest resource. The passage is relevant here:

"Myrobolams are the fruit of the Terminalis Chebula and are used largely in Europe for tanning the finer sorts of leather and in making ink. They also contain a yellow pigment. They grow in the upper portion of Akola within the region of heavy rainfall and in exposed situations, their choice in points being exactly the opposite of the choice of teak. They are capricious in growth. The seed takes three years to sprout and the young plant, even when unharmed by cattle or goats, often dies after three or four years. Myrobolams were formerly gathered by contractors who paid a royalty to Government. Since 1877-78 the system of departmental collections by hiring labourers has been introduced. Central Stores for groups of villages are established and the people are invited to gather the fruit and bring it to the stores. In occupied numbers, the myrobolams are disposed off directly by the holders. Travelling buyers, mostly Vanis, act as agents for exporting firms in Bombay." 36

The present practice of myrobolam collection may be reviewed here. As against the departmental purchases,³⁷

³⁶ Gazetteer of the Bombay Presidency : Ahmednagar, Volume XVII, Government Central Press, Bombay, 1884, p.20.

³⁷ The Hey Report (1916) has commented that "Commercially they (forests) are only valuable for the 'hirada'

now nearly ten to twelve traders, nearly all belonging to Vanjari community, make purchases at various places in addition to the principal purchases at Rajur. These traders on bazar days take up vantage positions around Rajur, from where villagers approach Rajur market to dispose of myrobolam. Only one trader from Ghoti, in the neighbouring Nasik district, has the larger share of trade which comes to about fifteen to twenty percent of the total turnover. All others have more or less equal share of trade. It has to be noted here that most of these traders are mainly dealing in rice trade, particularly participating in the exports to Sanganner on Thursday, the auction day. There is one cooperative society, whose share of trade is, at best, around ten percent.

An estimate of total turnover of trade in myrobolam may be presented here. Nearly all the traders are interviewed and there is an unanimity of opinion that every year about ten thousand bags of myrobolam are collected and exported from Rajur. Often some traders from Bombay visit Rajur market during the busy season. Otherwise, local traders arrange to transport myrobolam to various places like Ghoti, Nagar, Nasik, Jalna, Chalisgaon,

growing in them. The right to gather these in each village is now sold by contract to the villagers themselves and the 'hirada' is then bought by traders at Rajur, who send them to Bombay via Ghoti. In the last two years, the sudden heavy fall in prices has caused a slump in this trade." The present day practice seems to date back to this period.

Bhuiwada, Vadali, etc. The bulk of exports go to Ghoti, on their way to Bombay and Madras through rail transport.

Out of ten thousand bags of myrobolam, the details for nearly 3400 bags are made available by the vehicle owner. He himself being the operator, estimated that about ten thousand bags or twenty thousand maunds are exported from Rajur market. One truck load takes about hundred bags equivalent to 200 maunds. It appears that the transport of myrobolam starts from November onwards till the beginning of June. From December to March, and more particularly during January and February, the business is at the peak and so the exports also.

An average price of ten rupees per bag prevails during the peak business season. Thus the total value of myrobolam exports comes to about one lakh rupees annually. It is of interest here to know the price changes that have come about in last eighty years. In 1881-82, the Gazetteer reported: "50 tons (147 khandis) worth about Rs. 2540 gathered in 1881-82 at a cost about Rs. 850 are the fruit of the Terminalia Chebula or myrobolams."³⁸ The average price per seer works out to be around two paise. Later on in the same paragraph, the Gazetteer reported, "The

³⁸ Gazetteer of the Bombay Presidency : Ahmednagar, Volume XVII, Government Central Press, Bombay, 1884, p.20.

price varies from Rs. 18 to Rs. 20 a ton (3 khandis). It increases as the season advances, because as less fruit is left on the tree, the heavier and more valuable it becomes."³⁹ On the basis of Rs. 20 per ton, the average price per seer works out to be one paisa. As against this in 1963-64, it is noted that on the basis price of Rs. 10 per bag which contains two maunds of myrobolam, the average price is little over twelve paise per seer. Thus the price per unit has increased from one or two paise to twelve paise during the period of last eighty years.

Over the years there is a continuous depletion of this rich forest resource, which is an important industrial raw material. One Vanjari family interviewed said that in 1940 the family's share of trade was about fifteen thousand bags out of the total collection of one lakh bags of myrobolam. On account of wide fluctuations in market prices of myrobolam this family was ruined. According to him, the situation of uncertainty of prices still prevails and it has led to the bankruptcy of so many traders. The estimates given by this family are confirmed by the report of the Bombay Province Cooperative Bank (1947). The report estimates that by the end of forties the collection and export was approximately one lakh bags of myro-

³⁹ *ibid.*, p. 20.

bolam. Afterwards the forest depletion on large scale during the war and post-war period took place and this resulted into the reduction of volume of myrobolam collection. In 1947, the extent of depletion was from one lakh bags to about thirty-thousand bags of myrobolam.⁴⁰

4.15.1 Milk and Milk Products

This region is known for the special local breed of cattle, known as 'Dangi'. Harbans Singh and Parnerkar have commented:

"Dangi: This breed is found in Akola taluka of Ahmednagar district,.... ghats of Nasik, Thana and Colaba districts of Maharashtra. The animals are red and white or black and white in colour."⁴¹

The same authors have given the description of 'Dangi' cattle as, "a small head, bulging forehead, long face, short thick horns long deep body, short stout legs, powerful fore and hind quarters are the chief characteristics of the breed. The bullocks are hardy, especially suitable

⁴⁰ The Gazetteer has commented that "Hirada is well known on account of its nuts, the myrobolam of commerce, which yield a valuable dye. Since the demand for myrobolams has increased the tree is rarely cut. According to a local saying "A felled hirada is as rare as a dead donkey". At least today this comment is not true.

ibid., p. 24.

⁴¹ Harbans Singh and Y.M.Parnerkar, "Basic Facts About Cattle Wealth and Allied Matters". Central Council of Gosamvarthan, New Delhi, 1966, pp. 54-55.

for heavy rainfall areas in West India. The bullocks are specially useful for working in rice fields. The cows are generally poor milkers."⁴²

The problems of estimation of income from livestock are formidable. The calculations presented here are approximate and the main interest is to estimate the realized income from sales of milk products. On account of basic difficulties of transportation, there is no market for milk. It is only at Rajur, where hoteliers and a class of traders and government servants provide a limited market for milk. Some attempts in the past have been made to organize the market but have failed. On account of high perishability of milk, the time taken in transportation to a nearby town through State Transport service is too long and unless some processing activity, such as the chilling plant, is started at Rajur itself the market for milk cannot be organized. Thus the price of milk taken for valuation is from Rajur only and it is a consumer's price or retail price.

Broadly speaking, the internal total consumption of milk is approximately forty-five thousand maunds and the total production of milk approximately sixty-thousand maunds. The surplus of fifteen thousand maunds may be treated as the export margin of milk. Of course, this

⁴² *ibid.* pp. 54-55.

export takes the form of less perishable items of consumption such as khoa, sweets, ghee, etc. The estimates of export trade are independently arrived at through the interviews of hoteliers, and those families who are traditionally engaged in sweet making.

The total consumption of milk by 212 sampled households is approximately little over ten thousand seers or about twenty-five hundred maunds. Their equivalent total consumer expenditure comes to approximately twenty thousand and five hundred rupees. The average annual consumption of milk per household comes to about ninety seven rupees or one ninety four seers (about five maunds). In other words, the average annual consumption per person comes to about seventeen rupees or thirty-four seers (less than one maund).

On the basis of these data on consumption of milk, the estimated total consumption of milk comes to Rs.9,03,092 or 18,06,184 seers. This is approximately little over forty-five thousand maunds.

There are nearly four thousand she buffaloes. It has been reported that on an average two seers of milk per day can be taken as a conservative annual average milk yield.⁴³ This comes to about eight thousand seers

⁴³ The average milk yield is little over one seer per day for the Maharashtra State. See Harbans Singh and Y.M.Parnerkar, *ibid.*, p. 119.

These estimated quantities are made available by the officer in charge of Government Milk Scheme, who had completed a pilot project to start a milk collection centre at Rajur.

of total milk per day. Assuming the year of 300 days, the total milk supply comes to approximately twenty-four lakhs seers or sixty-thousand maunds. The average retail price of milk being half rupee a litre, the total value of milk is approximately twelve lakh rupees. The total estimated consumer expenditure being approximately nine lakh rupees there is a surplus of three lakh rupees. This comes to on an average four rupees per person.

Now the export of milk products may be estimated. The exports are invariably from Rajur and thus either milk or its concentrate, khoa, from the interior is brought to Rajur. The major weekly exports of sweets, locally known as 'pedhā' regularly go to Shirdi, a religious place from the neighbouring Nasik district. The broad proportions of milk and milk products are as follows:— One seer of milk when continuously heated is equivalent to one-fourth seer of khoa and this khoa is used in the preparation of sweets, in the definite proportion: one-fourth seer of sugar is added to one seer of khoa.

There are four families engaged in the export of sweets to Shirdi. They together export nearly eight and half maunds of sweets every week. Assuming an average price of five rupees per seer, the total weekly exports amount to seventeen hundred rupees. With a 50-weeks-gear, the total annual exports of sweets come to eighty-

five thousand rupees. In addition to this, it is reported that during November to May, every day about fifteen maunds of milk and two maunds of khoa are received at Rajur. And during June to October, this comes down to eight maunds of milk and one maund of khoa every day. Thus the total milk received in the first seven months period is 3150 maunds and in the second five months period is 1200 maunds. The total annual milk collected at Rajur is 4350 maunds. The total quantity of khoa is about 76 maunds in a year. This converted into milk is equivalent to little over 300 maunds of milk. Thus the total equivalent milk collection at Rajur comes to approximately fourteen to fifteen thousand maunds of milk. This valued by a general average price of milk, half rupee a seer, is approximately three lakh rupees. Since there are no data on detailed itemwise exports, it is reasonable to convert the milk products into equivalent milk originally processed and then exported. The export margin of three lakh rupees is therefore accepted here in the original accounts.

No estimates have been attempted for the income from cow milk since there is no internal market for such a product though the total number of cows is approximately twenty-three thousand. Also the income of byproducts from carcasses such as hides, bones, etc. is not estimated in the absence of reliable data.

4.15.2 Milk Product - Ghee

There are about five traders who export ghee to Sangamner market for a period of five months in the monsoon. It is reported that every week on an average ten cans, containing sixteen kilos of ghee, are exported. The total export of the season comes to two hundred cans or thirty-two hundred kilos of ghee. Assuming an average price, Rs. 6.00 per kilo, the value of annual total export would be Rs. 19,200. The main incidental charges are fifty paise as the state transport charge and forty paise as octroi charge at Sangamner. The traders estimate of net profit is twenty rupees per week. These traders have to supplement their earnings through food-grains trade on a moderate scale. This begins after November.

4.16 Summary of Estimates

In the table given on next page, the final estimates, though approximate, of imports and exports of these products which are not covered by the discussion in the third chapter are presented.

The net imports are about twenty-five lakh rupees and the net exports about twenty-two lakh rupees. The import deficit amounts to three lakh rupees. To this may be added the surplus of production over consumption on the agricultural account which is about ten lakh rupees. The overall estimated surplus comes down to approximately

Exports	Approximate estimate in Rs.	Imports	Approximate estimate in Rs.
Tomato	1,15,200	Clothing	10,00,000
Poultry and eggs	1,51,000	Kirana	15,00,000
Charcoal	6,40,000		
Oil seeds - niger	1,43,000		
Oil seeds - ground-nut	7,31,000		
Myrobolam	1,00,000		
Milk products	3,00,000		
Ghee	19,200		
Total exports	21,99,400	Total Imports	25,00,000
Approximately	22,00,000		

seven lakh rupees per annum. This works out to be about thirteen rupees per person.

CHAPTER V

SEASONALITY IN CEREAL CONSUMPTION

5.1 Introduction

The consumption pattern being characterised by the consumption of cereals, it is appropriate at this stage, to analyse the behaviour pattern of the consumption of cereals at the regional level. As the range of fluctuations in the prices of cereals has an immediate effect on consumers' preferences, the analysis of the incidence of seasonality in the consumption of cereals is relevant to understand the economics of the region. The phrase used by Friedmann, though in a different context, may be borrowed here to state that 'whatever its configuration it must be viewed as an interacting system of relationships'¹ and the analysis of the structure of cereal consumption is interesting analytically in this sense. The cognisance of interdependency in cereal consumption, over different seasons also leads to a certain pattern of trade.

The present chapter deals with the following aspects of the problem. A general introduction covers the details such as per capita consumer expenditure on cereals and its quantitative magnitude, the estimates of the total cereals consumption for the region as a whole, etc.

¹ John Friedmann - "Regional Development Policy : A Case Study of Venezuela", The M.I.T. Press, Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A., p. 99.

Then the month to month variations in the cereal consumption have been discussed with the view of presenting the quantitative dimension of the different cereal consumption and its changing composition over the seasons. This is followed by the detailed discussion of each cereal consumption and the regional details of the consumption pattern are noted. The structure of cereal consumption is better understood when expressed in proportionate share of each cereal consumption in the total cereals consumption and so the quantities of consumption are converted into percentage terms. This brings out the seasonal variations in the consumption pattern. A discussion of the statistical measure of this seasonality follows. Finally, to highlight the pattern in the process of substitution and shifts in the cereal consumption, the consumption has been broadly categorised into certain periods, and then the pattern is studied. The chapter is concluded with a discussion of the calorie content of the local diet.

The unit of account is the household, since originally the data are recorded for the sampled households. Besides, the family is the principal decision making unit in this context. In the present chapter, the emphasis being on the analysis of the seasonal behaviour of cereal consumption, the income effect and the varying size of

household on account of age and sex composition are not considered. These characteristics are introduced at a later stage in the analysis of levels of living. Also the econometric exercise in the analysis of the household budgets takes note of these aspects. It may be admitted here that to a certain extent the assumption of the constancy of household incomes is restrictive since the degree of exposure to seasonal fluctuations in the cereal consumption is varying and is basically determined by the level of household income. But still, the emphasis being on such aspects as seasonality, shifts and substitution in the structure of cereal consumption, the analysis at the aggregate level, irrespective of income differentials, is relevant.

5.2 Nature of Cereal Consumption

The seven cereals viz. rice, ragi, bajra, jowar, wheat, sava, varai, considered here are not equally important in the local diet. Not only their mutual proportions but their varying composition i.e. consumption out of domestic stock and that out of market purchases, also may be noted here. *

The consumption of rice and ragi is quite prominent. About 1600 quintals of rice and ragi are consumed out of the total consumption of all cereals amounting to

* Please see the table on next page.

COMPOSITION OF CEREAL CONSUMPTION BY 212 SAMPLED HOUSEHOLDS

(Consumption is in quintals and rounded off to the nearest decimal)

Cereal	Consumption out of home-grown stock	Consumption out of market purchases	Total consumption	Proportionate consumption out of home-grown stock	Proportionate consumption out of market purchases	Total consumption
1. Rice	770	63	833	92.49	7.51	100.00
2. Ragi	638	123	761	83.84	16.16	100.00
3. Bajra	87	69	156	55.66	44.36	100.00
4. Jowar	11	34	45	24.76	75.24	100.00
5. Wheat	164	63	227	72.24	27.76	100.00
6. Sava	47	1	48	97.92	2.08	100.00
7. Varai	84	2	86	97.37	2.73	100.00
Total	1801	355	2156			

2200 quintals, which comes to approximately three fourths of total cereal consumption.

The total consumption of rice and ragi is more or less equal in quantity at about 800 quintals though the consumption of rice is in excess by the difference of nearly sixty quintals. It may be remembered here that the respective acreages under these two crops are also, more or less equal, that is about 18,000 acres each. The sources of the cereal consumption are different. The consumption of ragi out of market purchases at 123 quintals is nearly double to that of rice consumption at 63 quintals. The important point to be noted here is that the difference between internal availability and internal requirement of cereals, particularly of rice and ragi, arises on account of higher per acre yield of rice as compared to that of ragi and this primarily set a certain pattern of foodgrains trade.

For all the seven cereals, nearly all sampled households from most of the nine villages reported consumption out of market purchases in addition to that out of domestic stocks.

In the case of consumption of sava and varai, nearly all of it is met out of domestic stocks. In the case of consumption of wheat about 60 quintals out of the total consumption of about 225 quintals, are consumed out of market purchases. This comes to about one fourth of

total wheat consumption. All other villages, excepting Khirvire, Guhire and Padalane, consume wheat more out of market purchases. In the case of the above exceptions like Khirvire, consumption out of market purchases is also there, though not the only source of consumption. As explained earlier, part of this market purchases are accounted by the distribution of wheat through Fair Price Shops.²

The case of jowar is somewhat different. Three-fourth of the total consumption of jowar is met out of market purchases, i.e., 34 quintals out of 45 quintals. About one fifth, that is, 7 quintals of consumption out of market purchases is in Padalane village alone. In the case of Bajra, the consumption out of market purchases is little less than half i.e. 69 quintals out of total consumption of 156 quintals.

As regards the consumption of bajra an additional feature of the consumption in Padalane village as against other villages is notable. Out of the total consumption of bajra of 212 sampled households, little over half, that is, about 83 quintals are consumed by 27 households from Padalane village only. Also as distinct from other

2

Please refer to the discussion of price adjustments in respect of wheat in the third chapter.

villages, nearly 85% of bajra consumed is met out of domestic stock, i.e., 70 quintals. As compared to other sampled households, even in Padalane, the consumption of bajra out of market purchases at about 13 quintals is comparable.

Next comes, Khirvire village with a prominent place for bajra in the local diet. Out of about 38 quintals about 27 quintals are consumed out of market purchases. The influence of neighbouring villages populated by non-tribal communities principally Marathas, is evident on the consumption pattern of Padalane village and to a lesser extent, on Khirvire village. The climate and cropping pattern in the other part of Akola taluka being distinctly different from that of tribal villages under study, the principal crop bajra replaces rice and thus the prominent position of bajra in the local diet of non-tribal communities is expected. Thus many villages lying on the border of these two parts of Akola taluka show influences from both the tribal as well as non-tribal communities. These villages are spread from south to north and Padalane village illustrates this situation of converged influences. The influence of the region becomes less and less compact and distinct in such circumstances.

5.3 Estimates for the region ^{*}

In the following paragraphs, the cereal consumption of 212 sampled households for a period of twelve months from November 1963 to October 1964 is considered.

The per capita annual consumption of seven cereals is 174.500 kilograms. The annual average per capita expenditure on cereals works out to be Rs. 123.00.

The total annual consumption of seven cereals by 212 sampled households is 2155 quintals, which comes to an annual average of 10 quintals per household. In value terms, the total annual household expenditure amounts to approximately Rs. 1,52,000.00. This comes to about Rs. 717.00 per household on cereals.

Table 5.2 gives the estimates of annual total consumption of cereals for the total population of nine villages. These estimates are based on the statistics of cereal consumption by 212 sampled households, which are presented in Table 5.1.

Two kinds of averages have been computed. The respective population of nine villages has been considered as a weightage factor.

The method used is as follows :

The ratio of the total number of population of the

* Please refer to Tables 5.1 to 5.4.

sampled village to that of the number of persons of the sampled households belonging to that particular village is multiplied by the annual total consumption of individual cereals by respective sampled households to give the estimates of total consumption for the entire population of sampled village. Thus, for each cereal, the total consumption of the entire population is divided by the total population of 9 villages. This gives the average per capita consumer expenditure on cereals. The same procedure is used to arrive at the average per capita consumption of cereals (in kilograms).

The weighted per capita average annual consumption of cereals is 172 kilograms, which is not much different from simple average annual per capita consumption, 175 kilograms.³ Here also the same proportionate influence of rice and ragi is reflected, namely, 128 kilograms of rice and ragi are consumed out of the total cereal consumption of 172 kilograms.

The composition of per capita consumption of cereals by varieties is given in the following table:

[quantities in kilograms]

Cereals	Total per capita annual consumption		
	Consumption out of domestic stock	Consumption out of market purchases	Total consumption
1. Rice	62	5	67
2. Ragi	51	9	60
3. Bajra	7	6	13
4. Jowar	1	3	4
5. Wheat	13	5	18
6. Sava	4	Not significant*	4
7. Varai	6	"	6
Total	144	28	172

* The annual consumption of sava and varai out of market purchases being less than two hundred grams is omitted here.

³ Please refer to Table 5.1.

The estimate of total consumption of cereals for the entire population of 87 villages under study is given by the simple product of weighted per capita average consumption and total population. The annual total consumption of all cereals for the region as a whole is approximately 93,000 quintals. If the simple average consumption of 174 kilograms is accepted the annual total consumption of all cereals is approximately 95,000 quintals.

The weighted per capita annual average expenditure is obtained from Table 5.4 which gives the estimates of total consumption of cereals in value terms for the total population of nine villages. Table 5.4 is derived from the quantity estimates of consumption presented in Table 5.2.

The weighted per capita annual average expenditure on cereals is Rs. 121.58 and this approximates the simple per capita annual expenditure of Rs. 123.06 from Table 5.3.

As is established earlier, out of the total per capita expenditure of Rs. 122.00, over Rs. 90.00 are devoted to the consumption of rice and ragi which comes to three-fourth of per capita expenditure on cereals. Though rice and ragi are consumed nearly in equal proportion the per capita expenditure comes to Rs. 61.00 and Rs. 29.00 respectively. Then follows the expenditure on wheat with Rs. 16.00 and expenditure on bajra with Rs. 8.00.

The expenditure on jowar is little over Rs. 2.00. The total expenditure on sava and varai comes to about Rs.5.00 and the former is around half of the latter.

The estimate of total expenditure on seven cereals for the entire region amounts to sixty-six lakhs of rupees per annum. The corresponding estimate based on the simple per capita expenditure, Rs. 123.00, is approximately sixty-seven lakhs of rupees per annum.

5.4 Element of Seasonality in Prices⁴

A comparison of the composition of cereal consumption calculated in terms of quantities and in terms of values reveals the important role played by the element of seasonal fluctuations in prices of cereals.⁵ The monthly consumption of cereals being valued by the monthly rural retail prices collected at the taluka place by the agency of National Sample Survey during November 1963 to October 1964, the proportionate influence of prices prevailing during different seasons may be usefully analysed. This discussion has a bearing on the seasonal character of import-export trade of cereals.

⁴The seasonal interaction of prices and consumption discussed in the third chapter has revealed how the incidence of changing prices affects the cereal commodity balance. (Please refer to 3.9)

⁵Please refer to Tables 5.1 and 5.4.

The consumption of rice out of homegrown stocks comes to 770 quintals valued at Rs. 69,100, whereas the consumption out of market purchases is 63 quintals valued at Rs. 6,400. It is possible that this latter part of consumption takes place during monsoon when the average price is usually higher as compared to the rest of the year. If the price of rice had remained the same during the year then the ratios of consumption out of market purchases to total consumption expressed in quantity and value terms should be the same, but here as in the case of rice, where prices during monsoon are higher these ratios differ, i.e. the ratios in terms of quantity and value are 1:13 and 1:12 respectively.

5.5 Structure of Cereal Consumption over the year

In the following paragraphs the overall pattern of cereal consumption with its process of substitution has been commented upon.⁶

The general trend in the consumption of all cereals appears to decline from November onwards. Starting from 188 quintals it reaches the trough point of 162 quintals in September. In the month of October some improvement in the level of consumption is recorded by about 5 quintals. In between this period there are minor deviations from the average trend.

⁶ Please refer to Table 5.5.

Table 5.13 indicates that the coefficient of variations for all cereals is lower at 4.63 as compared to seven individual cereals. This really shows that the deficiencies in the level of consumption of major cereals like rice and ragi during different seasons are partly compensated by the other minor cereals like bajra, wheat, jowar, etc. and is to be normally expected. This possibility of substitution of cereals amongst themselves minimises the extent of deficiencies in the total consumption of cereals. The index of seasonality in the consumption of all cereals begins with 104, and slowly declines to 100 in May. With the exception of indices for June and July, for the rest of the month, that is, August to October indices are less than 95 which indicates a definite uneven pattern in the cereal diet of the people and a possibility of deficiency during certain month.⁷

From November to January the total consumption level of all cereals declines from 188 quintals to 183 quintals. This fall of five quintals is accounted by all cereals excepting ragi. The rise in the consumption of ragi is of the order of nine quintals from 58 quintals to 67 quintals and yet it is not sufficient to compensate

⁷ The calorie content of diet is discussed at the end of the chapter.

the decline in other cereals, particularly rice, wherein the decline is as much as six quintals. All the same, the percentage share of consumption of all cereals out of stocks rises from 92.5% to 94.6%, and correspondingly that of consumption from market purchases declines from 7.5% to 5.5%. The reason is apparently that during this period the stocks of homegrown produce are built up by the households.

In the month of February there is an upward movement of level of consumption of all cereals from 183 quintals to 188 quintals which is the level operative during November. The earlier trend of rising proportion of consumption out of stocks is continued. The definite rise in the level of consumption may be explained by the augmented consumption of wheat to the tune of nine quintals from 14 quintals in January to 23 quintals in February. During this month the other cereals maintain the same earlier level of consumption, with a minor exception of bajra wherein a fall of three quintals is registered.

In the month of March, there is a decline of seven quintals in the total consumption level of all cereals from 188 quintals to 181 quintals. This is so despite the rise of three quintals to 23 quintals in the consumption of wheat. The net decline may be attributed to the continuing fall in the consumption of rice from 78

quintals to 73 quintals, and additionally for the first time in the year beginning from November the consumption of ragi marking a decline of four quintals to 64 quintals. All other cereals also register a minor decline in their levels of consumption. The noticeable feature of this month's consumption is that unlike preceding months the percentage consumption made out of stocks declines from 97% in February to 93% in March. It may be added here that this changed trend is continued till the end of the year.

In the month of April the level of total consumption of all cereals rises to 183 quintals. This is a minor rise of two quintals over the earlier level. This is on account of upward movement of ragi and bajra, whereas the consumption of wheat declines by three quintals to the level of 23 quintals.

In the month of May, the level of total consumption of all cereals declines by four quintals, mainly on account of fall in the levels of consumption of rice and wheat. Alongside the consumption of ragi, bajra and now jowar moves upward as in the earlier month.

In the month of June an upturn in the level of total consumption of all cereals is observed. This might be on account of the fact that relatively consumption requirements are higher as during this period agricultural

operations necessitate more labour inputs.⁸ As in the earlier months, the falling trend in the consumption of rice and wheat continues, whereas a definitely rising trend in the consumption of ragi from 68 quintals to 75 quintals, ~~and~~ a rise of seven quintals, and also that of bajra and to some extent that of jowar is evident. The important point to be noted here is with regard to the marked change in the composition of consumption. The percentage consumption out of market purchases registers a cent percent increase from 9.0% in May to 18.0% in June. Thus from here onwards the consumption pattern may be taken as the effective force that decides the behaviour of cereal imports. Again, the generally believed scarcity period of monsoon may be presumed to be coinciding with the changing behaviour of consumption and trade.

In the month of July there is certain decline in the level of consumption. In conformity with earlier trend rice consumption continues to decline, though in the case of wheat consumption the trend is reversed. This upward movement of wheat consumption continues till the end of the year that is, October. Thus wheat may be

⁸ Often mutual exchange of labour during sowing and transplanted operations takes place. On such occasions the host peasant bears the cost of mid-day meals of labour teams, and usually cash payments are avoided. In such circumstances, a mix up of consumption details is unavoidable. Still, the fact that intensive labour requires higher quantum of cereal consumption may be admitted here.

said to be substituting and partially supplementing the deficiency in the level of consumption of staple cereals like rice and ragi. This process of substitution is complemented by jowar. The amount of total consumption of jowar rises by five quintals from 3 quintals to 8 quintals. Thus an additional consumption of wheat and jowar about seven quintals helps to compensate the fall of nine quintals in the consumption of rice and ragi. The position of bajra, sava and varai remains stable. This way the overall level of consumption is stabilized near the preceding month.

In the month of August, a definite decline of the order of fourteen quintals from 184 quintals to 170 quintals in the total consumption of all cereals is recorded. On an average, the total consumption of cereals, per household is reduced by about seven kilograms in the month of August. The substitution effect of other cereals, beside rice and ragi does not seem to be adequately compensating the fall in the consumption of staple cereals. The other notable behaviour is in regard to the consumption out of market purchases. As in the month of June, the percentage share of consumption out of market purchases rises distinctly from 25% to 41%.

The total fall in the consumption of rice and ragi is to the tune of sixteen quintals particularly in the

case of rice the fall is higher by about nine quintals. As against this, the total rise in the consumption of jowar and wheat is just around four quintals. The consumption of bajra and varai show an imperceptible fall. Thus a net deficiency of fourteen quintals appears at the level of total consumption.

The changing composition of consumption is already noted. In the case of rice, the consumption out of market purchases rises from 6 quintals to 12 quintals. Whereas in the case of ragi it rises from 19 quintals to 27 quintals and in the case of wheat it rises from 6 quintals to 14 quintals. It may be added here that since the total monthly consumption of rice and ragi declines and their consumption out of market purchases increases the corresponding consumption out of stocks must be decreasing. In the case of wheat, the total consumption being rising, the entire increase comes from the increase in consumption out of market purchases. Like rice and ragi, the consumption of wheat out of stocks declines.

In the month of September, the total consumption continues to decline and it comes down to 162 quintals. The composition of consumption out of market purchases remains steady around 41% as in the month of August. In the background of net decrease in the level of consumption this steady consumption out of market purchases means that

the behaviour of household consumption becomes all the more important determinant of import-trade or in other words, it means, an ever-increasing dependence of consumption behaviour on supplies of cereals through market channels.

The tendencies in the behaviour of consumption of rice and ragi are continued in a downward direction. The decline in the consumption of rice is of the order of four quintals and that of ragi it is ten quintals. Both these cereals are consumed approximately in equal proportion, about 51 quintals and 52 quintals respectively. Additionally, unlike in the preceding months the trend in the level of consumption of bajra and jowar shows reversal and starts moving downward. As against this, the consumption of wheat increases marginally by about one quintal and that of sava and varai by two quintals and six quintals respectively. In the latter case of sava and varai, and particularly varai, for the first time in the year these cereals start entering the food basket as a substitute and supplementary cereal. It seems that these cereals are sometimes replaced as soon as the scarcity period of monsoon ends, when the household income is low. At higher level of income their consumption is in the nature of 'inferior commodities' indicated by the negative income elasticity.⁹

⁹ Please refer to the discussion of econometric results in the seventh chapter.

The peculiar feature of cereal consumption during September is the decline in the consumption of ragi out of market purchases from 27 quintals to 23 quintals. To some extent, the same trend is observed in the case of bajra and jowar also. This may be taken as the beginning of a relief from monsoon scarcity, since it was the higher consumption of bajra and jowar that was compensating, however partially, the decline in the consumption of rice and ragi and thus stabilising the total consumption of all cereals at a somewhat higher level.

In the last month of October, the total consumption shows an improvement and moves up from 162 quintals to 167 quintals. The percentage share of consumption out of market purchases declines from 41% to 34%. This is an indication that whatever improvement that is there in the total consumption, it is entirely out of homegrown stocks made possible by the early harvest of rice reducing thereby the dependence upon market supplies. Thus the earlier conclusion as regards the consumption of bajra and jowar is confirmed. The monsoon scarcity definitely gives way to the higher level of consumption. Of course, as compared to the behaviour of consumption during the beginning of the year, November, the percentage share of consumption out of market purchases is still considerable. But at least the end of monsoon scarcity

may be said to have begun.

In the consumption of rice the beginning of recovery is noticeable. The consumption goes up by nine quintals from 51 quintals to 60 quintals. The contrary trend in the consumption of ragi is noted as the consumption declines from 52 quintals to 47 quintals. This is a continuation of the earlier trend. The total consumption of bajra and jowar declines by about six quintals, the share of the two cereals being about the same. The consumption of wheat recedes by about one and half quintal. As against this, the consumption of varai continues to increase from 9 quintals to 16 quintals and that of sava it increases from 5.5 quintals to 7 quintals. The total increase in consumption on account of rice, sava and varai amounts to about seventeen quintals and the total fall on account of ragi, bajra, jowar and wheat amounts to about twelve quintals. The net rise of five quintals is thus registered in the total consumption of cereals.

The noticeable point here is that in the case of all cereals, excepting rice the consumption out of market purchases starts declining, though these crops are still to be harvested. So this may be taken as the limiting period of cereals imports.

From November to February, the percentage share

of consumption from market purchases is minor and declines steadily from 7.50% to 2.90%. From March to September this percentage share starts rising and in initial months rises slowly from 7% in March to 9% in May, but as the monsoon begins, this percentage share moves up considerably, from 18% in June to 41% in September, more than double during four months and nearly four and half times higher from May onwards. Only in October this percentage declines to 34%. This, as commented earlier, affects the pattern of trade.

5.6 Detailed Discussion of Cereal Consumption

In the following paragraphs, a detailed discussion of the cereal consumption based on the cereal-wise tables of monthly consumption by 212 sampled households belonging to nine villages, has been presented.¹⁰ The unit of account is the quantity of cereal consumed by the investigated household and the total consumption of a particular cereal by those sampled households belonging to respective nine villages is given in the tables. The origin of consumption during the month is also noted, along with the total monthly consumption. The features of cereal consumption pattern are commented with reference to the nine sampled villages.

¹⁰

Please refer to Tables 5.6 to 5.12.

5.6.1 Rice¹¹

The level of total consumption of rice slowly declines from November onwards till the end of May. Subsequently there is a marked dip in the level of consumption during the monsoon from June to September. Only in the last month, October, the level of consumption recovers partially. It is not restored to the original level at the beginning of the year, November 1963.

As regards the composition, from November to April, the consumption is almost entirely made out of stocks. The consumption out of market purchases is just around two and half quintals during this period, whereas the consumption out of stocks is in the range of 83 quintals to 70 quintals. From May onwards, till the end of October, the consumption out of market purchases increases from 5 quintals to 12 quintals. During this period, the consumption out of stock declines from 65 quintals in May to 39 quintals in September and recovers to 48 quintals in October. The early maturing varieties of rice¹² are harvested in advance of the general harvest of paddy.

The Khirvire village has a different pattern as regards the composition of rice consumption. From

¹¹ Please refer to Table 5.6.

¹² Locally known as 'Varangal' and 'Kolapi'.

November to February, less than one quintal is consumed out of market purchases as against the average monthly consumption of 17 quintals out of stocks. From March onwards till the end of the year, the consumption out of market purchases increases from 2 quintals to 9 quintals. Particularly, in the last three months, August, September and October, proportionately more is consumed out of market purchases. Thus, in March the ratio of the consumption out of stocks to that out of market purchases is 6:1. This proportion comes down to 4:1 in June and in August it is almost 1:1. In October it is little over 1:2. During March to September the average total rice consumption is stable around 15 quintals and slightly declines to 13.5 quintals in October. This behaviour of the consumption pattern is quite different than the one obtained at the aggregate level.

The Sakirwadi village shows that the consumption out of market purchases takes place only during June to September, i.e. from 25 quintals to 3 quintals, and in October, still declines to 2 quintals. During this period, the consumption out of homegrown stocks, also declines continuously from 13 quintals to 7 quintals, and it recovers to 8 quintals in October. This again is markedly different from the overall consumption pattern of the region.

The Vakdari village, as against all other villages shows that the consumption of rice more or less rises upto the month of July, and declines during August and September. The level of consumption improves again in October. As noted earlier all other villages show a uniform declining level from November onwards, and particularly after May. In the case of all villages, a certain recovery is evident in the month of October, the exceptions being the Khirvire village. The Kelungan village shows the recovery one month earlier, in the month of September. These regional variations in the behaviour of consumption pattern have been noted to highlight the influence of the neighbouring villages - the other part of the taluka outside the scope of the present study - which have a basically different climate, cropping and cultural pattern.

5.6.2 R a g i¹³

At the aggregate level, the total quantum of ragi consumption rises steadily from 58 quintals in November to 75 quintals in June and 69 quintals in July. In the last three months, August to October, the total consumption declines from 62 quintals to 47 quintals.

The important feature of the initial rising level of

¹³ Please refer to Table 5.7.

consumption upto June and the subsequent downward turn is the changing composition of the consumption. The consumption out of market purchases is negligible, less than a quintal per month upto February. From March to May it increases from less than 3 quintals to little over 5 quintals. And from June to September it rises from 17 quintals to 23 quintals and in October it is little over 22 quintals. The consumption out of stocks declines from 58 quintals in June to 50 quintals in July, and further, to 25 quintals in October and the decline is as much as fifty percent in last four months.

In the case of Padalane and Vikdari villages, situated in the Mula valley, the entire consumption is out of homegrown stocks. Subsequently, from August to October, the consumption out of market purchases is proportionately more than that out of stocks.

In all the villages, excepting the Khirvire village situated on the plateau, the consumption out of market purchases takes place only from May onwards and prominently during the last three months, August, September and October.

As regards the consumption of ragi in the Khirvire village, the consumption is made out of stocks as well as out of market purchases though the monthly consumption from latter source is always less than two quintals upto

the month of April, and starts becoming prominent from August to October. During this period, on an average six quintals per month are consumed from market source. In the month of October, the consumption out of market purchases is double that of the consumption out of stocks.

The Guhire village shows more or less the same feature as that of the Khirvire village. From June onwards till the end of the year, October, the consumption out of stocks is much less than that out of market purchases. The former declines from 8 quintals to 1 quintal during this period. As compared to this, the consumption out of market purchases rises from 2 quintals in May to 12 quintals in June, and is around 9 quintals till the end of October. These proportions are significant only in the case of Padalane and Vakdari villages. But in the case of Padalane village, the consumption out of market purchases declines to half to that out of stocks in the month of October, whereas for the Vakdari village the former is six times greater than the latter. From July to September the proportions are 1:1 for Padalane and are equal for Vakdari only in the month of August.

5.6.3 B a j r a¹⁴

At the aggregate level the trend of consumption

¹⁴ Please refer to Table 5.8.

declines from 16 quintals in November to 10 quintals in March. From May to September it is around 15 quintals. And in October it declines to 11 quintals.

The households from the Deogaon and the Vakdari villages have not reported any consumption of bajra. Amongst the rest of the villages, the Padalane village shows the notable variation from the general pattern.

In the Padalane village, the annual total consumption out of stocks, 70 quintals, and the consumption out of market purchases, 13 quintals, is in the proportion of 5:1. The movement of monthly consumption shows that from November to April, the ratio of consumption out of stocks to that out of market purchases is one to two and a half. But in the latter months, this ratio comes down to one to one. In other villages this proportion is other way round. For all the sampled households from nine villages, the total consumption out of stocks is 87 quintals and that out of market purchases is 69 quintals. It can be seen that the proportionate share of the Padalane village is dominant in the consumption pattern.¹⁵

In the case of the Khirvire village, the consump-

¹⁵ In this village, acreage under bajra is about 200 acres which is comparable to that under rice and ragi. The acreage under rice is about 250 acres and that under ragi 325 acres.

tion from two sources, stocks and market purchases, is reported separately. From November to April, the consumption out of market purchases is always two to three times greater than that out of stocks. As noted in the preceding paragraph, the pattern of consumption is exactly the other way round in the case of the Padalane village.

Thus, the characteristic feature of the consumption pattern for all the villages, excepting the Padalane village, is that the consumption out of market purchases is greater than that out of stocks. Also a definite rise in this consumption during the monsoon has a certain implication with regard to the import of bajra in this region.

5.6.4 Jewar¹⁶

The total annual consumption out of stocks is 11 quintals and that out of market purchases is 34 quintals. On an average, the annual consumption comes to less than 25 kilograms per household.

The Khirvire and Vakdari villages reported the consumption out of market purchases only. This again is concentrated in the months of July to October. In the case of Deogaon and Ambevangan villages, all the consumption,

¹⁶ Please refer to Table 5.9.

however meagre, about 2 quintals to 3 quintals, is out of stocks. All other villages have reported the consumption out of market purchases.

The monthly variations from November to October are significant. From November to April, the total consumption is around one quintal per month. During May and June it is, on average three quintals. Then from July to September there is a steep rise to 8 quintals in June and 9 quintals in September. In between the maximum consumption of 10 quintals is in August. In the last month of October, it drops to 6 quintals. In the context of monsoon this is expected.

From November to March, the consumption, however meagre, is entirely out of stocks. And during April to June the ratio of the consumption out of stocks to that out of market purchases is one to one. From July to September and partly in October, the consumption is mostly out of market purchases. (The corresponding ratio is 1:8). The total consumption is also considerably higher during this period, around 9 quintals per month. In fact, as noted earlier, out of the total annual consumption of 45 quintals, nearly 34 quintals are consumed during this period. This comes to about four-fifth of the total consumption in the last four months, July to October.

The conclusion seems to be that the consumption of

Jowar takes place prominently during the last four months, July to October and that too, bulk of it is met out of market purchases. Otherwise, as a rule, there is little consumption of jowar during the period from November to June.

5.6.5 W h e a t¹⁷

The total annual consumption of wheat by 212 sampled households is 227 quintals and out of this nearly one-fourth is the consumption out of market purchases. The average household consumption of wheat comes to little over one quintal per annum. In the Khirvire village, the consumption out of stocks and that out of market purchases is in the proportion of 2:1. In the Vakdari and Sakirwadi villages this proportion comes to nearly 1:1. In the Deogaon and Ambevangan villages all the consumption is out of stocks. The rest of nine villages report the consumption mainly out of stocks.

At the aggregate level, the consumption is fairly stable throughout the year. From November to January the average consumption is around 14 quintals per month. Then from February to April the average level of consumption is around 24 quintals per month. This being the harvest period, the stocks start building up and the consumption out of stocks is the prominent feature as nearly 23 quintals

17 Please refer to Table 5.10.

per month are consumed out of stocks as against about 13 quintals during the preceding quarter, November to January. From May to July the average consumption declines to 17 quintals per month. Still the bulk consumption is out of stocks, about 14 quintals per month. During August to October the average consumption takes an upward turn and is around 21 quintals per month. The differentiating feature of this consumption from the consumption in the preceding period is that about three-fourth, 15 quintals, is consumed out of market purchases. Thus there are two peaks points in the level of aggregate consumption of wheat. One is the harvest period around February to April and the second around August to October. The basic difference in the nature of the consumption during these two periods is that in the former the consumption is made out of stocks and in the latter, it is out of market purchases. The increased off-take from the Fair Price Shops evident from Table 3.7 [in the third chapter] substantiates the preference for low-priced wheat during the monsoon.

Thus all the villages, excepting the Khirvire village, confirm the pattern discussed here. In the Khirvire village the trend in the level of consumption is marked by a stability throughout the year. About six quintals per month are consumed and the only difference is

that during November to April it is always about six quintals per month and is maximum, 8 quintals during February; and in the remaining six months, it is always less than six quintals. Additionally it may be noted here that the consumption out of market purchases is about one quintal per month upto July and during the subsequent period of three months, August to October, it rises to the order of four quintals per month. And correspondingly, the consumption out of stocks dwindles to little over one quintal per month as compared to 5 quintals per month at the beginning of the year, November 1963.

5.6.6 S a v a¹⁸

The annual total consumption by 212 sampled households is 48 quintals and 47 quintals are consumed out of stocks. Out of one quintal consumed out of market purchases more than half quintal is consumed in the Khirvire village only. Thus all other 172 sampled households from eight villages consume sava entirely out of stocks.

The villages Deogaon and Ambevangan, situated in the Pravara valley, show proportionately more consumption of sava as compared to other seven villages. The respective total consumption is 9 quintals and 13 quintals

¹⁸ Please refer to Table 5.11.

per annum. The village Vakdari also shows the prominent consumption of sava. Here 12 sampled households consume as much as 12 quintals per annum, which comes to an average of one quintal per household. This is the highest average household consumption in the group of nine villages.

Thus, these three villages, Deogaon, Ambevangan and Vakdari, together consume nearly 33 quintals - in all there are 46 sampled households from three villages - out of the total consumption of 48 quintals for all the 212 sampled households. The minimum consumption of sava is reported in the Sakirwadi village which is hardly half a quintal.

At the aggregate level, the consumption declines from 5 quintals in November to little over 2 quintals in April. Then an upward movement begins and the consumption is highest at 7 quintals during October.

In the Deogaon and Ambevangan villages the consumption of sava is concentrated in the months of November and December and then again from May to October. For the Vakdari village the consumption is stable excepting the months of July and August. All other villages show the consumption in the months of November and December. This means that in the villages like Deogaon and Ambevangan, a higher level of consumption during the monsoon helps to stabilize the consumption level and a certain amount of

substitution between sava and other cereals takes place. For other villages the consumption of sava does not seem to be serving the role of substitute food. In the Vakdari village the consumption of sava is part of the diet.

5.6.7 Varai¹⁹

The total annual consumption of varai is 86 quintals out of which 84 quintals are consumed out of stocks and the rest from market purchases. Out of these 2 quintals, the Khirvire village and the Vakdari village each consume one quintal and little over 25 kilograms are shared by Kelungan and Sakirwadi.

For the Khirvire village the proportion of consumption out of stocks to that out of market purchases is 17 quintals to 1 quintal. For the Vakdari village this proportion comes to 10 quintals to 1 quintal.

At the aggregate level, over the months from November to August, the consumption generally declines and turns upward in the last two months, September and October. The consumption declines from 10 quintals to 3 quintals in August and rises to 9 quintals in September and to 16 quintals in October. Thus out of the total consumption of 86 quintals about 25 quintals are consumed during September and October. Of these, a little less

19 Please refer to Table 5.12.

than one quintal is consumed out of market purchases, the rest out of stocks.

In the case of all villages, excepting the Vakdari, the consumption is out of stocks. In the case of Vakdari also this consumption is during August and September. The Khirvire village also confirms the same pattern. In these two months alone about 11 quintals are consumed out of the total annual consumption of 18 quintals.

The consumption being low during May to August it is difficult to generalize whether the consumption of varai comes in to supplement the diet but during September and October, it does seem to be substituting and partially supplementing the diet.

5.7 Statistical measure of seasonality

The element of seasonality in the behaviour of cereal consumption pattern at the aggregate level has been adequately dealt with elsewhere. Now a statistical measure of this seasonality has been proposed and worked out in Table 5.13. The indices of monthly consumption of seven cereals are calculated and finally for each cereal the coefficient of variation is presented.

As noted earlier, the coefficient of variation for the total consumption of all cereals is lower than any of the cereals considered individually. This confirms

the conclusion that though there is a substantial variation in the quantity consumed of each cereal during the year under review, a changing proportion of food-basket manages to reduce the variation in the level of total consumption of all cereals. It may be added here that the last quarter, from August to October, can be characterized as the scarcity period, since the indices of monthly consumption are generally less than 95.00, indicating the shortages of cereals from the average level of cereal consumption.

First follows the coefficient for ragi consumption with 11.61. As compared to all other cereals, the consumption of ragi is prominent and stable in the local diet. The coefficient for rice consumption is 14.25. Though in terms of quantity and relative share, rice is a staple food, its monthly consumption index shows that from June onwards the level of rice consumption is below the annual average level. And the level, beginning with 119.00 in the month of November, is continuously declining, and the lowest index is 74.00 in the month of September and improves to 87.00 in the month of October. As compared to rice, the consumption of ragi is less than the average level only from August onwards and is lowest at 75.00 in the month of October. It is notable that when the rice index is around 119.00 in the months of November and

December, the ragi index is less than 100.00 in the corresponding period.

The coefficient for bajra consumption is 17.70 and the maximum index for the months of June, July and August, and partly for September also which is in the range of 123.00 to 119.00, may be complemented with the fact that it is during this period the deficiency in rice consumption appears. Also, during February to April there is a lean period in the consumption of Bajra, as the index is generally less than 80.00.

The coefficient for wheat consumption is 19.16 and the peak period in consumption coincides with the harvest time for wheat, that is, during February, March and April when the indices are 119.00, 135.00, 121.00 respectively. It seems that during this period the consumption of wheat comes in to substitute the consumption of bajra since low indices for bajra are correspondingly matched by high indices for wheat. Again from August to October the index is higher than the average level of consumption. Particularly during the month of September the index shows the peak point 112.00 and the severity of fall in rice consumption during this month is partly lessened by increased wheat consumption. In general, the relative stability that is there, is on account of the subsidized distribution of wheat through Fair Price Shops. Other-

wise the higher order of consumption during August to October would not be feasible, as the market price of wheat is not competitive with that of either jowar or bajra.

The highest coefficient is that of jowar consumption. The consumption upto April is less than one-third of the average level and during May and June the index is around 70.00. It is only during July to September that the index is above 200.00 and maximum, 278.00 in the month of August. In the last month of October, it declines to 159.00, which is still above the average level of consumption. Thus, the consumption of jowar substantially enters the diet only during the monsoon.

The high coefficients for sava and varai, 30.07 and 43.74 respectively show that the consumption of these cereals is concentrated at the beginning and at the end of the year. Particularly the coefficient for sava during September and October being very high, 139.00 and 168.00 respectively, its role as a complementary cereal is helpful in compensating the shortages of other staple cereals. The cereal, varai also plays the same part during September and October since the coefficients are 119.00 and 220.00 respectively. The consumption of varai and sava seems to be equally high during the month of November when the indices are 138.00 and 118.00 respectively. Otherwise the stability in average consumption

between January to the beginning of monsoon is evident.

5.8 Structural relationship of cereal consumption in terms of percentage share of each cereal to the total cereal consumption

The foregoing discussion of the structure of cereal consumption dealt with the process of substitution of cereals over the seasons and the changing composition of the origin of consumption. Now these structural relationships have been presented in terms of the proportionate share of each cereal consumption to the total cereal consumption over the months.²⁰ Here, in Table 5.14 the total monthly consumption of each cereal has been noted irrespective of its origin, that is, the consumption out of stocks and that out of market purchases. This monthly consumption of each cereal has been converted into the percentage share of individual cereal to the total consumption of all cereals in that respective month. Thus, the total consumption of all cereals in each month is aggregated to hundred percent.

At the aggregate level the percentage share of rice consumption is 39.00% and that of ragi consumption, 35.0%. Thus, these two cereals together amount to as much as three-fourth of the total cereal consumption. The per-

²⁰ Please refer to Table 5.14.

centage share of wheat consumption is 11.0% and that of bajra 7.0%. The percentage share of varai is 4.0% and that of jowar and sava, 2.0% each. These general proportions do not explain the importance of other cereals, excepting rice. The monthwise proportions of these cereals are analysed further.

The proportionate share of rice declines continuously from November to September in the range of 44.0% to 32.0% and it is only in the last month of October that the share goes up to the level of 36.0%.

The trend in the consumption of ragi is generally rising upward till the month of June from 31.0% to 41.0%, with the exception of February and March, when a slight recession is observed. But this may be on account of the rise in proportionate share of wheat during this period. The harvest of wheat crop is helpful at this time of the year. From July onwards till the end of the year the percentage share of ragi declines in the range of 38.0% to 28.0%. Thus, the percentage share of ragi is maximum during May, June and July and the respective shares are 38.0%, 41.0% and 38.0%.

The comparison of trends in the percentage shares of consumption of rice and ragi reveals that the proportionate share of ragi is more than that of rice in the months of June, July and August. The maximum difference

of five percent is in the month of June. Thus it is only during this period that ragi may be interpreted as a substitute in the light of declining rice consumption. During all other months, rice and ragi are consumed as complementary staple foods.

The movement of the percentage share of bajra shows that during November to February it declines from 9.0% to 5.0% and then slowly rises till May. The highest rise is between the period June to August, when it is in the range of 7.0% to 9.0% - even in September it is still 9.0% - and tapers off to reach 7.0% in the month of October.

The movement of the percentage share of jowar shows that it is less than one percent till the month of April and still less than 1.5% during May and June. It is during July to October that the percentage share is above 4% and the highest share with 6.0% is in the months of August and September.

The movement of the percentage share of wheat is uneven. The percentage share is higher during February, March and April when it is 12.0%, 14.0% and 13.0% respectively. Then a certain decline follows. Again during August, September and October the percentage share is above 12% and it is highest with 13.0% in the month of September.

The movement of the percentage share of sava is

declining till April and moves upward as it reaches 2.5% in the month of August. It is only during September and October that it is around 4.0%.

The movement of the percentage share of varai is generally falling and, only during September and October the percentage share reaches 5.0% and 9.5% respectively. In these two months, the consumption of sava and varai, particularly the latter, is a stabilizing influence at the level of total consumption of cereals.

Rice and ragi are the staple food and generally the receding consumption of rice is supplemented by the increasing consumption of ragi. But from June onwards, the deficit in rice consumption grows and during May to July and partly in August the consumption of ragi comes in as a substitute food. Additionally, bajra is consumed in increasing proportion and as the consumption of ragi starts coming down from August, bajra, wheat and jowar start entering the diet on a higher scale. As the consumption of bajra starts receding from September, the increasing consumption of wheat, jowar, varai and sava substitute the other cereals. In the last month of October, rice consumption starts improving and the trend is strengthened by continued consumption of wheat, varai and sava. Varai is particularly relevant in this month.

The changing balance of cereal consumption over the

year gives a consistent order of substitution and the discussion of shifts in the consumption pattern highlights the role of wheat consumption during the scarcity of monsoon.

5.9 Tendencies and shifts in the cereal consumption through four periods²¹

In the light of preceding discussion of the structure of cereal consumption, it was thought that a broad periodisation of consumption would highlight the trends and shift that are evident in the process of substitution of cereal consumption. An analysis of the state of interdependence of preferences for a certain variety of food-basket and in its wake a series of consequences in the sphere of trade, is basic to the understanding of the region.

The period of twelve months has been broadly divided into four periods as follows :-

First period - November - December - January

Second period - February - March - April

Third period - May - June - July

Fourth period - August - September - October.

The preceding sections have thrown up the details of consumer behaviour, the cropping pattern, and availability of food supplies through various agencies. This information has been borne in mind while categorizing the monthly series of consumption.

The first period is the harvesting season of major kharif crops such as rice and ragi. So it is during this period the farmers would build up the stocks of homegrown cereals. Additionally, this period is marked by leisure from farms, marketing of agricultural produce, festivals and important social occasions. All this is generally reflected in the higher level of consumption.

The second period covers the winter crops like wheat and gram. As the area under rabi crop being less than ten percent of the gross cropped area, the agricultural community is more or less free during this period.

The third period is the beginning of preparations for kharif crops and the monsoon proper. During May the ploughing operation has to be completed and sowing of rice begins with early rains in the first week of June.

The fourth period is a continuation of the monsoon and the level of consumption of cereals is minimum during the year. Only in the last month, October, a turn for better is observed.

The regularities and features of the cereal consumption may be noted first. The level of total consumption of all cereals shows a continuous declining trend from the first to the fourth period. As compared to the rate of fall in the consumption during first three periods, the decline in the fourth period is conspicuous. In the

first period, the total consumption of cereals is 556 quintals and declines by three quintals to 553 quintals in the second period. The slow decline continues upto the third period where the total consumption is 548 quintals. And finally in the fourth period, the decline is as much as fifty quintals and reaches the level of 498 quintals. In the earlier discussion of movements in the structure of cereal consumption it was contended that, despite the falling level throughout the monsoon, a certain recovery, however partial, in the total consumption of cereals starts building itself in the month of October. This means that the incidence of decline to the tune of fifty quintals in the fourth period is entirely borne by two months, August and September. It is during these two months that the proverbial monsoon scarcity is most acutely experienced by the households.

The total consumption of rice declines continuously from 242 quintals in the first period to 166 quintals in the fourth period, thus, a shortage of seventy-six quintals develops in a year in the consumption of rice.

The total consumption of ragi moves upward upto the third period, from 189 quintals to 212 quintals and then declines to 161 quintals in the fourth period. Thus a net withdrawal of twenty-eight quintals from total cereal consumption takes place.

The consumption of bajra shows a mixed pattern. In the first period, it is 42 quintals and it is just about 30 quintals, the minimum in the second period. Again it is stable around 42 quintals in the last two periods.

The consumption of jowar is around 3 quintals in the first two periods, and rises to 13 quintals in the third period. Finally, it rises still to the level of 25 quintals in the fourth period. The rate of increase in the last two periods from the first two is notable. In the end, the rise is as much as eight times.

The consumption of wheat is highest during the second period which is a harvest period for wheat. The level of consumption reaches 71 quintals from the earlier level of 43 quintals. Then it falls to 52 quintals and in the fourth period, again it rises to 61 quintals.

The consumption of sava starts rising from the third period and moves to 16 quintals in the fourth period.

The consumption of varai declines upto the third period from 25 quintals to 15 quintals and only in the fourth period it rises to the level of 28 quintals.

Alongside, the behaviour of consumption out of market purchases may be placed. The percentage share moves upward from 6.0% to 17.0% in the third period and reaches 39% in the fourth period. The rise in percentage share is as much as six and half times to that in the beginning.

The process of substitution and shifts in the consumption pattern may be outlined now.

From the first to the second period the total consumption declines by three quintals. But this net effect conceals the movements of consumption in different directions. The rice consumption is reduced by 19 quintals and that of bajra, by 12 quintals. Additionally, the sava consumption declines by 4 quintals.

As against this, the rise in ragi consumption is of 10 quintals and that in wheat consumption of 28 quintals. The second period being the harvest period for wheat the rise in wheat consumption is to be expected.

From the second to the third period, the total consumption declines by 5 quintals. But, in fact, the fall in the consumption of rice is around 22 quintals. Unlike the preceding period, the consumption of wheat declines by 19 quintals. Also, the consumption of varai recedes by 5 quintals. Thus there is a total loss of 46 quintals in the total consumption.

This is partly compensated by the rise in ragi consumption by 14 quintals and in bajra consumption by 14 quintals. The jowar consumption rises by 10 quintals. There is a marginal addition of 3 quintals to the sava consumption. Thus a net deficit of five quintals results at the level of total consumption of cereals.

From the third to the fourth period a decline of the order of 50 quintals in the total consumption is observed. The major share of this decline is claimed by the declining consumption of rice and that of ragi. In the former case, the level from the beginning is declining, whereas in the case of ragi, a change of direction is evident. The loss in level of consumption of rice is 35 quintals and in that of ragi, 51 quintals. Additionally, bajra consumption recedes by 3 quintals.

As compared to this, the consumption of jowar rises by 12 quintals and that of wheat by 9 quintals. Also, the consumption of sava and varai rises by 5 quintals and 13 quintals respectively. As against the total loss of 89 quintals, the addition of 39 quintals to the level of total consumption of cereals is grossly inadequate.

The overall structure of cereal consumption gives an internally consistent movement of the process of substitution. Thus during the first six months, from November to April, increased consumption of ragi and wheat substitutes that of rice and bajra. The jowar cereal is marginally consumed. The consumption of sava and varai shows the downward movement.

From the second to the third period, the increased consumption of ragi, bajra and jowar compensates the fall in the consumption of rice and wheat.

And finally from the third to the fourth period, which is the monsoon proper, the rise in the consumption of jowar and wheat only inadequately compensates the decline in the consumption of rice, ragi, and bajra. A certain additional consumption of sava and varai help stabilize the level of total consumption of cereals at a somewhat higher position.

The above argument can be usefully summarised as follows :

Period	Increased consumption	Decreased consumption	Margin
From the first to the second period	Ragi and wheat	Rice, bajra, sava, varai (jowar stable)	Addition of three quintals
From the second to the third period	Ragi, bajra, jowar, sava	Rice, wheat, varai	Addition of five quintals
From the third to the fourth period	Jowar, wheat, sava, varai	Rice, ragi, bajra	Withdrawal of fifty quintals

It may be seen here how the composition of consumption changes as a sequel to shifts in the consumption pattern.

The percentage share of ragi consumption rises from 1% to 45% in the last quarter, despite the decrease in consumption to the tune of 51 quintals in the last six

months. In the case of jowar this percentage share rises from 16% to 88% in the last quarter. In the case of wheat this percentage share rises from 13% to 69.0% in the last quarter. During the second quarter, of course, the percentage share declines to six percent on account of harvest period. In the case of bajra there is a consistent downward movement upto the third period during which the percentage share declines from 52% to 38% and in the last quarter, it rises to 45%.

These findings show that the cereals such as ragi, bajra, jowar and wheat enter the diet prominently in the different proportions during the monsoon.

In the case of rice, sava and varai a somewhat different explanation has to be offered. The production of rice being in excess over the level of consumption, the margin is marketed and finds a leading place in the list of exports from this region. So, the rise in the percentage share of consumption out of market purchases, from 2% in the beginning to 8% in the third period and to 21% in the last quarter must be interpreted to mean that this 22% share has been that part of marketed produce which is partly exported and partly consumed within the region. (No import of rice takes place in this region).²²

²² Please refer to the preceding chapter on Rajur.

The percentage shares of sava and varai, consumed out of market purchases, show that in the first nine months, they are negligible. But in the last quarter their corresponding shares are high which shows that these cereals substitute the loss in the level of consumption of other cereals and a considerable part of it is from market purchases.

In comparative terms, the relative share of jowar, which is almost entirely imported, is greater than all other substitute cereals. Also the import of ragi takes place on a significant scale. The part of wheat imports are through Government run Fair Price Shops where the rationed quantum of wheat is available at a subsidised rate and the price is stable throughout the year. All this detailed discussion brings out the bearing of the behaviour of cereal consumption on the trade pattern of the region.²³

5.10 Per capita food intake in terms of calories

The section deals with the calorific content of the diet. As the consumption data were not collected with the view of analysing the calorific content, it is to be expected that the discussion is more or less approximate. Also no

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This statistical perspective of the behaviour of consumption of cereals is a basic background to the later analysis of trade, levels of living and the econometric exercise of the family budget.

attempt is made to account for the differences in age and sex composition of the family.

Per capita daily consumption*

Commodity	Per capita daily consumption in ounces	Caloric content per kg.*	Per capita consumption in calories
1. Rice	6.596	3480	651
2. Ragi	6.032	3450	590
3. Bajra	1.235	3600	126
4. Jowar	0.353	3600	36
5. Wheat	1.799	3530	180
6. Sava	0.388	3600	40
7. Varai	0.670	3600	68
8. Total pulses	2.575	3450	252
9. Milk	3.005	1010	92
10. Milk products	0.628	200	3
11. Onion	0.388	372	4
12. Potato	0.177	700	4
13. Other vegetables	0.564	400	6
14. Mutton	0.035	2410	3
15. Fish	0.035	1000	1
16. Dry fish	0.107	2500	8
17. Sweet oil	0.212	8840	63
18. Sugar	0.247	3510	25
19. Gur	0.388	3510	39
Daily per capita consumption in calories :			2181

* A table in the appendix gives the calorific content per kg.

The preceding table is summarized into broad commodity groups to facilitate comparison with the results of other works.

* Reference works are noted on page 312.

The table indicates that about three fourth of calories are provided by cereal consumption and cereals and pulses together provide as much as about 90% of the total calories.

A comparison

A comparison of food intake, in terms of ounces, in the region under study with the other parts of the country is attempted in the following table :

Commodity groups	The region under study (in ounces)	Western India [☆] (in ounces)	All India ^{☆☆}
1. Cereals	17.07	20.18	21.68
2. Pulses	2.58	1.21	1.54
3. Milk and Milk Products	3.63	4.90	4.58
4. Sugar	0.635	1.29	0.97
5. Daily per capita calorific value	2181	2460	2580

Source: N.S.S. 7th Round, October 1953 to February 1954, Rural Sector.

Daily per capita consumption of foodgrains.

(a) N.S.S. 1st round: All India = 18.3 ounces.

(b) N.S.S. 7th round: All India = 19.0 ounces.

☆ Chatterjee and Paul, *ibid.*, p. 4.

☆☆ Chatterjee and Paul, *ibid.*, p. 4.

(6) "The National Sample Survey, General Report No. 1 On the First Round, October 1950 to March 1951", The Department of Economic Affairs, Ministry of Finance, Government of India, December, 1952, pp. 60-67.

(7) Indian Council of Medical Research (ICMR), "Results of Diet Surveys in India, 1935-48" Special Report Series No. 20, New Delhi, 1951.

The table indicates that the average per capita food intake, both in terms of ounces and calories, is low as compared to the other parts of the country. In respect of pulses, the average daily consumption is about double as compared to that of Western India.

The average daily consumption of milk and milk products is less than that in Western India which includes Maharashtra and Gujarat. But the per capita consumption of 3.633 ounces is comparable with the average consumption of 2.37 ounces in Maharashtra State during 1961. The corresponding average consumption for all India was 4.62 ounces.²⁵

According to the 'Food Balance Sheet' prepared by the FAO Organization, the daily per capita calorific content of food consumption was around 3100 for the countries such as Australia, U.S.A. and U.K. during the year 1952-53, whereas for an underdeveloped country like Ceylon it was 2000 calories.

The following table presents the daily per capita cereals and pulses consumption in Maharashtra during the years 1958 to 1961.

²⁵ Singh, Harbans, and Parnerkar, Y.M., "Basic Facts about Cattle Wealth and Allied Matters", Central Council of Gosamvardhan, New Delhi, 1966, p. 113.

Daily per capita consumption in Maharashtra²⁶

Year	Cereals	Pulses (in ounces)	Foodgrains
1. 1958-1959	15.7	1.6	17.3
2. 1959-1960	16.5	1.7	18.2
3. 1960-1961	15.8	1.7	17.5
Average for 3 years	16.0	1.7	17.9

These average levels of foodgrains consumption indicate that the level of foodgrains consumption obtaining in the region under study is somewhat higher than that in Maharashtra. But this is really indicative of an imbalance in the diet which suggests the low standard of living. Though the foodgrains consumption is of higher order, namely, 19.648 ounces per day per person, the total calorific content of the diet is somewhat less by about 250 calories as compared to Western India.

26

Jathar, "Revision of the Note on the Fourth Plan: Foodgrains Requirements for Maharashtra" mimeographed paper (1964) submitted to the Chairman, Study Group of Agricultural Production, Bureau of Economics and Statistics, Poona 4. p. 6. The average daily per capita consumption of foodgrains was about 15 ounces during 1954-1957.

The Nutrition Advisory Committee (1944) has given the minimum, nutritionally balanced diet. The following table presents the contents of diet:

Nutritionally balanced diet²⁷

Commodity	Daily per capita intake in ounces
Cereals	14
Pulses	3
Milk and Milk Products	10
Vegetables and fruits	13
Sugar and gur	2
Vegetable oil and ghee	2
Fish, meat and their products and one egg	3

From this table, it is evident that provided the non-foodgrains subsidiary items are consumed in the prescribed quantities, the foodgrains consumption may be reduced to 17 ounces a day for an adult but never without it.

The foregoing discussion may be summarized now. The

²⁷ Singh and Parnerkar, op.cit., p. 131.

These authors have quoted these contents from "Human Nutrition vis-a-vis Animal Nutrition in India", Indian Council of Agricultural Research, New Delhi.

cereal consumption in the region under study is in excess of the prescribed minimum by about three ounces and in respect of all other items it is deficient indicating an imbalanced diet. Added to this, the total calorific content is around 2200 calories, which is less than the all India average by about 400 calories.

APPENDIX TO THE DISCUSSION OF 5.10

NUTRITIVE VALUES OF FOOD IN TERMS OF CALORIES¹

Items	As per FAO publica- tion, 1953 ² Calorific contents of the edible per kg.	As per W. R. Aykroyd ³ (Health Bulletin No. 23). Calories per kg.	Calories per kg. adopted for present analysis
1. Rice (white)	3600	3480	3480
2. Wheat	3340	3530	3530
3. Barley	3320	3350	3350
4. Bajra	3480	3600	3600
5. Maize	3560	3550	3550
6. Ragi	3320	3450	3450
7. Gram	-	3610	3610
8. Pulses Products	-	3412	3085
9. Potato	697	990	700
10. Onion	372	510	372
11. Vegetable Oils	8840	-	8840
12. Buffalo milk	1010	1170	1010
13. Skimmed milk	390	150	200
14. Sugar and Gur	3510	3170	3510
15. Mutton	2410	1940	2410
16. Fish fresh	460-1700	1000	1000
17. Fish dry	1300-4000	-	2500

¹ Chatterjee, G.S., Paul, G. "Per Capita Consumption of Food in Terms of Calories in the Rural Sector of India - An Analysis". Studies relating to Planning for National Development (Mimeographed paper dated 23rd August, 1958), Indian Statistical Institute, Calcutta-35, p. 11.

² Aykroyd, W.R., "The Nutritive Value of Indian Foods and the Planning of Satisfactory Diets", Health Bulletin No. 23, Nutrition Research Laboratories, Coonoor, 1951.

³ "Food Composition Table for International Use", F.A.O., Nutritional Studies No. 3, Food and Agricultural Organization of the United Nations, Rome, 1953.

APPENDIX TO CHAPTER V

The monthly variations in total cereal consumption are already noted for 212 sampled households. The following table presents daily per capita consumption of seven cereals and its calorific content. It may be noted here that on an average 3550 calories are presumed to be equivalent to one kilogram.¹ As the broad interest is to indicate the extent of variations in the cereal consumption, the assumption is useful.

It seems that the range of variations in the calorific content of daily per capita cereal consumption is

¹ The following table indicates that this assumption of 3550 calories per kilogram is realistic.

Cereal	Annual consumption per person (in kg.)	Daily per capita consumption (in kg.)	Calories per kg.	Daily per capita consumption in terms of calories
1. Rice	67.393	0.185	3480	644
2. Ragi	61.657	0.149	3450	583
3. Bajra	12.611	0.035	3600	126
4. Jowar	3.646	0.010	3600	36
5. Wheat	18.339	0.050	3530	177
6. Sawa	3.856	0.011	3600	40
7. Varai	6.964	0.019	3600	68
Total cereals	174.466	0.479	Approx. 3550	1674

Total Monthly Consumption of Seven Cereals

Period	Total annual consumption by 212 sampled households (in quintals)	Per person monthly cereal consumption (in kg.)	Daily per capita consumption (in kg.)	Calorie content of daily per capita consumption
<u>1963</u>				
November	187.50	15.182	0.506	17.96
December	185.15	14.992	0.500	1775
<u>1964</u>				
January	182.90	14.810	0.494	1754
February	188.30	15.247	0.508	1803
March	181.29	14.479	0.489	1736
April	183.16	14.831	0.494	1754
May	179.14	14.505	0.484	1718
June	185.20	14.996	0.500	1775
July	183.91	14.892	0.496	1761
August	169.83	13.751	0.458	1626
September	161.55	13.081	0.436	1548
October	166.74	13.501	0.450	1598
Total annual consumption	2154.67	174.467	0.478	1697

between 1750 calories to 1800 calories during November 1963 to July 1964, excepting the months of March and May. The average daily per capita calorific consumption is around 1600 calories during August, September and October 1964. The average level of daily cereal consumption for the year is about 1700 calories per person.

TABLE 5.1 : ANNUAL CONSUMPTION OF CEREALS BY 212 SAMPLED HOUSEHOLDS (FIGURES IN KILOGRAMS)

Names of sampled villages	Rice			Ragi			Bajra			Jowar			Wheat			Sava			Varai		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1. Khirvire	14963.0	3914.5	18877.5	12638.0	3501.5	16139.5	1140.0	2703.5	3843.5	-	387.0	387.0	4692.5	2335.0	7027.5	362.0	54.0	416.0	1707.5	99.0	1806.5
2. Deogaon	4833.0	-	4833.0	3183.0	-	3183.0	-	-	-	230.0	-	230.0	546.0	-	546.0	829.0	-	829.0	1508.0	-	1508.0
3. Ambevangan	4903.0	-	4903.0	2845.0	-	2845.0	168.0	6.0	174.0	292.0	-	292.0	452.5	-	452.5	1251.5	-	1251.5	1680.5	-	1680.5
4. Guhire	8753.5	377.0	9130.5	9091.0	5030.0	14121.0	185.0	1295.0	1480.0	20.0	245.0	265.0	4646.0	1009.5	5655.5	372.0	-	372.0	1582.0	-	1582.0
5. Malegaon	6853.0	295.0	7148.0	3998.0	162.0	4160.0	12.0	142.0	154.0	170.0	740.0	910.0	492.0	669.0	1161.0	239.0	-	239.0	107.0	-	107.0
6. Kelungan	8124.0	635.0	8759.0	3869.0	413.0	4282.0	155.0	704.0	859.0	242.0	571.0	813.0	1508.5	366.0	1874.5	270.0	10.0	280.0	359.0	33.0	392.0
7. Sakirwadi	14693.0	1008.0	15701.0	12550.0	409.0	12959.0	5.0	780.0	785.0	4.0	318.0	322.0	1295.5	1186.0	2481.5	44.0	5.0	49.0	348.0	14.0	362.0
8. Padalane	9380.0	25.0	9405.0	11420.0	1815.0	13235.0	7003.0	1276.0	8279.0	157.0	660.0	817.0	2360.5	416.0	2776.5	96.5	15.0	111.5	41.0	-	41.0
9. Vakdari	4473.0	-	4473.0	4246.0	975.0	5221.0	-	-	-	-	467.0	467.0	368.0	305.0	673.0	1199.0	15.0	1214.0	1041.0	80.0	1121.0
Total consumption of cereals	76975.5	6254.5	83230.0	63840.0	12305.5	76145.5	8668.0	6906.5	15574.5	1115.0	3388.0	4503.0	16361.5	6286.5	22648.0	4663.0	99.0	4762.0	8374.0	226.0	8600.0

* Consumption of cereals is differentiated with respect to its origin, that is, consumption out of homegrown stocks and consumption out of market purchases.

TABLE 5.2 : ESTIMATES OF CONSUMPTION OF CEREALS FOR THE TOTAL POPULATION OF NINE VILLAGES.* (FIGURES IN KILOGRAMS)

Name of the village	Rice			Ragi			Bajra			Jowar		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1. Khirvire	85428.256	22349.055	107777.311	72154.133	19991.114	92145.247	15435.093	21943.695	21943.695	-	2209.499	2209.499
2. Deogaon	26955.091	-	26955.091	17752.546	-	17752.546	-	-	-	1282.779	-	1282.779
3. Ambevangan	19939.030	-	19939.030	11569.762	-	11569.762	683.206	24.400	707.606	1187.476	-	1187.476
4. Guhire	28.928.063	1245.459	30163.520	30033.028	16617.108	46650.136	611.166	4278.162	4889.328	66.072	809.382	875.454
5. Malegaon	38003.312	1635.922	39639.234	22170.909	898.371	23069.280	66.546	787.461	854.007	942.735	4103.670	5046.405
6. Kelungan	38679.989	3023.362	41703.351	18421.083	11966.375	20387.548	20737.986	3351.885	4089.871	1152.210	2718.645	3870.855
7. Sakirwadi	80845.294	5546.318	86391.612	69053.865	2250.441	71304.306	27.512	4291.794	4319.306	22.009	1749.731	1771.740
8. Padalane	49804.986	132.743	49937.729	60636.774	9637.106	70273.880	37183.829	6775.177	43959.006	833.623	3504.402	4338.025
9. Vakdari	20919.774	-	20919.774	18858.117	4559.978	24418.095	-	-	-	-	2184.112	2184.112
Total consumption	389493.795	33932.857	423426.652	321650.217	55920.493	377570.710	45818.847	34943.972	80762.819	5486.904	17279.441	22766.345
Average per capita consumption (in kilograms)	62.022	5.403	67.425	51.218	8.905	60.123	7.296	5.564	12.860	0.873	2.752	3.625

* Total population of 212 sampled households is 1235
Total population of 9 villages is 6280
Total population of 87 villages is 54305

Stock	Wheat Market	Total	Stock	Sava Market	Total	Stock	Varal Market	Total
26790.890	13331.216	40122.106	2066.767	308.302	2375.069	9748.630	565.221	10313.851
3045.206	-	3045.206	4623.582	-	4623.582	8410.568	-	8410.568
1840.182	-	1840.182	5089.475	-	5089.475	6834.089	-	6834.089
15348.526	3334.984	18683.510	1228.939	-	1228.939	5226.295	-	5226.295
2728.386	3709.940	6438.326	1325.375	-	1325.375	593.369	-	593.369
7182.270	1742.599	8924.869	1285.524	47.612	1333.136	1709.271	157.120	1866.391
7128.230	6525.728	13653.958	242.101	27.512	269.613	1914.800	77.032	1991.832
12533.547	2208.835	14742.382	512.386	79.646	592.032	217.698	-	217.698
1721.099	1426.455	3147.554	5607.603	70.154	5677.757	4868.653	374.152	5242.805
78318.336	32279.757	110598.093	21981.752	533.226	22514.978	39523.373	1173.525	40696.898
12.471	5.140	17.611	3.500	0.085	3.585	6.293	0.187	6.480

Total = 10,78,336.495 kgs.
 Total per capita
 consumption of cereals = 171.709 kgs.

TABLE 5.3 : CONSUMPTION OF CEREALS BY 212 SAMPLED HOUSEHOLDS (FIGURES IN RS.)

Village	Rice		Nachani		Bajari		Jowar		Wheat		Sava		Varai	
	Stock	Market	Stock	Market	Stock	Market	Stock	Market	Stock	Market	Stock	Market	Stock	Market
1. Khirvire	13196.06 (17253.07)	4087.01	5870.89 (7882.21)	2011.32	628.22 (2230.45)	1602.23	-	233.44 (233.44)	3859.80 (6309.81)	2450.01	177.66 (207.90)	30.24	913.98 (964.28)	50.30
2. Deogaon	4331.01 (4331.01)	-	1506.39 (1506.39)	-	-	-	-	125.00 (125.00)	484.24 (484.24)	-	435.99 (435.99)	-	733.93 (733.93)	-
3. Ambevangan	4417.87 (4417.87)	-	1336.94 (1336.94)	-	104.52 (104.52)	-	-	156.44 (156.44)	421.01 (421.01)	-	697.33 (697.33)	-	788.21 (788.21)	-
4. Guhire	7865.72 (8227.36)	361.64	4056.21 (6893.31)	2837.10	92.80 (992.20)	899.40	-	9.00 (148.90)	139.90 (4876.38)	3696.59	1179.79	130.36 (130.36)	-	681.44 (681.44)
5. Malegaon	6154.29 (6459.95)	305.66	1917.80 (1998.32)	80.52	- (108.61)	108.61	-	92.12 (535.58)	443.46	407.35 (1145.86)	738.51	108.00 (108.00)	43.31	43.31 (43.31)
6. Kelungan	7326.54 (7899.14)	572.60	1845.45 (2062.64)	217.19	108.16 (549.26)	441.10	-	132.44 (482.74)	350.30	1277.74 (1696.15)	418.41	116.91 (122.41)	5.50	172.08 (204.15)
7. Sakirwadi	13232.29 (14345.02)	1112.73	5921.58 (6152.92)	231.34	2.50 (469.68)	467.18	-	1.38 (199.04)	197.16	1061.79 (2500.77)	1438.98	24.60 (27.40)	2.80	181.98 (190.59)
8. Padalane	8499.12 (8525.42)	26.30	5379.16 (6411.66)	1032.50	4336.35 (5103.35)	767.00	-	93.01 (505.31)	412.30	2220.57 (2722.39)	501.82	55.01 (63.41)	8.40	22.62 (22.62)
9. Vakdari	4091.02 (4091.02)	-	1986.28 (2555.73)	569.45	-	-	-	-	289.54	324.23 (678.08)	353.85	569.00 (577.40)	8.40	514.97 (559.77)
Total	69113.92 (75549.86)	6435.94	729820.70 (36800.12)	6974.42	5272.55 (9558.07)	4285.52	-	609.89 (2675.99)	2066.10	13753.32 (20834.69)	7081.37	2314.86 (2370.20)	55.34	4052.52 (4188.30)

Figures in the brackets represent totals of the respective items.

TABLE 5.4 : ESTIMATES OF TOTAL CONSUMPTION OF CEREALS FOR THE TOTAL POPULATION OF NINE VILLAGES*

Village	Rice			Nachani			Bajara		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1. Khirvire	75340.26	23162.69	98502.95	33518.67	11483.23	45001.90	3586.70	9147.61	12734.31
2. Deogaon	24155.34	-	24155.34	8401.59	-	8401.59	-	-	-
3. Ambevangan	17966.15	-	17966.15	5436.93	-	5436.93	425.05	-	-
4. Guhire	25985.19	1194.71	27179.90	13400.10	9372.64	22772.74	306.57	2971.26	3277.83
5. Malegaon	34128.62	1695.04	35823.66	10635.16	446.52	11081.68	-	602.30	602.30
6. Kelungan	34883.13	2726.26	37609.39	8786.56	1934.08	9820.64	514.97	2100.17	2615.14
7. Sakirwadi	72808.03	6122.57	78930.60	32582.31	1272.90	33855.21	13.76	2570.56	2584.32
8. Padalane	45127.78	139.65	45267.43	28561.73	5482.27	34044.00	23024.72	4072.54	27097.26
9. Vakdari	19133.29	-	19133.29	9289.63	2663.26	11952.89	-	-	-
Total for 9 villages	349527.79	35040.92	384568.71	150612.68	31754.90	182367.58	27871.77	21464.44	49336.21
Average consumption per person	55.66	5.58	61.24	23.98	5.06	29.04	4.44	3.42	7.86

* Source: Cereal consumption data of 212 sampled households.

Jowar			Wheat			Sava			Varai		
Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
-	1332.78	1332.78	22036.76	13987.84	36024.60	1014.31	172.65	1186.96	5218.19	287.17	5505.36
697.16	-	697.16	2700.75	-	2700.75	2431.65	-	2431.65	4093.35	-	4093.35
636.20	-	636.20	1712.12	-	1712.12	2835.83	-	2835.83	3205.41	-	3205.41
29.73	462.17	491.90	12212.05	3897.55	16109.60	430.66	-	430.66	2251.21	-	2251.21
510.85	2459.21	2970.06	2258.96	4095.41	6354.37	598.91	-	598.91	240.18	-	240.18
630.57	1667.85	2298.42	6083.58	1992.13	8075.71	556.63	26.19	582.82	819.31	152.69	972.00
10.34	1084.83	1095.17	5842.29	7917.70	13759.99	135.36	15.40	150.76	1001.31	47.38	1048.69
493.86	2189.19	2683.05	11790.56	2664.51	14455.07	292.09	44.60	336.69	120.11	-	120.11
-	1354.15	1354.15	1516.39	1654.92	3171.31	2661.16	39.29	2700.45	2408.46	209.53	2617.99
3008.71	10550.18	13558.89	66153.46	36210.06	102363.52	10956.60	298.13	11254.73	19357.53	696.77	20054.30
.48	1.68	2.16	10.54	5.76	16.30	1.74	.05	1.79	3.08	.11	3.19

TABLE 5.5 : MONTHLY TOTAL CONSUMPTION BY 212 SAMPLED HOUSEHOLDS (FIGURES IN KILOGRAMS)

Cereals	November			December			January			February			March		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1. Rice	8086.0	184.0	8270.0	8097.5	123.5	8221.0	7575.5	162.0	7737.5	7691.5	78.0	7769.5	7025.5	265.0	7290.5
2. Ragi	5766.5	57.0	5823.5	6206.5	117.5	6324.0	6634.5	93.0	6727.5	6753.0	78.0	6770.0	6135.0	276.5	6411.5
3. Bajra	727.0	868.5	1595.5	649.5	678.0	1327.5	651.0	605.5	1256.5	599.0	352.5	951.5	596.0	394.0	990.0
4. Jowar	98.0	23.0	121.0	103.0	16.0	119.0	75.0	14.0	89.0	82.0	-	82.0	75.0	47.0	122.0
5. Wheat	1224.0	260.0	1484.0	1170.5	172.5	1343.0	1330.0	115.0	1445.5	2156.0	95.5	2251.5	2344.0	198.0	2542.0
6. Sava	469.0	-	469.0	434.0	-	434.0	316.0	-	316.0	300.0	-	300.0	276.0	-	276.0
7. Varai	971.5	15.0	986.5	742.0	4.0	746.0	709.0	9.0	718.0	702.0	3.0	705.0	487.5	9.0	496.5
Total	17342.0	1407.5	18749.5	17403.0	1111.5	18514.5	17290.5	999.5	18290.0	18283.5	546.0	18829.5	16939.0	1189.5	18128.5
	92.49%	7.51%	100.00%	94.00%	6.00%	100.00%	94.54%	5.46%	100.00%	97.10%	2.90%	100.00%	93.44%	6.56%	100.00%

April			May			June			July			August			September			October			Annual total			
Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	
7004.0	256.0	7260.0	6537.5	458.0	6995.5	6121.0	605.0	6726.0	5802.0	586.0	6388.0	4298.0	1154.0	5452.0	3940.0	1169.0	5109.0	4797.0	1214.0	6011.0	76975.5	6254.5	83230.0	
6368.0	333.5	6701.5	6285.5	533.0	6818.5	5837.0	1676.0	7513.0	5020.0	1897.0	6917.0	3439.0	2738.0	6177.0	2889.0	2335.0	5224.0	2506.0	2232.0	4738.0	63840.0	12305.5	76145.5	
533.5	498.0	1031.5	883.0	318.0	1201.0	949.0	644.0	1593.0	850.0	703.0	1553.0	860.0	680.0	1540.0	698.0	701.0	1399.0	672.0	464.0	1136.0	8668.0	6906.5	15574.5	
52.0	45.0	97.0	118.0	147.0	265.0	118.0	136.0	254.0	77.0	734.0	811.0	119.0	923.0	1042.0	120.0	786.0	906.0	79.0	516.0	595.0	1115.0	3388.0	4503.0	
2152.0	136.0	2288.0	1690.0	164.0	1854.5	1242.5	320.0	1562.5	1193.5	586.0	1779.5	599.5	1438.0	2038.0	546.0	1562.0	2108.0	712.0	1239.0	1951.5	16361.5	6286.5	22648.0	
234.0	-	234.0	298.0	-	298.0	377.0	10.0	387.0	431.0	-	431.0	375.0	24.0	399.0	488.0	565.0	553.0	665.0	-	665.0	466300	99.0	4762.0	
690.0	14.0	704.0	471.0	10.0	481.0	471.0	13.0	484.0	500.0	11.0	511.0	288.0	47.0	335.0	795.0	61.0	856.0	1547.0	30.0	1577.0	8374.0	226.0	8600.0	
17033.5	1282.5	18316.0	16283.5	1630.0	17913.5	15115.5	3404.0	18519.5	13873.5	4517.0	18390.5	9978.5	7004.5	16983.0	9476.0	6679.0	16155.0	10978.5	51097.5	16673.5	179997.0	35466.0	215463.0	
93.00%	7.00%	100.00%	90.90%	9.10%	100.00%	81.62%	18.38%	100.00%	75.44%	24.56%	100.00%	56.76%	43.24%	100%	58.66%	41.34%	100.00%	65.84%	34.16%	100.00%				

RRD 5695.0

TABLE 5.6 : CONSUMPTION OF RICE BY 212 SAMPLED HOUSEHOLDS (FIGURES IN KILOGRAMS)

Village	November			December			January			February			March			April		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1. Khirvire	1724.0	1109.0	1833.0	1862.5	63.5	1926.0	1509.5	62.0	1571.5	697.5	18.0	1715.5	1329.5	217.0	1546.5	1406.0	161.0	1567.0
2. Deogaon	545.0	-	545.0	485.0	-	485.0	485.0	-	485.0	451.0	-	451.0	455.0	-	455.0	452.0	-	452.0
3. Ambevangan	508.0	-	508.0	488.0	-	488.0	488.0	-	488.0	468.0	-	468.0	456.0	-	456.0	452.0	-	452.0
4. Guhire	1025.0	-	1025.0	1055.0	-	1055.0	1022.0	70.0	1092.0	995.0	-	995.0	800.0	-	800.0	740.0	25.0	765.0
5. Malegaon	747.0	-	747.0	748.0	-	748.0	692.0	-	692.0	705.0	-	705.0	623.0	-	623.0	561.0	-	561.0
6. Kelungan	948.0	60.0	1008.0	887.0	60.0	947.0	764.0	30.0	794.0	722.0	60.0	782.0	706.0	48.0	754.0	651.0	70.0	721.0
7. Sakirwadi	1278.0	15.0	1293.0	1314.0	-	1314.0	1367.0	-	1367.0	1377.0	-	1377.0	1415.0	-	1415.0	1497.0	-	1497.0
8. Padalane	929.0	-	929.0	871.0	-	871.0	875.0	-	875.0	880.0	-	880.0	852.0	-	852.0	862.0	-	862.0
9. Vakdari	382.0	-	382.0	387.0	-	387.0	373.0	-	373.0	396.0	-	396.0	389.0	-	389.0	383.0	-	383.0
Total	8086.0	184.0	8270.0	8097.5	123.5	8221.0	7575.5	162.0	7737.5	7691.5	78.0	7769.5	7025.5	265.0	7290.5	7004.0	256.0	7260.0

May			June			July			August			September			October			Annual Total		
Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1231.0	268.0	1499.0	1169.0	303.0	1472.0	1149.0	349.0	1498.0	756.0	702.0	1458.0	691.0	760.0	1451.0	438.0	902.0	1340.0	14963.0	3914.5	18877.5
410.0	-	410.0	388.0	-	388.0	313.0	-	313.0	221.0	-	221.0	122.0	-	122.0	506.0	-	506.0	4833.0	-	4833.0
393.0	-	393.0	375.0	-	375.0	339.0	-	339.0	238.0	-	238.0	145.0	-	145.0	553.0	-	553.0	4903.0	-	4903.0
572.5	45.0	617.5	483.0	135.0	618.0	605.0	35.0	640.0	440.0	45.0	485.0	490.0	12.0	502.0	526.0	10.0	536.0	8753.5	377.0	9130.5
515.0	50.0	565.0	531.0	50.0	581.0	462.0	72.0	534.0	425.0	40.0	465.0	412.0	41.0	453.0	432.0	42.0	474.0	6853.0	295.0	7148.0
679.0	95.0	774.0	632.0	92.0	724.0	530.0	30.0	560.0	465.0	30.0	495.0	608.0	30.0	638.0	532.0	30.0	562.0	8124.0	635.0	8759.0
1547.0	-	1547.0	1315.0	25.0	1340.0	1282.0	85.0	1367.0	896.0	327.0	1223.0	660.0	326.0	986.0	745.0	230.0	975.0	14693.0	1008.0	15701.0
781.0	-	781.0	495.0	75.0	795.0	691.0	15.0	706.0	567.0	10.0	577.0	567.0	-	567.0	710.0	-	710.0	9380.0	25.0	9405.0
409.0	-	409.0	433.0	-	433.0	431.0	431.0	431.0	290.0	-	290.0	245.0	-	245.0	355.0	-	355.0	4473.0	-	4473.0
6537.5	458.0	6995.5	6121.0	605.0	6726.0	5802.0	586.0	6388.0	4298.0	1154.0	5452.0	3940.0	1169.0	5109.0	4797.0	1214.0	6011.0	76975.5	6254.5	83230.0

TABLE 5.7 : CONSUMPTION OF RAGI BY 212 SAMPLED HOUSEHOLDS (FIGURES IN KILOGRAMS)

Village	November			December			January			February			March			April		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1. Khirvire	1028.5	47.0	1075.5	1033.5	117.5	1151.0	1340.5	53.0	1393.5	1678.0	17.0	1695.0	1298.0	188.5	1486.5	1364.0	220.5	1584.5
2. Deogaon	196.0	-	196.0	357.0	-	357.0	312.0	-	312.0	312.0	-	312.0	292.0	-	292.0	292.0	-	292.0
3. Ambevangan	75.0	-	75.0	306.0	-	306.0	321.0	-	321.0	324.0	-	324.0	329.0	-	329.0	329.0	-	329.0
4. Guhire	1120.0	-	1120.0	1112.0	-	1112.0	1197.0	-	1197.0	1137.0	-	1137.0	990.0	55.0	1045.0	990.5	55.0	1045.0
5. Malegaon	187.0	-	187.0	290.0	-	290.0	382.0	-	382.0	410.0	-	410.0	380.0	30.0	410.0	380.0	30.0	410.0
6. Kelungan	324.0	-	324.0	322.0	-	322.0	371.0	40.0	411.0	333.0	-	333.0	371.0	28.0	399.0	371.0	28.0	399.0
7. Sakirwadi	1268.0	10.0	1278.0	1266.0	-	1266.0	1180.0	-	1180.0	1088.0	-	1088.0	1063.0	-	1063.0	1175.0	-	1175.0
8. Padalane	1153.0	-	1153.0	1110.0	-	1110.0	1080.0	-	1080.0	1069.0	-	1069.0	1051.0	-	1051.0	1066.0	-	1066.0
9. Vakdari	415.0	-	415.0	410.0	410.0	410.0	406.0	-	406.0	402.0	-	402.0	391.0	-	391.0	401.0	-	401.0
Total	5766.0	57.0	5823.5	6206.5	117.5	6324.0	6634.5	93.0	6727.5	6753.0	17.0	6770.0	6135.0	276.5	6411.5	6368.0	333.5	6701.5

May			June			July			August			September			October			Annual Total		
Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1139.5	283.0	1422.5	1068.0	361.0	1429.0	1070.0	348.0	1418.0	677.0	611.0	1288.0	654.0	575.0	1229.0	287.0	680.0	967.0	12638.0	3501.5	16139.5
312.0	-	312.0	292.0	-	292.0	250.0	-	250.0	178.0	-	178.0	133.0	-	133.0	212.0	-	212.0	3183.0	-	3183.0
260.0	-	260.0	235.0	-	235.0	245.0	-	245.0	151.0	-	151.0	95.0	-	95.0	180.0	-	180.0	2845.0	-	2845.0
895.0	180.0	1075.0	750.0	1200.0	1950.0	500.0	795.0	1295.0	105.0	1200.0	1305.0	140.0	785.0	925.0	100.0	790.0	890.0	9091.0	5030.0	14121.0
382.0	30.0	412.0	392.0	30.0	422.0	340.0	30.0	370.0	304.0	12.0	316.0	300.0	-	300.0	295.0	-	295.0	3998.0	162.0	4160.0
468.0	40.0	508.0	313.0	65.0	378.0	293.0	60.0	350.0	224.0	60.0	286.0	265.40	240.0	305.0	250.0	47.0	297.0	3869.0	413.0	4282.0
1180.0	-	1180.0	1095.0	20.0	1115.0	1107.0	114.0	1221.0	1020.0	120.0	1140.0	665.0	85.0	750.0	443.0	60.0	503.0	12550.0	409.0	12959.0
1189.0	-	1189.0	1196.0	-	1196.0	755.0	550.0	1305.0	515.0	495.0	1010.0	547.0	450.0	997.0	689.0	320.0	1009.0	11420.0	1815.0	13235.0
460.0	-	460.0	496.0	-	496.0	460.0	-	460.0	265.0	240.0	505.0	90.0	400.0	490.0	50.0	335.0	585.0	4246.0	975.0	5221.0
6285.5	533.0	6818.5	5837.0	1676.0	7513.0	5020.0	1897.0	6917.0	3439.0	2738.0	6177.0	2889.0	2335.0	5224.0	2506.0	2232.0	4738.0	63840.0	12305.0	76145.5

TABLE 5.8 : CONSUMPTION OF BAJRA BY 212 SAMPLED HOUSEHOLDS (FIGURES IN KILOGRAMS)

Village	November			December			January			February			March			April		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1. Khirvire	126.0	411.5	537.5	41.5	431.0	472.5	91.0	283.5	374.5	86.0	182.5	268.5	81.0	206.0	287.0	62.5	212.0	274.5
2. Deogaon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Ambevangan	-	-	-	25.0	-	25.0	39.0	-	39.0	14.0	-	14.0	8.0	-	8.0	8.0	-	8.0
4. Guhire	70.0	80.0	150.0	70.0	50.0	120.0	25.0	10.0	35.0	-	-	-	-	-	-	-	20.0	20.0
5. Malegaon	12.0	2.0	14.0	-	6.0	6.0	-	3.0	3.0	-	5.0	5.0	-	5.0	5.0	4.0	2.0	2.0
6. Kelungan	10.0	97.0	107.0	20.0	41.0	61.0	-	52.0	52.0	-	41.0	41.0	6.0	48.0	54.0	13.0	59.0	72.0
7. Sakirwadi	-	158.0	158.0	-	30.0	30.0	5.0	135.0	140.0	-	-	-	-	10.0	10.0	-	85.0	85.0
8. Padalane	509.0	120.0	629.0	493.0	120.0	613.0	491.0	122.0	613.0	499.0	124.0	623.0	501.0	125.0	626.0	450.0	120.0	570.0
9. Vakdari	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	727.0	868.5	1595.5	649.5	678.0	1327.5	651.0	605.5	1256.5	599.0	352.5	951.5	596.0	394.0	990.0	533.5	498.0	1031.5

Stock	May			June			July			August			September			October			Annual Total		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
132.0	126.0	258.0	151.0	155.0	306.0	162.0	169.0	331.0	66.0	159.0	225.0	81.0	173.0	254.0	60.0	195.0	255.0	1140.0	2703.5	3843.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.0	-	10.0	-	-	-	20.0	-	20.0	30.0	-	30.0	4.0	-	4.0	10.0	6.0	16.0	168.0	6.0	174.0	
-	150.0	150.0	-	305.0	305.0	20.0	135.0	155.0	-	195.0	195.0	-	230.0	230.0	-	120.0	120.0	185.0	1295.0	1480.0	
-	3.0	3.0	-	14.0	14.0	-	23.0	23.0	-	15.0	15.0	-	34.0	34.0	-	30.0	30.0	12.0	142.0	154.0	
6.0	39.0	45.0	5.0	70.0	75.0	21.0	64.0	85.0	4.0	56.0	60.0	28.0	74.0	102.0	42.0	63.0	105.0	155.0	704.0	859.0	
-	-	-	-	100.0	100.0	-	157.0	157.0	-	50.0	50.0	-	50.0	50.0	-	5.0	5.0	5.0	780.0	785.0	
735.0	-	735.0	793.0	-	793.0	627.0	155.0	782.0	760.0	205.0	965.0	585.0	140.0	725.0	560.0	45.0	605.0	7003.0	1276.0	8279.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
883.0	318.0	1201.0	949.0	644.0	1593.0	850.0	703.0	1553.0	860.0	680.0	1540.0	698.0	701.0	1399.0	672.0	464.0	1136.0	8668.0	6906.5	15574.5	

TABLE 5.9 : CONSUMPTION OF JOWAR BY 212 SAMPLED HOUSEHOLDS (FIGURES IN KILOGRAMS)

Village	November			December			January			February			March			April		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1. Khirvire	-	15.0	15.0	-	10.0	10.0	-	15.0	15.0	-	-	-	-	-	-	-	-	-
2. Deogaon	-	-	-	10.0	-	10.0	10.0	-	10.0	30.0	-	30.0	30.0	-	30.0	10.0	-	10.0
3. Ambevangan	29.0	-	29.0	43.0	-	43.0	32.0	-	32.0	31.0	-	31.0	14.0	-	14.0	-	-	-
4. Guhire	10.0	-	10.0	10.0	-	10.0	-	-	-	-	-	-	-	-	-	-	-	-
5. Malegaon	24.0	8.0	32.0	16.0	6.0	22.0	-	-	-	4.0	-	4.0	20.0	37.0	57.0	15.0	35.0	50.0
6. Kelungan	25.0	-	25.0	15.0	-	15.0	20.0	-	20.0	10.0	-	10.0	5.0	10.0	15.0	20.0	10.0	30.0
7. Sakirwadi	-	-	-	-	-	-	4.0	-	4.0	-	-	-	-	-	-	-	-	-
8. Padalane	10.0	-	10.0	9.0	-	9.0	8.0	-	8.0	7.0	-	7.0	6.0	-	6.0	7.0	-	7.0
9. Vakdari	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	98.0	123.0	121.0	103.0	16.0	119.0	74.0	15.0	89.0	82.0	-	82.0	75.0	47.0	122.0	52.0	45.0	97.0

May			June			July			August			September			October			Final Total		
Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
-	-	-	-	-	-	-	148.0	148.0	-	118.0	118.0	-	138.0	138.0	-	91.0	91.0	-	387.0	387.0
50.0	-	50.0	50.0	-	50.0	20.0	-	20.0	20.0	-	20.0	-	-	-	-	-	-	230.0	-	230.0
18.0	-	18.0	38.0	-	38.0	16.0	-	16.0	39.0	-	39.0	20.0	-	20.0	12.0	-	12.0	292.0	-	292.0
-	100.0	100.0	-	25.0	25.0	-	70.0	70.0	-	25.0	25.0	-	25.0	25.0	-	-	-	20.0	245.0	265.0
15.0	36.0	51.0	20.0	51.0	71.0	26.0	104.0	130.0	-	153.0	153.0	15.0	153.0	168.0	15.0	157.0	172.0	170.0	740.0	910.0
30.0	11.0	41.0	5.0	60.0	65.0	10.0	119.0	129.0	20.0	201.0	221.0	60.0	82.0	142.0	22.0	78.0	100.0	242.0	571.0	813.0
-	-	-	-	-	-	-	81.0	81.0	-	29.0	29.0	-	78.0	78.0	-	130.0	130.0	4.0	318.0	322.0
5.0	-	5.0	5.0	-	5.0	5.0	200.0	205.0	40.0	205.0	245.0	25.0	195.0	220.0	30.0	60.0	90.0	157.0	660.0	817.0
-	-	-	-	-	-	-	160.0	160.0	-	192.0	192.0	-	115.0	115.0	-	-	-	-	467.0	467.0
118.0	147.0	265.0	118.0	136.0	254.0	77.0	734.0	811.0	119.0	923.0	1042.0	120.0	786.0	906.0	79.0	516.0	595.0	1115.0	3388.0	4503.0

TABLE 5.10 : CONSUMPTION OF WHEAT BY 212 SAMPLED HOUSEHOLDS (FIGURES IN KILOGRAMS)

Village	November			December			January			February			March			April		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
1. Khirvire	435.5	214.0	649.5	451.5	151.5	603.0	511.0	98.0	609.0	661.5	95.5	757.0	487.5	126.0	613.5	519.5	82.0	601.5
2. Deogaon	-	-	-	-	-	-	-	-	-	108.0	-	108.0	108.0	-	108.0	102.0	-	102.0
3. Ambevangan	33.5	-	33.5	11.0	-	11.0	2.0	-	2.0	66.0	-	66.0	81.0	-	81.0	74.0	-	74.0
4. Guhire	334.0	30.0	364.0	327.0	15.0	342.0	383.0	15.0	398.0	565.0	-	565.0	990.0	50.0	1040.0	840.0	-	840.0
5. Malegaon	40.0	16.0	56.0	60.0	6.0	66.0	70.0	2.0	72.0	111.0	-	111.0	45.0	20.0	65.0	33.0	34.0	64.0
6. Kelungan	177.5	-	177.5	173.5	-	173.5	159.5	-	159.5	175.5	-	175.5	155.5	2.0	157.5	131.5	10.0	141.5
7. Sakirwadi	29.5	-	29.5	3.0	-	3.0	47.0	-	47.0	258.0	-	258.0	283.0	-	283.0	251.0	10.0	261.0
8. Padalane	171.0	-	171.0	128.5	-	128.5	135.0	-	135.0	188.0	-	188.0	172.0	-	172.0	180.0	-	180.0
9. Vakdari	3.0	-	3.0	16.0	-	16.0	23.0	-	23.0	23.0	-	23.0	22.0	-	22.0	21.0	-	21.0
Total	1224.0	260.0	1484.0	1170.5	172.5	1343.0	1330.5	115.0	1445.5	2156.0	95.5	2251.5	2344.0	198.0	2542.0	2152.0	136.0	2288.0

May			June			July			August			September			October			Annual total		
Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
437.0	94.0	531.0	416.0	117.0	533.0	419.0	113.0	532.0	108.0	379.0	487.0	106.0	479.0	585.0	140.0	386.0	526.0	4692.5	2335.0	7027.5
15.0	-	15.0	15.0	-	15.0	66.0	-	66.0	74.0	-	74.0	28.0	-	28.0	30.0	-	30.0	546.0	-	546.0
14.0	-	14.0	4.0	-	4.0	29.0	-	29.0	57.0	-	57.0	19.0	-	19.0	62.0	-	62.0	452.5	-	452.5
462.0	-	462.0	310.0	70.0	380.0	245.0	140.0	385.0	45.0	179.5	224.5	70.0	245.0	315.0	75.0	265.0	340.0	4646.0	1009.5	5655.5
25.0	62.0	87.0	26.0	58.0	84.0	19.0	96.0	115.0	23.0	110.0	133.0	23.0	123.0	146.0	17.0	142.0	159.0	492.0	669.0	1161.0
149.5	8.0	157.5	106.5	5.0	111.5	79.5	60.0	139.5	41.5	132.0	173.5	75.0	92.0	167.0	83.5	57.0	140.5	1508.5	366.0	1874.5
230.0	-	230.0	4.0	70.0	74.0	82.0	107.0	189.0	66.0	324.0	390.0	23.0	368.0	391.0	19.0	307.0	326.0	1295.5	1186.0	2481.5
280.0	-	280.0	297.0	-	297.0	181.0	70.0	251.0	160.0	144.0	304.0	192.0	130.0	322.0	276.0	72.0	342.0	2360.5	416.0	2776.5
78.0	-	78.0	64.0	-	64.0	73.0	-	73.0	25.0	170.0	195.0	10.0	125.0	135.0	10.0	10.0	20.0	368.0	305.0	673.0
1690.5	164.0	1854.5	1242.5	320.0	1562.5	1193.5	586.0	1779.5	599.5	1438.5	2038.0	546.0	1562.0	2108.0	712.5	1239.0	1951.5	16361.5	6286.5	22648.0

TABLE 5.11 : CONSUMPTION OF SAVA BY 212 SAMPLED HOUSEHOLDS (FIGURES IN KILOGRAMS)

Village	November		December		January		February		March		April		May		June		July		August		September		October		Annual Total												
	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.	M.											
1. Khirvire	46.5	-	75.0	-	60.0	-	15.0	-	-	-	5.5	-	-	-	-	-	5.0	24.0	60.0	30.0	95.0	-	362.0	54.0	(46.5)	(75.0)	(60.0)	(15.0)	(5.5)	(29.0)	(90.0)	(95.0)	(416.0)				
2. Deogaon	60.0	-	20.0	-	20.0	-	16.0	-	36.0	-	36.0	-	60.0	-	65.0	-	145.0	161.0	120.0	-	90.0	-	829.0	-	(60.0)	(20.0)	(20.0)	(16.0)	(36.0)	(36.0)	(60.0)	(65.0)	(145.0)	(161.0)	(120.0)	(90.0)	(829.0)
3. Ambevangan	52.5	-	95.0	-	18.0	-	25.0	-	25.0	-	28.0	-	146.0	-	165.0	-	185.0	199.0	160.0	-	153.0	-	1251.5	-	(52.5)	(95.0)	(18.0)	(25.0)	(25.0)	(28.0)	(146.0)	(165.0)	(185.0)	(199.0)	(160.0)	(153.0)	(1251.5)
4. Guhire	25.0	-	30.0	-	50.0	-	65.0	-	50.0	-	-	-	-	-	45.0	-	50.0	-	-	-	30.0	-	372.0	-	(25.0)	(30.0)	(50.0)	(65.0)	(50.0)	(45.0)	(50.0)	(30.0)	(27.0)	(372.0)			
5. Malegaon	72.0	-	28.0	-	27.0	-	18.0	-	14.0	-	5.0	-	10.0	-	8.0	-	19.0	10.0	18.0	-	10.0	-	239.0	-	(72.0)	(28.0)	(27.0)	(18.0)	(14.0)	(5.0)	(10.0)	(8.0)	(19.0)	(10.0)	(18.0)	(10.0)	(239.0)
6. Kelungan	70.0	-	40.0	-	28.0	-	34.0	-	29.0	-	34.0	-	10.0	-	10.0	10.0	-	-	7.0	-	18.0	-	270.0	10	(70.0)	(40.0)	(28.0)	(34.0)	(29.0)	(34.0)	(10.0)	(10.0)	(7.0)	(18.0)	(280.0)		
7. Sakirwadi	4.0	-	5.0	-	-	-	-	-	-	-	-	-	-	-	10.0	-	-	-	3.0	5.0	22.0	-	44.0	5	(4.0)	(5.0)	-	-	-	-	(10.0)	(8.0)	(22.0)	(49.0)			
8. Padalane	6.0	-	4.0	-	5.0	-	3.0	-	4.0	-	4.5	-	-	-	-	-	-	-	-	15.0	70.0	-	96.5	15	(6.0)	(4.0)	(5.0)	(3.0)	(4.0)	(4.5)	(15.0)	(70.0)	(111.5)				
9. Vakdari	133.0	-	137.0	-	108.0	-	124.0	-	118.0	-	121.0	-	72.0	-	84.0	-	32.0	-	90.0	15.0	180.0	-	1199.0	15	(133.0)	(137.0)	(108.0)	(124.0)	(118.0)	(121.0)	(72.0)	(84.0)	(32.0)	(105.0)	(180.0)	(1214.0)	
Total	469.0	-	434.0	-	316.0	-	300.0	-	276.0	-	234.0	-	298.0	-	377.0	10.0	431.0	24.0	488.0	65.0	665.0	-	4663.0	99	(469.0)	(434.0)	(316.0)	(300.0)	(276.0)	(234.0)	(298.0)	(387.0)	(431.0)	(399.0)	(553.0)	(665.0)	(4762.0)

Figures in the bracket represent totals.

TABLE 5.12 : CONSUMPTION OF VARAI BY 212 SAMPLED HOUSEHOLDS (FIGURES IN KILOGRAMS)

Village	November			December			January			February			March			April		
	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
	1. Khirvire	135.0	15.0	150.0	84.0	4.0	88.0	65.5	9.0	74.5	56.5	3.0	59.5	33.5	9.0	42.5	29.0	8.0
2. Deogaon	158.0	-	158.0	117.0	-	117.0	117.0	-	117.0	133.0	-	133.0	123.0	-	123.0	123.0	-	123.0
3. Ambevangan	177.5	-	177.5	110.0	-	110.0	111.0	-	111.0	140.0	-	140.0	140.0	-	140.0	155.0	-	155.0
4. Guhire	273.0	-	273.0	304.0	-	304.0	271.0	-	271.0	190.0	-	190.0	47.0	-	47.0	261.0	-	261.0
5. Malegaon	68.0	-	68.0	7.0	-	7.0	14.0	-	14.0	3.0	-	3.0	4.0	-	4.0	2.0	-	2.0
6. Kelungan	64.0	-	64.0	18.0	-	18.0	32.0	-	32.0	14.0	-	14.0	31.0	-	31.0	28.0	6.0	34.0
7. Sakirwadi	7.0	-	7.0	13.0	-	13.0	21.5	-	21.5	92.5	-	92.5	24.0	-	24.0	4.0	-	4.0
8. Padalane	-	-	-	-	-	-	-	-	-	-	-	-	5.0	-	5.0	10.0	-	10.0
9. Vakdari	89.0	-	89.0	89.0	-	89.0	77.0	-	77.0	73.0	-	73.0	80.0	-	80.0	78.0	-	78.0
Total	971.5	15.0	986.5	742.0	4.0	746.0	709.0	9.0	718.0	702.0	3.0	705.0	487.5	9.0	496.5	690.0	14.0	704.0

May			June			July			August			September			October			Annual total		
Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total	Stock	Market	Total
42.0	7.0	49.0	63.0	9.0	72.0	75.0	7.0	82.0	37.0	8.0	45.0	299.0	5.0	304.0	788.0	15.0	803.0	1707.5	99.0	1806.5
115.0	-	115.0	130.0	-	130.0	112.0	-	112.0	70.0	-	70.0	131.0	-	131.0	179.0	-	179.0	1508.0	-	1508.0
141.0	-	141.0	135.0	-	135.0	80.0	-	80.0	109.0	-	109.0	169.0	-	169.0	213.0	-	213.0	1680.5	-	1680.5
669.0	-	66.0	33.0	-	33.0	41.0	-	41.0	-	-	-	53.0	-	53.0	43.0	-	43.0	1582.0	-	1582.0
9.0	-	9.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	107.0	-	107.0
34.0	3.0	37.0	35.0	4.0	39.0	20.0	4.0	24.0	25.0	9.0	34.0	30.0	3.0	33.0	28.0	4.0	32.0	359.0	33.0	392.0
-	-	-	3.0	-	3.0	15.0	-	15.0	2.0	-	2.0	20.0	3.0	23.0	146.0	11.0	157.0	348.0	14.0	362.0
-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	3.0	23.0	-	23.0	41.0	-	41.0
64.0	-	64.0	72.0	-	72.0	157.0	-	157.0	45.0	30.0	75.0	90.0	50.0	140.0	127.0	-	127.0	1041.0	80.0	1121.0
471.0	10.0	481.0	471.0	13.0	484.0	500.0	11.0	511.0	288.0	47.0	335.0	795.0	61.0	856.0	1547.0	30.0	1577.0	8374.0	226.0	8600.00

TABLE 5.13 : COEFFICIENT OF VARIATIONS

Cereals	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Total Annual Consumption
1. Rice	119.23	118.53	111.56	112.02	105.11	104.67	100.86	96.97	92.10	78.62	73.66	86.67	1200.00
2. Ragi	91.77	99.66	106.02	106.69	101.04	105.61	107.45	118.40	109.01	97.35	82.33	74.67	1200.00
3. Bajra	122.93	102.28	96.81	73.31	76.27	79.48	92.54	122.74	119.66	118.66	107.79	87.53	1200.00
4. Jowar	32.25	31.71	23.72	21.85	32.51	25.85	70.62	67.68	216.13	277.68	241.44	158.56	1200.00
5. Wheat	78.64	71.17	76.58	119.31	134.70	121.24	98.25	82.78	94.27	107.97	111.68	103.41	1200.00
6. Sava	118.19	109.36	79.63	75.60	69.55	58.96	75.09	97.53	108.61	100.55	139.36	167.57	1200.00
7. Varai	137.65	104.09	100.18	98.36	69.28	98.23	67.13	67.54	71.30	46.76	119.44	220.04	1200.00
Total	104.42	103.12	101.86	104.87	100.97	102.01	99.77	103.14	102.43	94.58	89.97	92.86	1200.00

TABLE 5.15 : CONSUMPTION OF CEREALS BY 212 SAMPLED HOUSEHOLDS ACCORDING TO SEASONS (FIGURES IN KILOGRAMS)

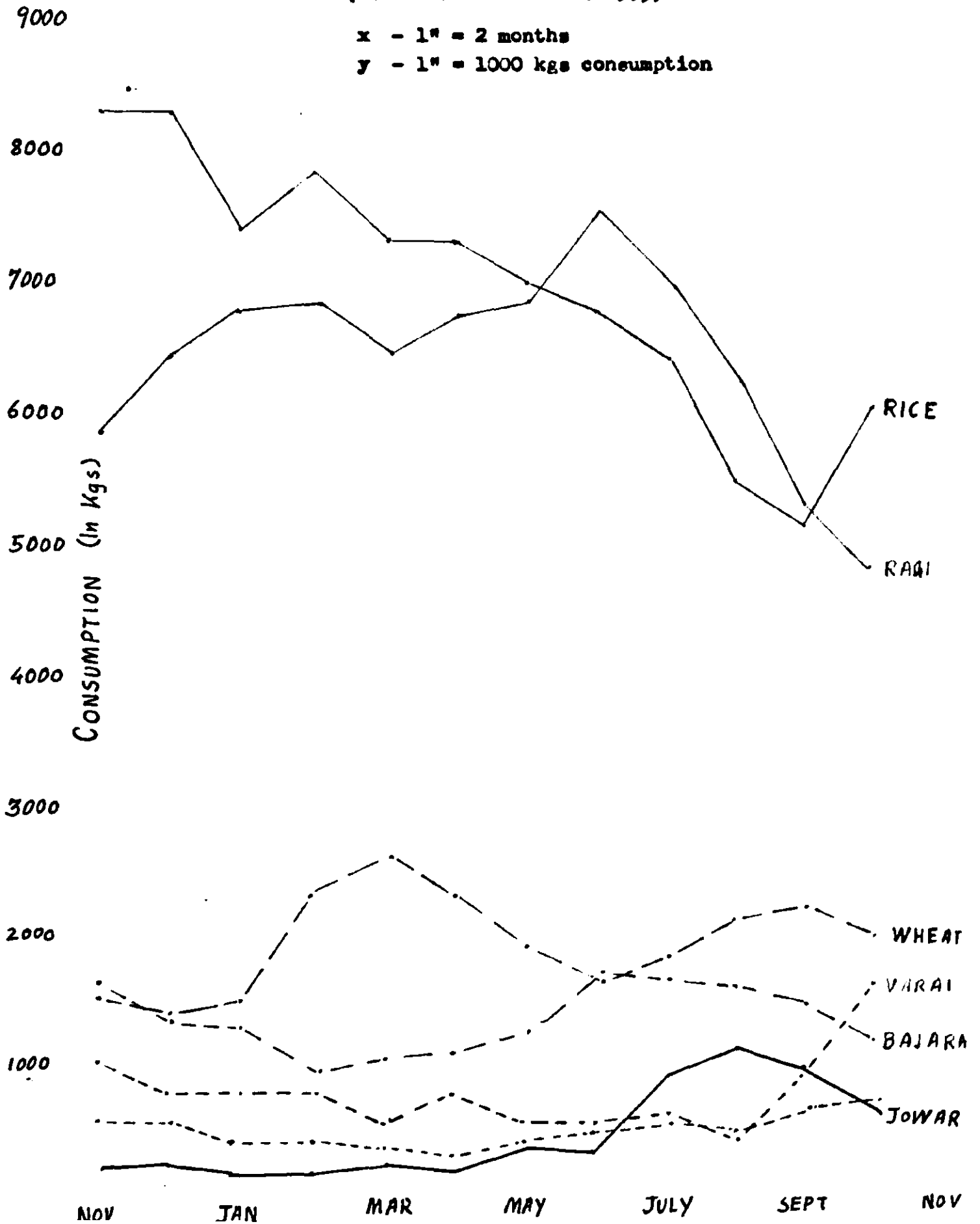
Cereals	I		II		III		IV		Annual Total	
	(November - January)		(February - April)		(May - July)		(August - October)			
	Stock	Market	Stock	Market	Stock	Market	Stock	Market	Stock	Market
1. Rice	23759.00 (24228.5) 98.06%	469.50 1.94%	21721.00 (22320.00) 97.32%	599.00 2.68%	18460.50 (20109.50) 91.80%	1649.00 8.20%	13035.00 (16572.00) 78.66%	3537.00 21.34%	76975.50 (83230.00) 92.49%	6254.50 7.51%
2. Ragi	18607.50 (18875.00) 98%	267.50 1.42%	19256.00 (19883.00) 96.85%	627.00 3.15%	17142.50 (21,248.50) 80.68%	4106.00 19.32%	8834.00 (16139.00) 54.74%	7305.00 45.26%	63840.00 (76145.50) 83.84%	12305.50 16.16%
3. Bajra	2027.50 (4179.50) 48.51%	2152.00 51.49%	1728.50 (2973.00) 58.14%	1244.50 41.86%	2682.00 (4347.00) 61.70%	1665.00 38.30%	2230.00 (4075.00) 54.72%	1845.00 45.28%	8668.00 (15574.50) 55.66%	6906.50 44.34%
4. Jowar	275.00 (329.00) 83.59%	54.00 16.41%	209.00 (301.00) 69.44%	92.00 30.56%	313.00 (1330.00) 23.53%	1017.00 76.47%	318.00 (2543.00) 12.51%	2225.00 87.49%	1115.00 (4503.00) 24.76%	3388.00 75.24%
5. Wheat	3725.00 (4272.50) 87.19%	547.50 12.81%	6652.00 (7081.50) 93.93%	429.50 6.07%	4126.5 (5196.50) 79.41%	1070.00 20.59%	1858.00 (6097.50) 30.47%	4239.50 69.53%	16361.50 (22648.00) 72.24%	6286.50 27.76%
6. Sava	1219.00 (1219.00) 100.00%	- 100.00%	810.00 (810.00) 100.00%	- -	1106.00 (1116.00) 99.10%	10.00 0.90%	1528.00 (1617.00) 94.50%	89.00 5.50%	4663.00 (4762.00) 97.92%	99.00 2.08%
7. Varai	2422.50 (2450.50) 98.86%	28.00 1.14%	1879.50 (1905.50) 98.64%	26.0 1.36%	1442.00 (1476.00) 97.70%	34.00 2.30%	2630.00 (2768.00) 95.01%	138.00 4.99%	8374.00 (8600.00) 97.37%	226.00 2.63%
Total Consumption	52035.50 (55554.00) 93.67%	3518.50 6.33%	52256.00 (55274.00) 94.54%	3018.00 5.46%	45272.50 (54823.50) 82.58%	9551.00 17.42%	30433.00 (49811.50) 61.10%	19378.50 38.90%	179997.00 (215463.00) 83.54%	35466.00 16.46%

Monthly Consumption of Cereals

(Please refer to Table 5.5)

x - 1" = 2 months

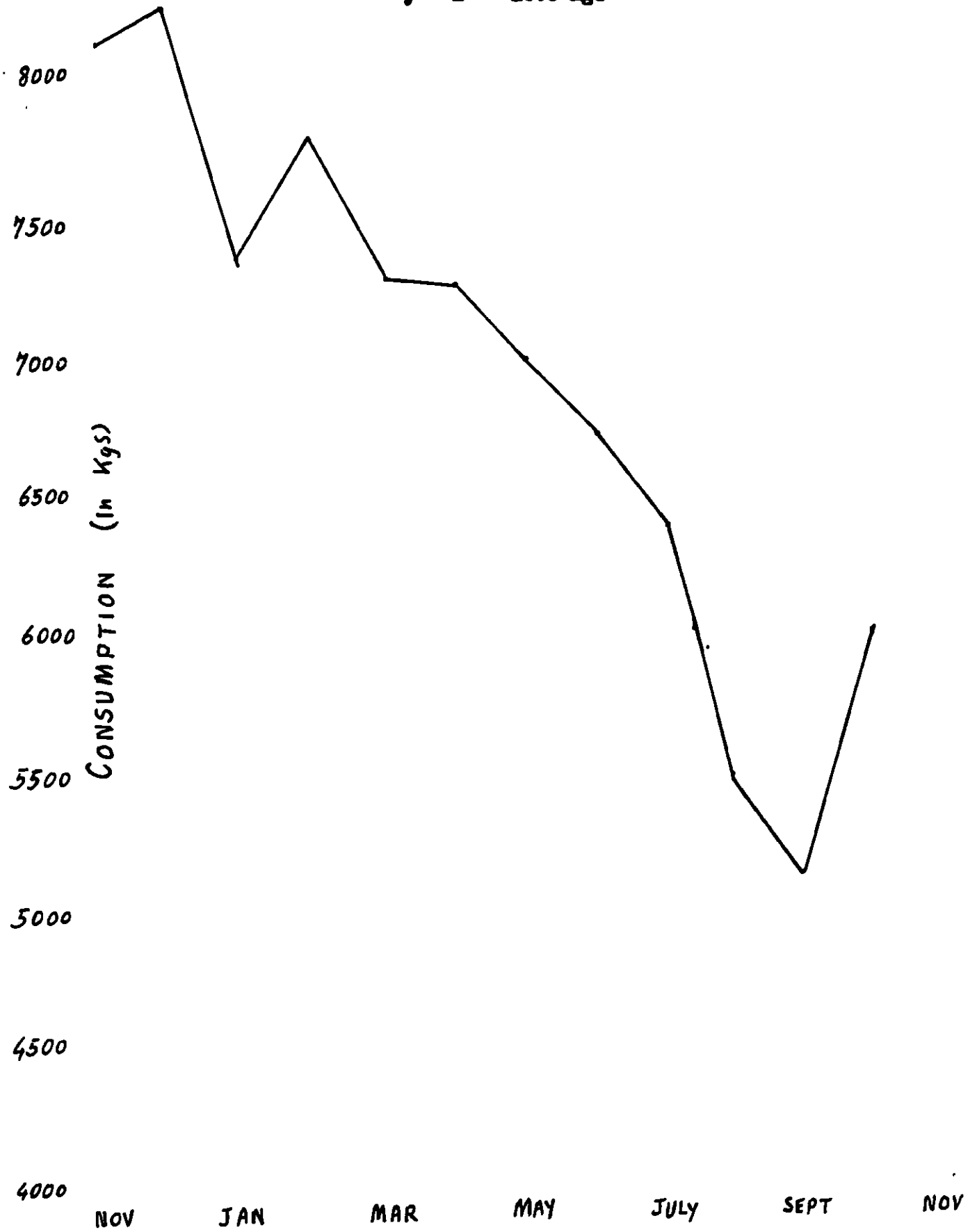
y - 1" = 1000 kgs consumption



Consumption of Rice (Please refer to Table 5.5)

x - 1" = 2 months

y - 2" = 1000 kgs



Consumption of Ragi (Please refer to Table 5.5)x - 1st = 2 monthsy - 2nd = 1000 kgs.

8000

CONSUMPTION (In Kgs)

7000

6000

5000

4000

NOV

JAN

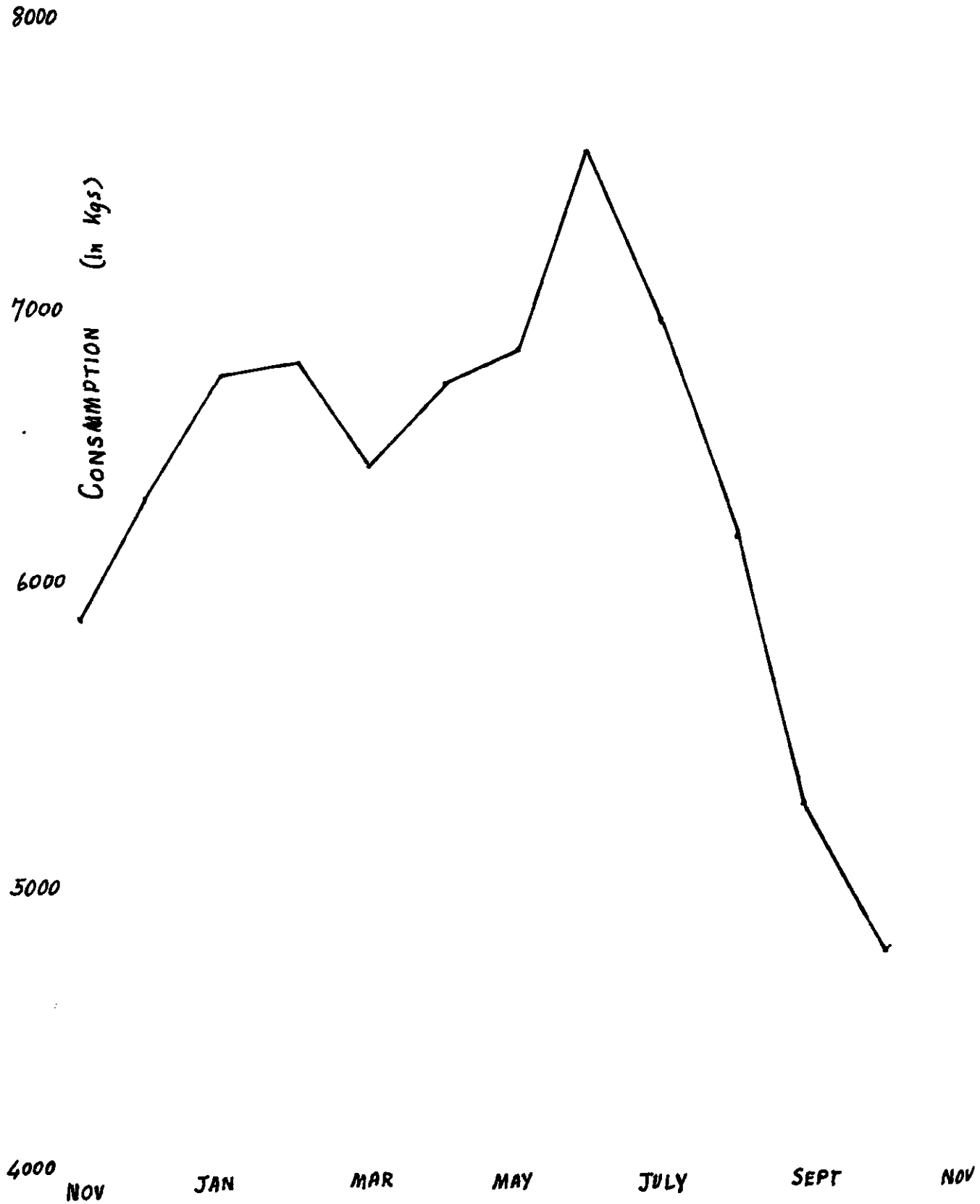
MAR

MAY

JULY

SEPT

NOV



9000

Consumption of Rice & Ragi (Please refer to Table 5.5)

Ragi

— Rice

x - 1st = 2 months

y - 2nd = 1000 kgs.

8000

7000

6000

5000

CONSUMPTION (in Kgs)

4000

NOV

JAN

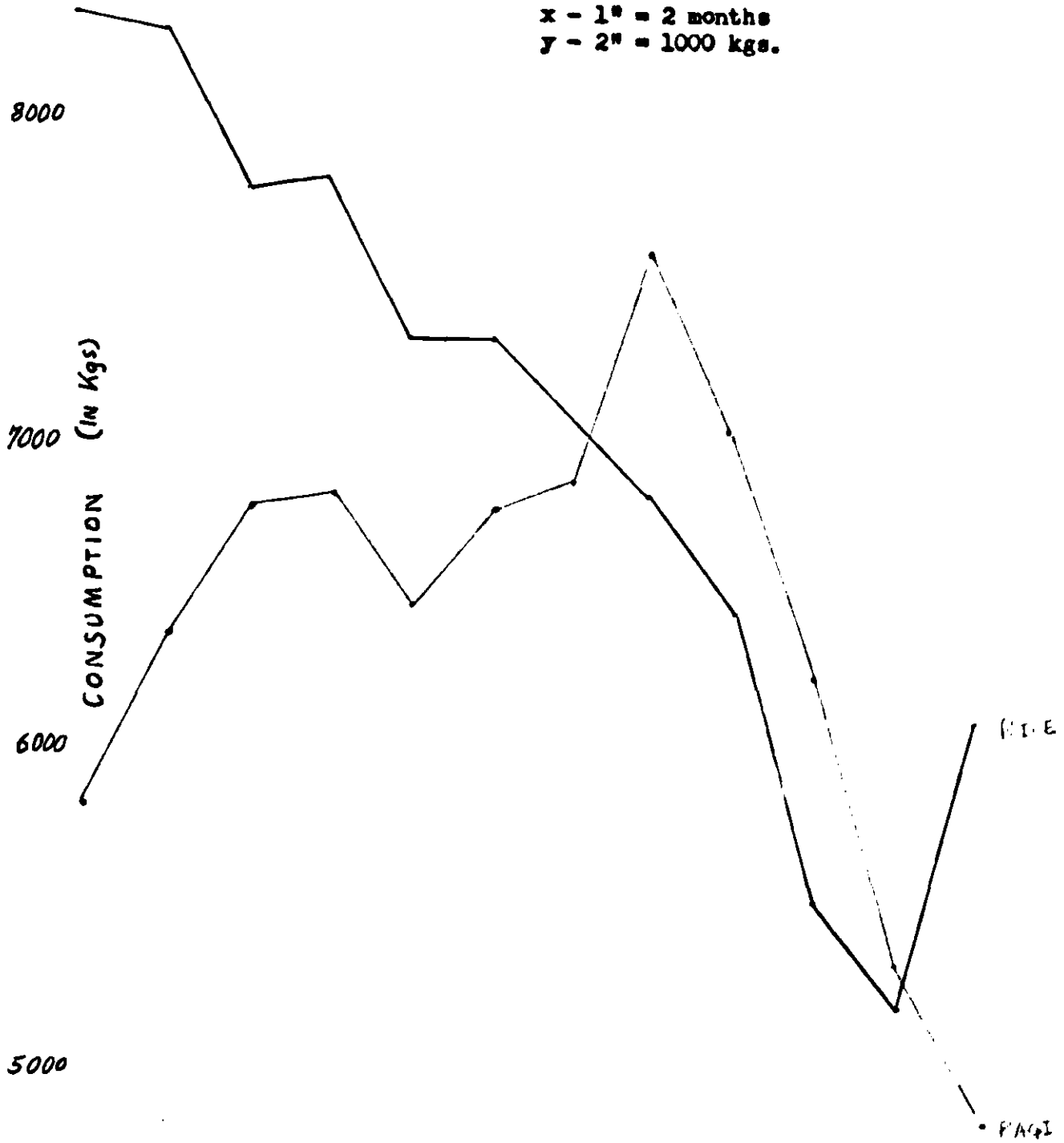
MAR

MAY

JULY

SEPT

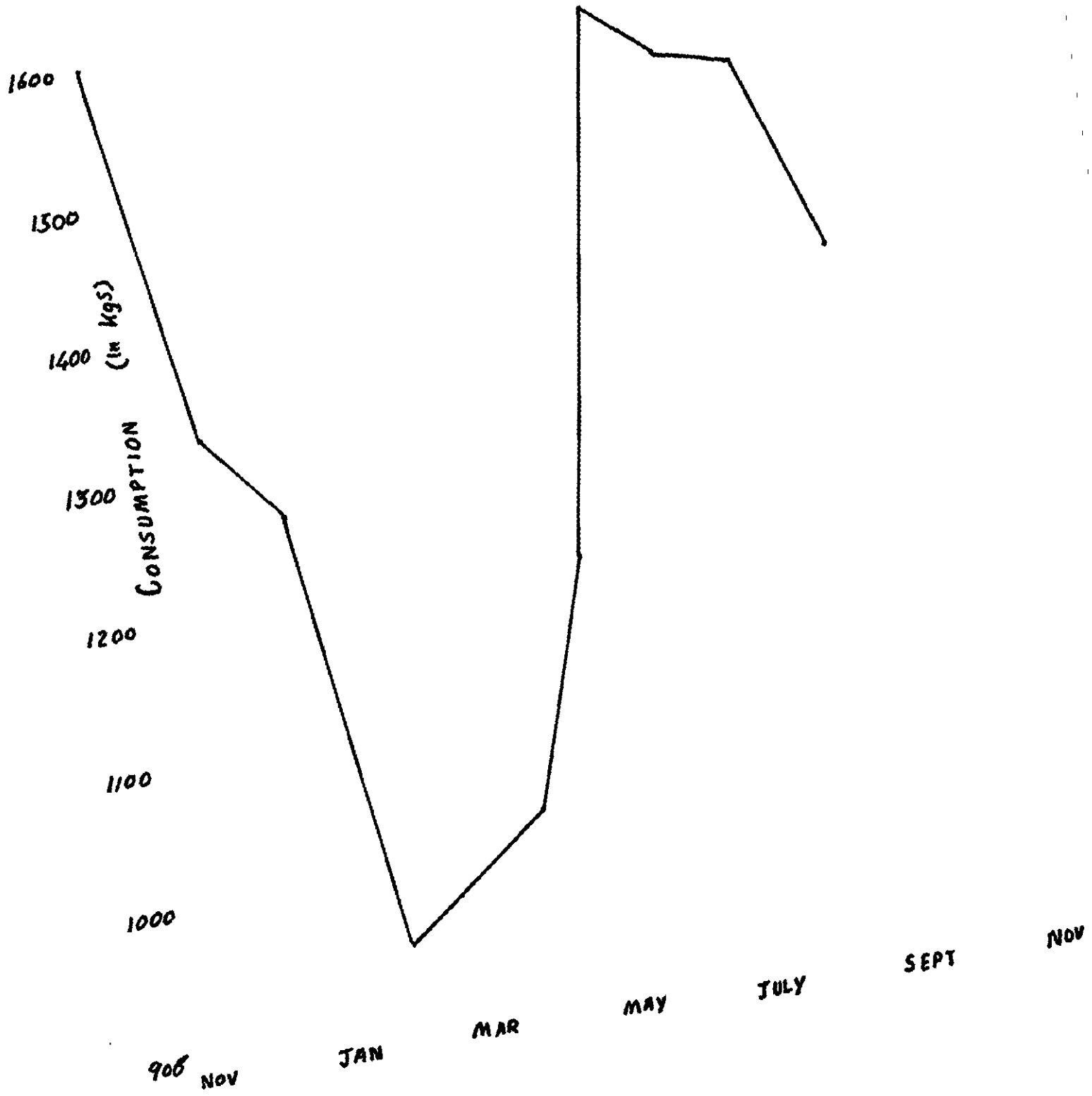
NOV.



Consumption of Bajra (Please refer to Table 5.5)

x - 1" = 2 months
y - 1" = 100 kgs.

1700



1050

Consumption of Jowar
(Please refer to Table 5.5)

x - 1" = 2 months
y - 1" = 100 kg.

950

850

750

650

550

450

350

250

150

50

Nov

JAN

MAR

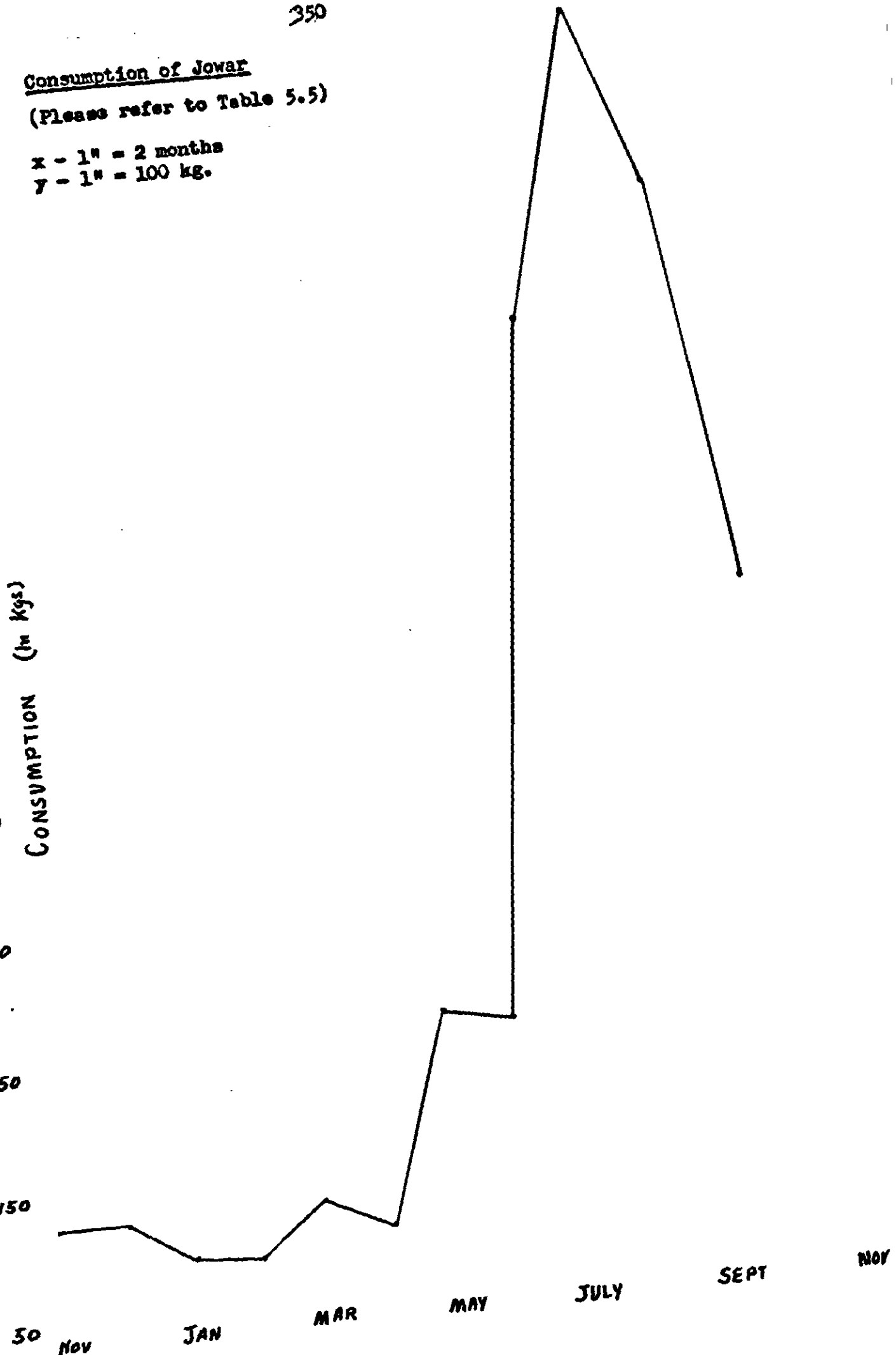
MAY

JULY

SEPT

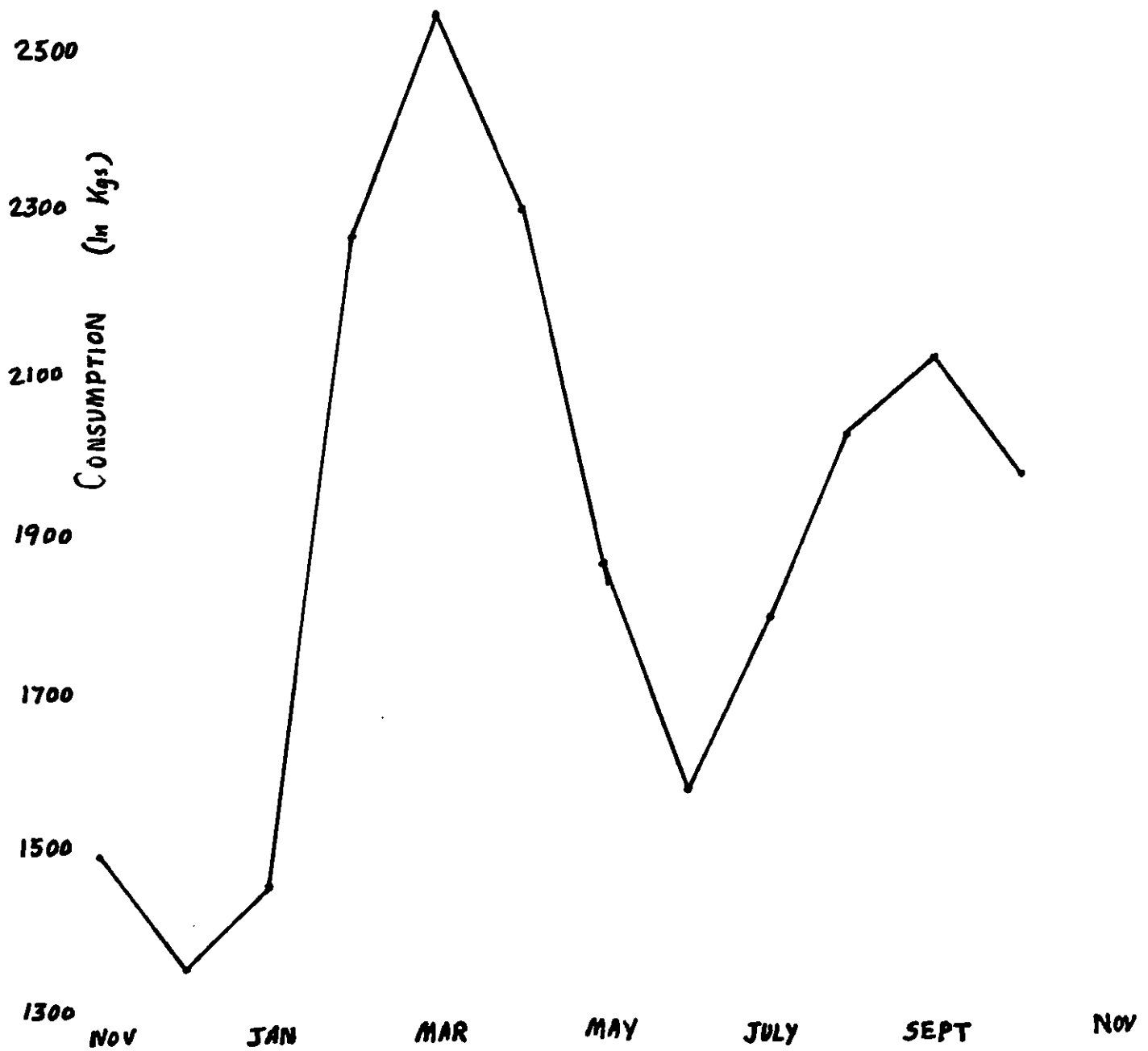
NOV

CONSUMPTION (in Kgs)



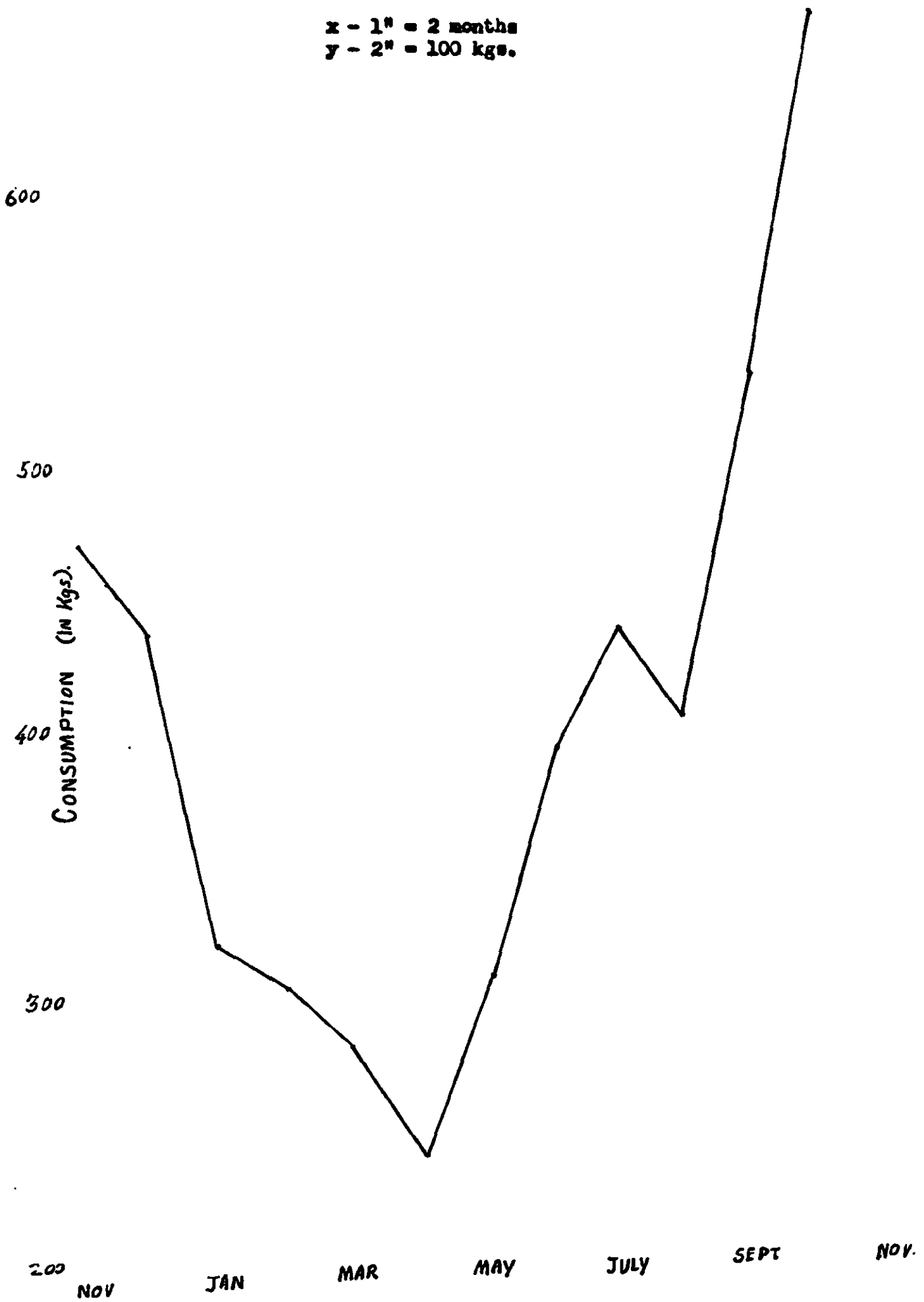
Consumption of Wheat (Please refer to Table 5.5)

x - 1" = 2 months
y - 1" = 200 kgs.



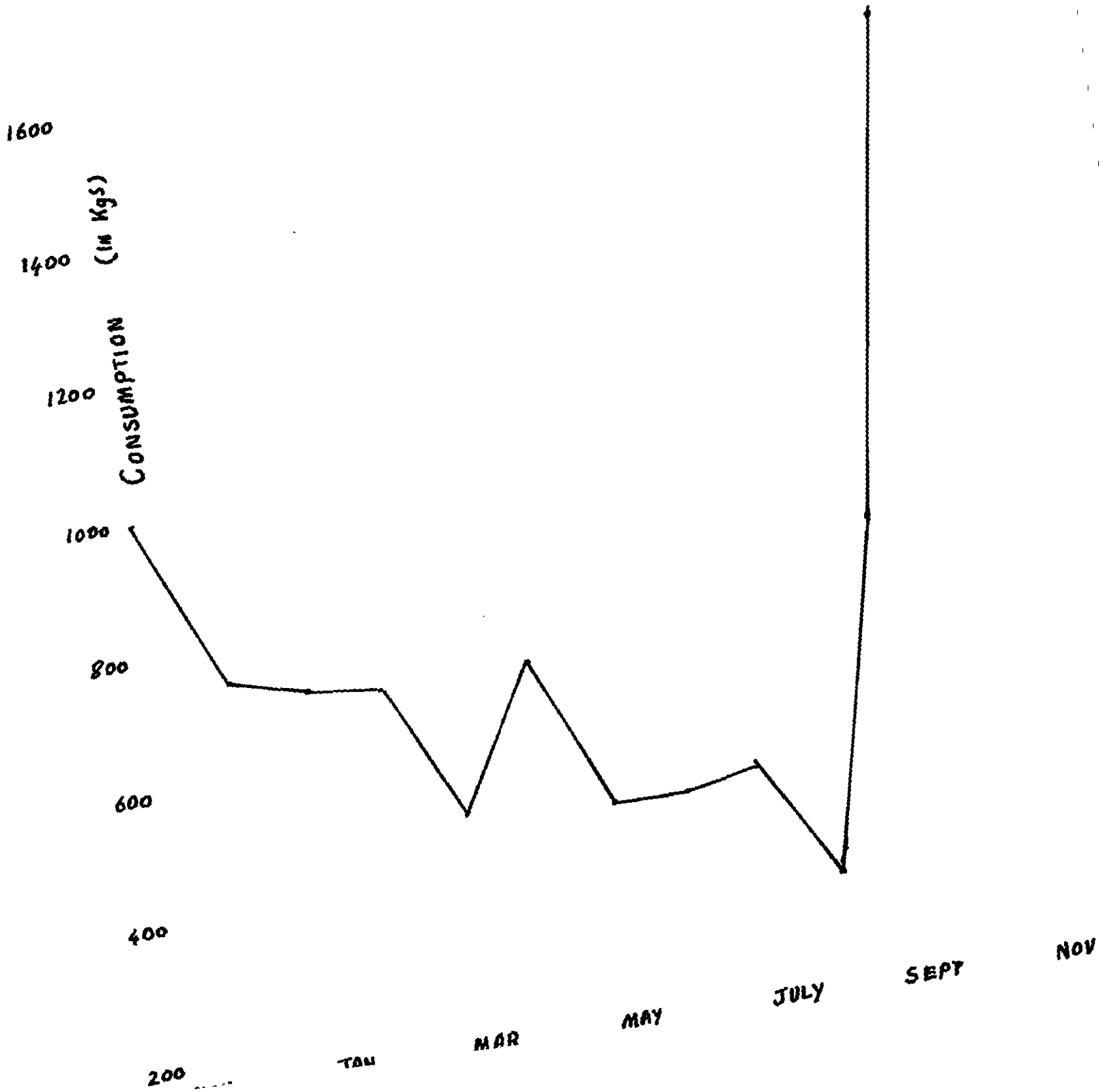
Consumption of Sava (Please refer to Table 5.5)

x - 1" = 2 months
y - 2" = 100 kgs.



Consumption of Varaj (Please refer to Table 5.5)

x - 1st = 2 months
y - 2000 kgs.



2000

Village-wise consumption of rice

(Please refer to Table 5.6)

x - 1" = 2 months
y - 1" = 200 kgs.

1900

1600

1400

1200

1000

800

600

400

200

CONSUMPTION (In Kgs).

NOV

JAN

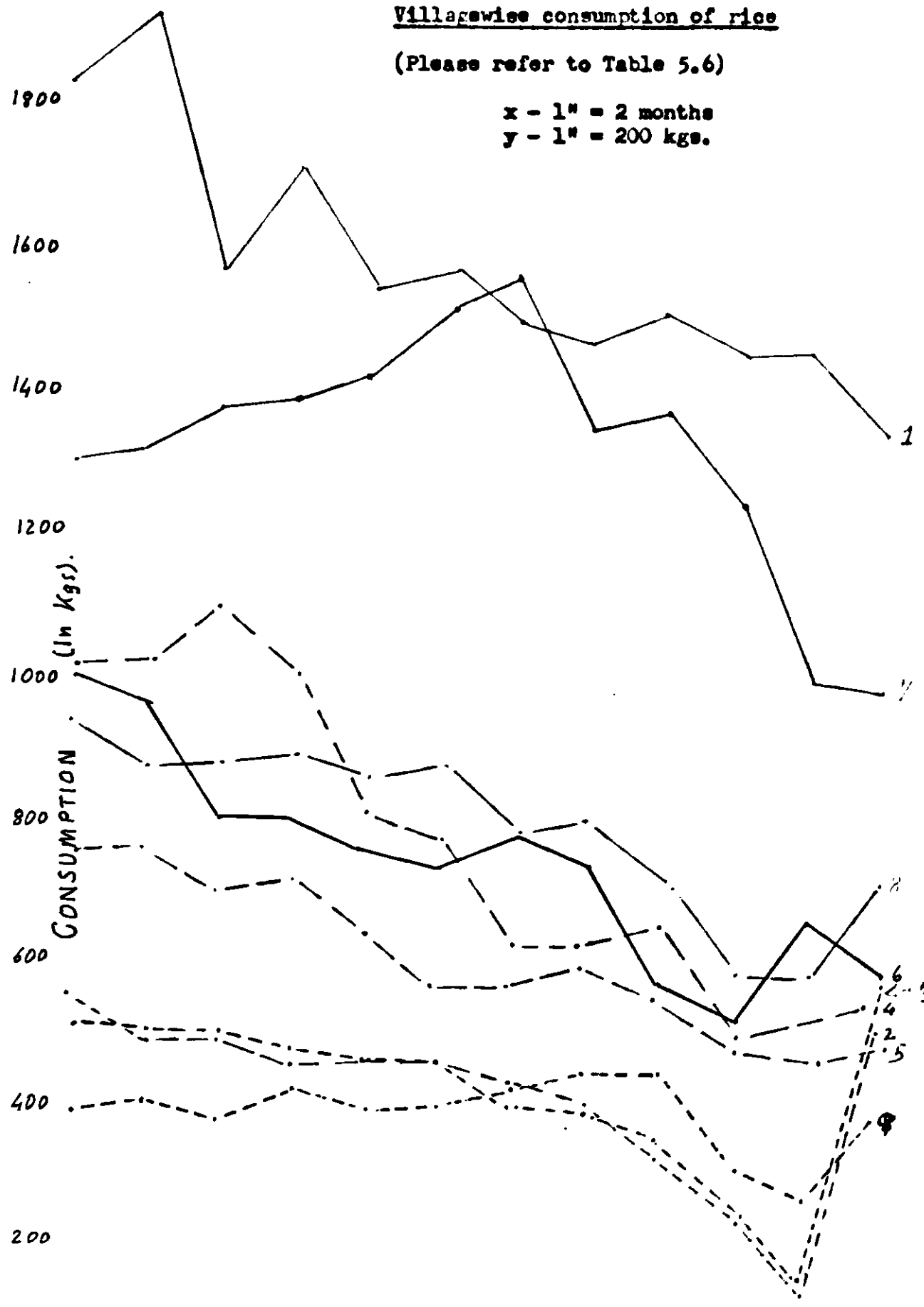
MAR

MAY

JULY

SEPT

NOV



Villagewise consumption of Ragi

(Please refer to Table 5.7)

1800

x - 1" = 2 months

y - 1" = 200 kgs.

1600

1400

1200

1000
800
600
400
200

CONSUMPTION (In Kgs).

NOV

JAN

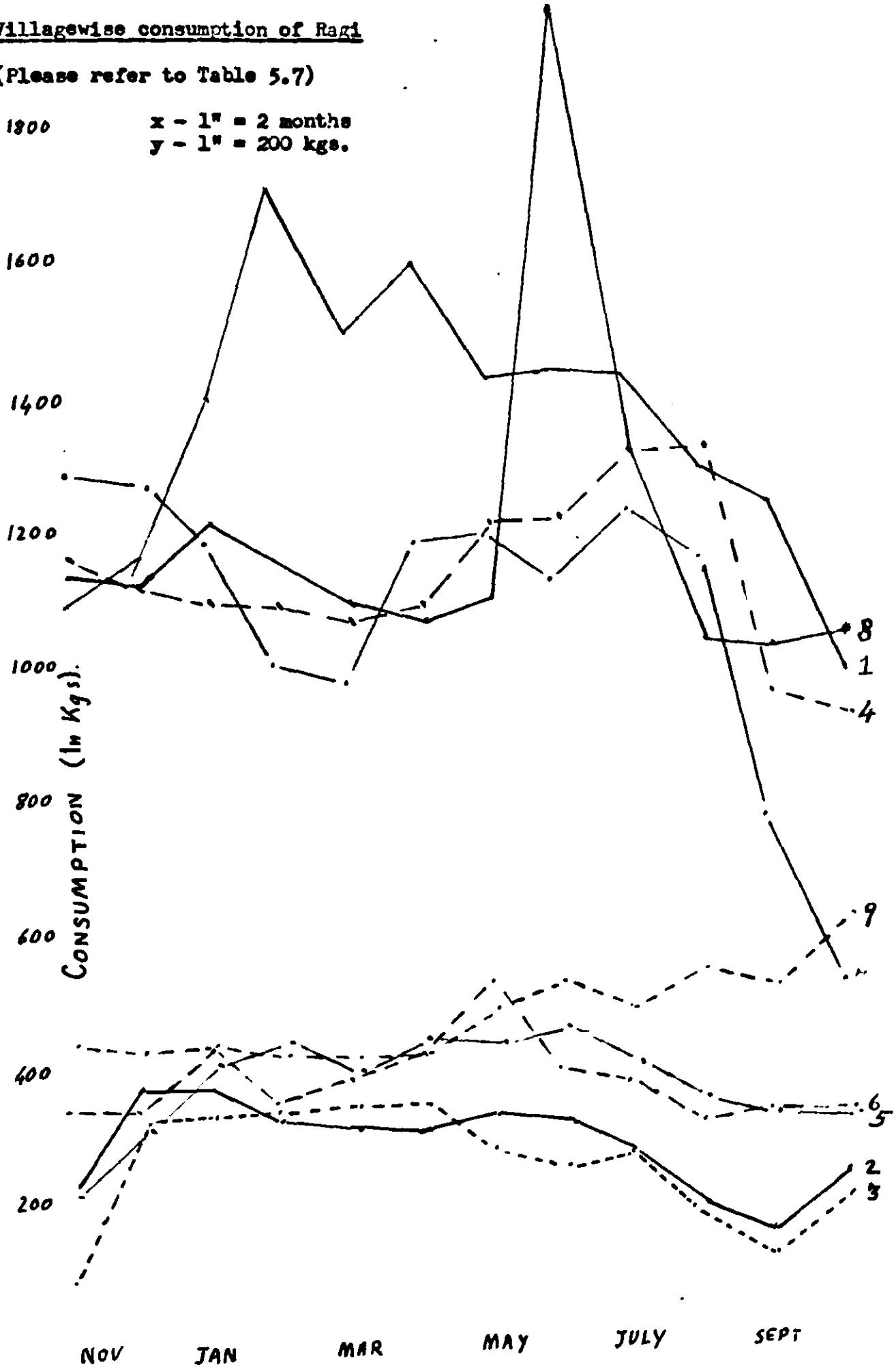
MAR

MAY

JULY

SEPT

NOV.

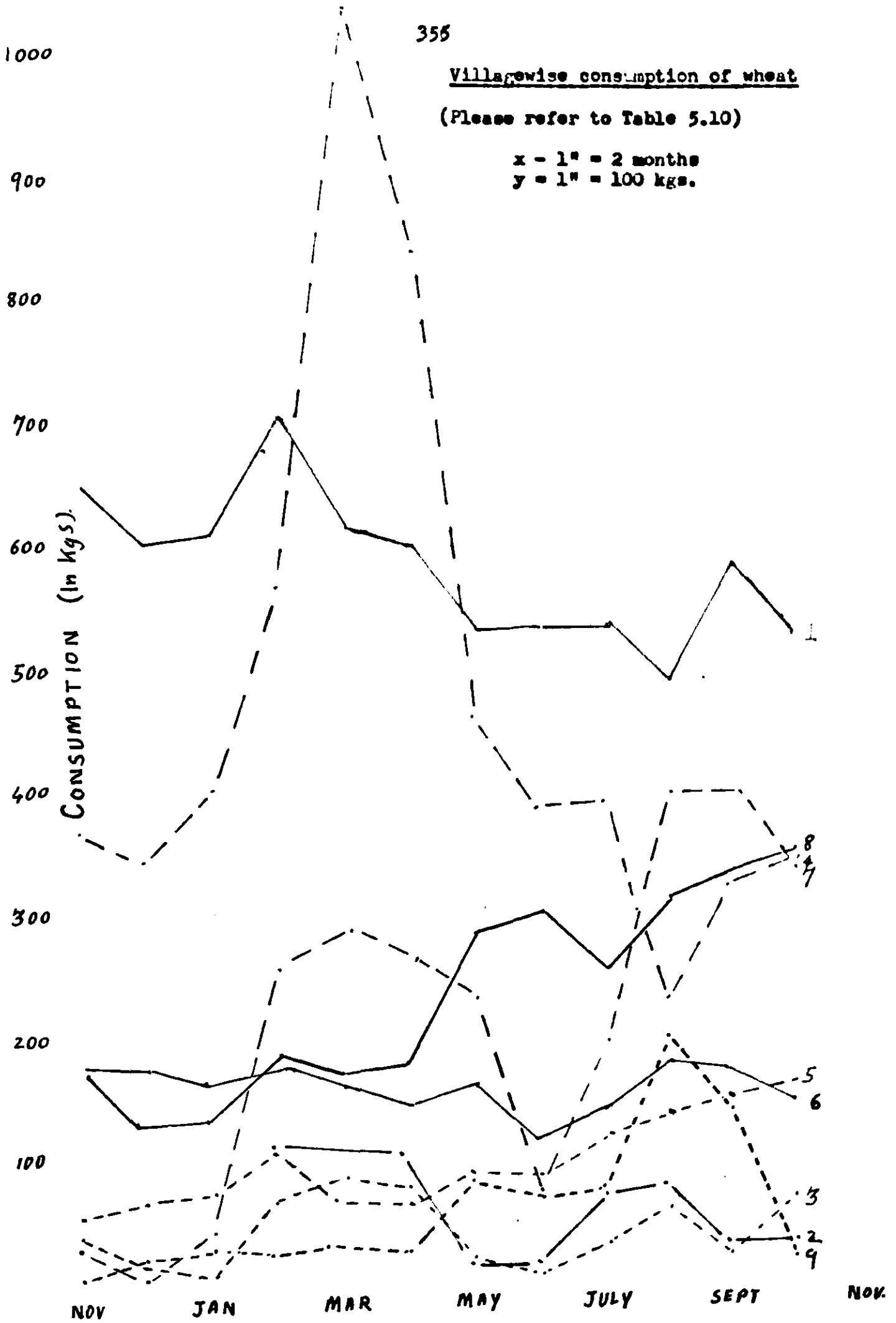


Village-wise consumption of wheat

(Please refer to Table 5.10)

x - 1" = 2 months

y = 1" = 100 kgs.



CHAPTER VI

LEVELS OF LIVING

6.1 Introduction

In any discussion of plan-making at the regional level, or more appropriately at the area level, the need for information on consumption and income on the regional plane is felt and often recognized as such.¹ The analysis of patterns and levels of living is useful as a first approximation and helps a long way for a background understanding of the region. Additionally, the econometric exercise to analyse the behaviour of family budgets is considerably facilitated on account of grouping of data on family consumption into certain broad classes of income and if necessary by broad commodity groups. The estimated parameters of consumption function are blown up to obtain the projected level of demand.

The study of levels of household consumption may properly be considered as the valid and reliable source

¹ Vera Cao-Pinna says: "It is advisable, wherever possible, to identify (and to tabulate separately) the household consumption patterns (in italics) of the various social classes of the regional population."

Vera Cao-Pinna, "Problems of Establishing and Using Regional Input-Output Accounting", in Isard and Cumberland edited, "Regional Economic Planning: Technique of Analysis for less developed area." The European Productivity Agency of the Organization for European Economic Cooperation, Paris, July 1961, p. 311.

Professor Gadgil has also commented: "The concretization of the decision to plan from the below required identification of a variety of socio-economic data and groups within the district."

Gadgil D.H., "Wardha Plan : A Commentary" (mimeographed), Gokhale Institute of Politics and Economics, Poona 4, 1965, p. 4.

of information on the levels of living in a region. In the present chapter the family consumption expenditure is classified according to various sizes of land-holdings and the levels of income. The 45 items of consumption that make up a family budget are grouped into broad commodity groups. They are as following :-

- | | |
|---------------------------|----------------------|
| 1. Cereals | 9. Tea |
| 2. Pulses | 10. Sugar and gur |
| 3. Milk and Milk Products | 11. Pan-supari |
| 4. Vegetables | 12. Tobacco products |
| 5. Mutton-fish, etc. | 13. Miscellaneous |
| 6. Oil and Oil Products | 14. Education |
| 7. Spices | 15. Clothing |
| 8. Fuel and lighting | |

The detailed comments on the variations in the grouped consumption of commodities according to family income are with respect to inter-regional comparisons within the region under study. Similarly, the brief comments are presented with respect to levels of living classified by family-holdings and per capita incomes. The three sub-regions are broadly three geographic divisions characterised by the plateau and the two river valleys, viz., Pravara and Mula rivers.

The primary purpose of this chapter is to investigate, in the first instance, the extent to which the

families tend to follow similar patterns of consumption, and, in the second instance, the magnitude of variations in consumption patterns of families situated at different levels of living.

6.2 Discussion of concepts

Income may be defined as the commodities and services accruing to a group, either of families or individuals, in any given period of time. Since the aggregate income is difficult to express in other than monetary terms, the usual practice is to impute net monetary values to certain commodities and services that are consumed for which no direct monetary payments are made. The addition of cash income received in the form of sale proceeds of agricultural produce and other subsidiary sources of income such as sales of poultry and eggs, milk and milk products etc. gives the overall magnitude of income of the family.

What are the items of consumption for which values have to be imputed? The first sizeable commodity is the farm produce of cereals and pulses.² The family's sub-

² Karl Fox says: "I am very much in sympathy with the position taken by Hagen and Budd on the inclusion of imputed values in the income accounts. Farm families definitely regard the production of food for their own use as an economic activity, a source of income. Changes in the physical volume of home-produced food consumed on farms have been rather closely associated (inversely) with changes in market prices of the foods involved. The elasticity of

sistence consumption or the consumption of foodgrains out of home-grown stocks is substantial in a predominantly agricultural community. The discussion of the consumption of cereals in the third chapter has revealed that amongst cereals, the staple consumption items are rice and ragi. In the case of former, approximately fourteen percent of domestic production is exported, whereas in the case of latter, approximately fifteen percent of the domestic consumption requirements is imported. This gives the dimension of marketing activity in respect of major foodgrains, both from the point of domestic production and consumption. As noted therein, it is the consumption of jowar during the monsoon that is largely met through market purchase and which is imported in this region. Even in respect of wheat, more than half of the total domestic consumption is out of home grown stocks.

The other groups of commodities that need imputation of values are :

(1) Fuel and lighting group that consists of fire-wood, collected from neighbouring forest and cow-dung cake

demand for these foods as a group seems to have been about -0.4 to -0.5 during the 1924-41 period. Evidently farm produce families do apply an economic calculus to this type of income-in-kind."

Fox, Carl, A., "The National Income and Expenditure Accounts: Agricultural Aspects". Conference on research in Income and Wealth, Nov. 55, National Bureau of Economic Research, New York, p. 2.

Hagen, Everett, E. and Budd, Edward, C., "An Economists' Appraisal of the Expenditures Side of the Department of Commerce, National Income Accounts", Conference on Research in Income and Wealth, National Bureau of Economic Research, New York, 1955. p.

that is available as a by-product on account of livestock maintained by agricultural households.

(2) Milk and milk products : It is noted in the fourth chapter that nearly three-fourth of milk production is consumed within the region and it is only the rest of one-fourth that is exported in the form of concentrated milk products such as khoa and sweets. The lack of local market and the lack of facilities to export the commodities for which the cash earnings are impressive, such as milk and ghee lead to the domestic consumption of these products. Thus it may be noted that the context of stage of economic development of a region has to be borne in mind in the analysis of levels of living since with the opening of outside markets on account of the development of communications and transport system, would in fact may result into less consumption of milk and milk products and more exports, which means that though apparently the level of living may appear to have regressed yet through increased income receipts the family budget may be re-adjusted, more in the light of consumers preference.

(3) Fish that is caught from the nearby rivers, viz. Pravara and Mula, and their tributaries. Dried fish, of course, is imported from neighbouring districts of Thana and Nasik and this part of consumption is out of market purchases.

Certain other commodities and services that are part of standard of living and regional income are altogether omitted from the aggregate monetary expression of income, since there appears to be no satisfactory manner of valuation to measure the contribution of these commodities and services to the flow of income. These are listed below :

(i) The contribution of services of members of family particularly that of a house-wife are unaccounted.

(ii) The differences in quality of goods and services that are not reflected in their prices are overlooked.

(iii) The provision of governmental services such as D.D.T. spraying, credit facilities etc. are not considered here.

(iv) The building materials, particularly logs of wood, that are freely available from forest areas are unaccounted. Of course, some kind of collective payment is made to forest authorities in exchange of access to forest resources such as myrobolam etc. The income from these sources is accounted in regional income.

(v) The value of dwelling of village houses is not included in the income.

(vi) The value of carcasses is not considered since there is no local market and no local agency to contact

the outside market.

It is generally admitted that to devise the methods of measuring and comparing the contributions of such commodities and services is one of the major problems of national income and levels of living. Cowling says: "The most important limitation of analysis of levels of living is the difficulty of bridging the gap between the concept and the data required for satisfactory measurement. There is general agreement that an adequate description of levels of living would require data on subjects such as health, food and nutrition, and conditions of work, plus information on non-material aspects of living conditions such as recreation and entertainment. It is also generally agreed that information on these aspects of levels of living is seldom, if ever, available for an entire population."³

One comes across a variety of terms in the literature on levels of living, such as 'standard of living', 'cost of living', 'level of living', 'plane of living', 'manner of living', etc., often without specifying the precise connotation the authors have in mind when they use it.

³ Cowling, James D., "Urban and Rural Levels of Living, 1960", Agricultural Economic Report No. 79, Economic Research Service, U.S. Department of Agriculture, Washington, July, 1965, p. 2.

In the discussion that follows, the term 'levels of living' will be used to denote the actual goods and services that a family or a group of families consumes in a period of 30 days.⁴ This definition of income leaves out the consumption of durable goods and particularly the cost of housing. The distinction between those who have reported the consumption of a particular commodity and those who have not is overlooked since it is inevitable in any grouping of data according to broad categories of income and commodities. This procedure presents the average level of consumption and brings out in relief certain of the basic features of income distribution and levels of living. Additionally this has an advantage of comparability with the other standardised presentation of data on the consumers expenditure in India, compiled and published by National Sample Survey Organization.

Strictly speaking, the discussion of levels of living is adequately comprehensive when the goods and services

⁴ Williams has defined levels of living "as a summary term when comparing the content of one living with another, or with a standard or when generalizing about the content of living of a group." See Introduction by F.M. Williams and C.C. Zimmerman, "Studies of Family Living in the United States and Other Countries", p. 4.

W.D. Waite and R. Cussady have used the term "level of consumption" in the sense of "level of living" that is used in the present chapter. See, "The Consumer and the Economic Order", Williams and Zimmerman edited. Ibid., p. 205.

consumed, which also include their respective qualities are measured in quantities. The resulting summary expression would not necessarily be meaningful since different units may have to be arbitrarily added. So it is customary to express the levels of living in monetary terms.

The behaviour of consumption pattern reflecting different levels of living is determined and conditioned by a variety of factors. These are briefly as follows:

(1) Family income, (2) prices, (3) size, age and sex composition of the family, (4) type of family organization, (5) caste and religion of the family, (6) occupation and other factors such as education and age of the head of family, (7) size and type of community in which the family lives. These are some of the basic factors which primarily explain the levels of living of any region.

It is obvious that such a detailed and comprehensive data on income and expenditure are usually not available, at least, not in the form in which it is amenable to statistical treatment. The following chapter deals in the behaviour of family budgets and therein the results of an econometric analysis of family budgets are discussed. The prefacing theoretical discussion of that chapter has reviewed the factors listed above, in the course of a discussion of explanatory variables that have to be explicitly specified in the statistical formulation of

the consumption function. These factors are, therefore, only briefly reviewed here.

The concept of income being vague and difficult to conceptualize in precise statistical terms, it is usually the total household expenditure that is presumed to be equivalent to total disposable income of the household. The prices are relatively constant for all families under observation at a point of time and it is believed that the income behaviour of a set of families at a point of time, also, reflects how that set of families would behave over a period of time as incomes change within a specified reasonable period of adjustment to overcome lags on account of tastes and preferences, etc. In some studies the age and sex composition of the family is measured into 'adult-equivalent unit consumer'. The other factors such as occupation, race, etc. are not relevant in the region under study since all the villages are populated by a tribal community viz. Mahadeo Kolis in the main, and their basic economic activity being agriculture, the sampled families present a compact and homogeneous population. The influence of location is noted and held constant by grouping the sampled households into three blocks, as stated in the beginning, by the plateau and the two river-valleys. Thus, income and location are the influences which are taken into account in the analysis of

levels of living. As the sources of non-farm income being limited the total family income is directly indicated by the family holding of land. Thus alternatively consumer expenditure is classified according to family holding. As the present day practice followed by the National Sample Survey Organization is of presenting the consumer expenditure by per capita total expenditure, the similar classification is also presented.

6.3 Scheme of Classification

Originally the data on consumption of 212 sampled households were collected for a period of one year from November 1963 to October 1964 through monthly visits. Later on at the time of tabulation of consumption expenditure at different levels of living, the data are reduced to the period of 30 days, which indicates a simple average monthly consumption during the year under review.

The classification of consumer expenditure is threefold: -

- (A) Household analysis
- (B) Per capita analysis
- (C) Family-holding analysis

The household and per capita expenditure classes confirm to the classification designed by the National Sample Survey. The family holding analysis has been

presented here with the view that family holding as an independent classificatory variable may be considered an important variable along with total expenditure. As the existing literature on levels of living deals in different units of account, either household or family holding, standardization in methods has not become possible. Even the National Sample Survey Numbers which normally present per capita classification of consumer expenditure, have in their initial publication followed household classification.⁵ Thus in respect of regional comparison of income and levels of income no single method of analysis can be depended upon. It is certainly convenient, no less an important consideration when the voluminous economic data such as obtained through family budget enquiry is to be assessed and presented to help the policy-making, to handle the consumer expenditure data at the household level. But a certain loss of accuracy is inevitable in the choice of household unit of account since it is noted that average size of the household is positively correlated with the level of living. Acceptance of family land holdings as a classificatory criterion is somewhat similar to the acceptance of household unit since in an agricultural com-

⁵ The National Sample Survey, General Report No. 1. On the First Round, October 1950-March 1951. The Department of Economic Affairs, Ministry of Finance, Government of India, December, 1952.

The National Sample Survey. No. 2. Tables with Notes on the Second Round, April-June 1951, The Department of Economic Affairs, Ministry of Finance, Government of India, December, 1953.

munity the total household expenditure is derived from income from land, assuming that the non-farm sources of income are, at best, marginal. At least, in the region under study this is so since there are no employment opportunities outside agriculture. All the same, family land holding being an objective characteristic of the household, any discussion of levels of living in these terms is operationally useful to administrative decisions of the regional planning authority. Family holding in the present classification is taken to mean the gross cropped area under cultivation.

The second advantage is from the point of view of econometric investigation of family budgets. In the present study, this exercise is based on the ungrouped household consumer expenditure. But in most of the studies dealing in family budgets the regression analysis is carried on the grouped data, since it considerably facilitates the voluminous computations involved. The regression coefficients with respect to total expenditure and size of the household are useful in demand projections. It may be admitted here that the proposed refinements would very much depend upon the technical requirements of planning authority. And the degree of approximations in any analysis of levels of living and demand forecasts would be different in any effective plan making at the different

regional levels which are characterized by historically different situations.

6.4 General Characteristics of the Sampled Households

It is seen from the accompanying table that about 60 percent of sampled households have the land holding less than ten acres. The corresponding percentage number of persons comes to about 55 percent. A little over 6 percent of the sampled households or 7 percent of total number of persons are situated in the last two size-groups, i.e. above 30 acres.

The overall average size of family-holding is about 11 acres or about 2 acres per person.

The table shows that 35 percent of total cultivated acreage is owned by about 70 percent of sampled households. These 70 percent of households or 56 percent of total number of persons, belong to the class of land holdings of less than twelve and half acres individually. About 24 percent of the total cultivated acreage is owned by the 6 percent of sampled households or 7 percent of persons. These 6 percent of households belong to the class of land-holdings with more than 30 acres individually. The highest 14 percent of households who individually own the land-holdings of 20 acres and more, together cultivate about 40 percent of total acreage.

It is seen that 75 percent of total households or 71 percent of total number of persons who together own 42 percent of total acreage, have less than two and half acres of land per person. The overall average per capita acreage comes to little less than two acres.

How does the size of the household change along with increases in acreage? The overall average size of the household is 5.83. It is seen that the average size, based on total number of persons in the sampled households increases continuously from second group of holdings, i.e. 0.025 acres (one guntha or one-fourtheth of an acre) and above, and is maximum at 7 persons per household in the acreage group of 20.000 to 30.000 acres. In the final acreage group i.e. 30.000 acres and above, the average size of the household comes down to six persons. The first group that consists of households without land and village craftsmen⁶ has the average size of five persons per household. This average is comparable to those households with the acreage holding in the range of five acres to seven and half acres.

Thus excepting the first group of households, i.e. households without land, there is more or less a continuously increasing average size of the household.

⁶ These classes are known as 'balutedars' according to the traditional hierarchy of village set-up.

6.5 Comparative view of budget proportions

The following comments are based on the tables which outline the regional differences. The income effect has been eliminated and the consumer expenditure has been classified into three regions.

The dominant position of cereals is evident from the fact that about half of the household budget is spent on the consumption of cereals. Then follows the expenditure on clothing, which comes to ten percent of the budget. The higher average family expenditure on milk and milk products in the first region, namely, Pathar or a plateau is to be expected since the facilities of pasture and relatively a larger size of the livestock are the notable features of this region. In contrast to this, the average family expenditure on pulses is much less in the first region in comparison with the other two regions.

The relative share of vegetables is about one percent in the overall budget. The percentage share of expenditure on 'meat-fish etc.' is hardly one percent in the first region as compared to two to three percent in the other two regions.

The budget proportion spent on oil and oil products is somewhat higher, about six percent, in the first region. The percentage share of fuel and lighting in the third region viz. Mula valley is higher at about five percent

as compared to the other two regions.

The average consumer expenditure on tea is little over double in the second region, viz., Pravara valley than that in the other two regions.

The low average expenditure on education is explained by the State policy which bears the cost of education of a tribal society.

A relatively higher level of living in the first region which is a plateau in the north west as compared to the other two regions, namely, Pravara and Mula valleys is seen from the fact that the average household consumer expenditure for the period of 30 days is higher by about twenty rupees at Rs. 138.

The differences in the average size of the household in three regions are significant. In the first region the average size is as high as 6.45 and in the third region it is comparatively low at 5.58. For the region as a whole on an average the tribal household consists of six persons. This results into lessening the household income differences when per capita basis is adopted in the classification of consumer expenditure. Still the difference in per capita averages of consumer expenditure for the period of 30 days between the first region and all the three regions combined is as much as Rs. 1.16. Out of this, nearly one rupee margin is accounted by the difference

in consumer expenditure on cereal group alone.

At the household level, the higher expenditure of Rs. 12 on milk and milk products in the first region is already commented upon. A relatively higher amount of Rs. 6 on fuel and lighting group in the third region is on account of dense forest area which indicates greater availability of firewood rather than more household requirement or actual expenditure.

REGIONWISE PERCENTAGE DISTRIBUTION OF GROUPED ITEMS OF EXPENDITURE TO THE TOTAL FAMILY EXPENDITURE

Groups of items of consumption	Percentage distribution			All regions together
	I Region	II Region	III Region	
1. Cereals	52.02	49.13	49.21	49.81
2. Pulses	4.87	8.04	8.08	7.36
3. Milk and Milk Products	8.64	7.36	7.06	7.53
4. Vegetables	0.92	1.09	1.06	1.04
5. Meat, fish, etc.	0.96	2.34	2.94	2.26
6. Oil and Oil Products	5.94	5.02	5.20	5.29
7. Condiments and Spices	2.19	3.00	2.80	2.99
8. Fuel and Lighting	3.83	2.83	5.12	3.91
9. Tea	0.88	2.04	0.76	1.30
10. Sugar and gur	3.01	2.69	2.96	2.99
11. Pan-supari	1.07	0.42	0.54	0.61
12. Tobacco and tobacco products	2.88	3.51	1.83	2.74
13. Miscellaneous	1.54	1.68	1.36	1.61
14. Education	0.22	0.15	0.24	0.20
15. Clothing	10.44	10.05	10.64	10.36
Total Family Expenditure	100.00	100.00	100.00	100.00

6.6 General features of levels of living

The general features of levels of living may be presented here:

(1) For all commodity groups, average household consumer expenditure rises at higher levels of income. The rise appears more pronounced in respect of major commodity groups such as cereals; milk and milk products and clothing when consumer expenditure is classified in terms of household-unit. These apparent differences are considerably reduced when consumer expenditure is analysed in terms of per capita units.

(2) Out of nine household income classes there is a definite change in levels of living usually at the sixth income class, i.e. Rs. 116 and more. The average household consumer expenditure for all classes is exceeded for most of the commodity groups from the seventh income class, i.e. Rs. 133 and more, exception being that of tea only.

Whereas in terms of per capita consumer expenditure, the expenditure in the sixth income class is more or less equal to the general average expenditure for all classes and in subsequent classes, a certain downward trend is evident in majority of commodity groups. Of course, the major commodity groups like cereals and clothing continue to show an upward movement (a minor item like Pan-supari also shows the same tendency).

(3) As the average size of household increases at higher levels of income, the number of children increases in the highest income classes.

(4) The percentage expenditure spent on commodity groups like cereals, pulses, oil and oil products, fuel and lighting, declines as the average household expenditure increases. The commodity groups such as tea, sugar-gur, tobacco show a downward trend only after the sixth income class. In the case of other remaining commodity groups, there is a rising trend in percentage expenditure at the higher levels of incomes.

(5) It is necessary to take note of regional differences in the consumption pattern since different trends are found to have been present in the consumption patterns of the three regions. As in the case of milk and milk products, in the second region, percentage expenditure declines by two to three percent in the last two highest income classes from ten percent in the seventh income class and in the third region, the percentage expenditure increases continuously to eight percent in the highest income class.

6.7 Household Analysis⁷

6.7.1 C e r e a l s

The average household expenditure rises from the be-

⁷Please refer to Tables 6.1 to 6.8. All the tables are presented at the end of the chapter.

ginning in the range of Rs. 21 to Rs. 138 which is nearly a seven-fold increase. The average expenditure for all classes is Rs. 59 and in the highest income classes, i.e. Rs. 133 and above, the household expenditure is higher than the average for all classes.

In terms of percentage expenditure there is a certain decline in proportionate expenditure on cereals as the monthly household income increases. For all the classes the percentage expenditure is about 50% of the family budget. In the last two highest income classes, the budget proportion is somewhat higher. It may be noted here that these are usually the higher income groups with larger land-holdings. This possibly means that to the extent there is a higher level of cereal consumption, the marketable surplus of the larger family-holdings is thereby correspondingly reduced. This is likely to produce, of course, a marginal effect on the behaviour of marketing of rice.

Regional comparison

The consumption pattern is characterized by the rising level of expenditure on cereals in all the three regions. In the third region, the range of increase is narrower than the other two regions. Here the expenditure is the lowest, Rs. 19, and this is 55% of the budget. The movement of percentage expenditures at higher levels of income is

declining. In the third region, as compared to the other two regions, the three lowest income classes, i.e. Rs.83.00 and less, have to spend about 55% of the budget on cereal consumption indicating a lower level of living. The three highest income classes show a distinctly higher cereal consumption than the average level for all classes.

6.7.2 P u l s e s

The household expenditure on pulses rises from the beginning in the range of Rs. 4.00 to Rs. 16.00, which is a four-fold increase. The average expenditure is Rs. 9 for all classes and this is exceeded in the last four highest income classes.

In terms of percentage expenditure, the households in the initial income class spend about 10% of the budget. This percentage expenditure in subsequent income classes slowly declines and it is around 7% for all classes.

Regional comparison

The range of increasing expenditure on pulses is wider in the third region. The amount of expenditure on pulses is much less in the three lowest income classes, by about three rupees, as compared to that in the other two regions. This can be interpreted as inequality in consumption of pulses is more in the third region, namely, Mula valley.

In all the three regions, the average household expenditure increases at higher levels of income. In the second region the proportionate expenditure more or less decreases. Whereas in the third region, it shows a rising tendency. Thus, the behaviour of household expenditure on pulses in Mula valley is somewhat different from the rest of the region.

6.7.3 Milk and Milk Products

The household expenditure rises from the beginning in the range of Rs. 2.00 to Rs. 20.00 and the average for all classes is Rs. 9.00. This average level is exceeded in the last four highest income classes.

The percentage expenditure increases at higher levels of income in the range of 6% to 8%. In the highest four income classes the average percentage expenditure is little more than 8%.

Regional comparison

In the first region the average household expenditure is higher, Rs. 12.00, as compared to the other two regions wherein it is Rs. 8.00. In the first region the general level of consumption is higher in all classes and the range of increase is from Rs. 5.00 to Rs. 28.00. In the second and the third regions, the corresponding range of

increase is from Rs. 3.00 to Rs. 17.00 and from Rs. 2.00 to Rs. 20.00 respectively. The higher level of milk consumption in the first region is to be expected since this part is traditionally known for rich livestock. In the second region the movement of consumer expenditure is stable. In terms of percentage expenditure it is stable around 6% upto the first five income classes and it is stable around 8% in the subsequent classes.

6.7.4 V e g e t a b l e s

The average household expenditure on vegetables is less than a rupee upto the fourth income class, i.e. less than Rs. 100.00. From the seventh class onwards, viz. Rs. 150.00 and above, it averages little over two rupees.

The movement of percentage expenditures shows a slow upward tendency upto the seventh income class and finally declines to about one percent of the budget.

Regional comparison

In the first region household expenditure moves upward and in the three highest income classes it is greater than the average expenditure for all classes. The percentage expenditure is little over one percent in the first five lowest income classes and it is stable around 0.90% in the subsequent classes.

In the second region the household expenditure increases

in the range of Rs. 0.25 to Rs. 2.30 upto the seventh income class and from then onwards it slowly declines. The percentage expenditure slowly moves upward and it is 1.69% in the seventh income class and then declines to half of it in the highest income class.

In the third region, the household expenditure increases in the range of Rs. 0.34 to Rs. 2.65 and the average expenditure for all classes comes to Rs. 1.26. The proportion of budget spent on vegetables group increases at higher levels of income upto the seventh income class and then there is a slow decline.

Among three regions the level of expenditure on vegetables is higher in the third region namely Mula valley.

6.7.5 Mutton, Fish etc.

The household expenditure starts increasing from the third income class and it is higher than two rupees. In the last three highest income classes the average expenditure is around four rupees. The percentage expenditure shows an upward movement and it is 3% in the seventh income class. In the subsequent classes it declines to a lower level.

Regional Comparison

In the first region the pattern of expenditure is

not regular. In the second region it is generally rising, and in the last three highest income classes the average expenditure is more than Rs. 2.50. In terms of percentage expenditure it is generally less than two percent even at the higher levels of income.

In the third region, the household expenditure rises continuously from Rs. 0.33 to Rs. 6.57 in the eighth income class and it is Rs. 5.21 in the highest income class. The percentage expenditure shows a declining tendency and from around 5% it comes down to 2% in the highest income class.

Thus the level of expenditure is higher in the third region, that is, Mula valley than that in the other two regions.

6.7.6 Oil and Oil Products

The household expenditure rises in the range of Rs. 1.74 to Rs. 11.58 and the average expenditure for all classes is Rs. 6.25. This average is exceeded from the sixth income class onwards. The percentage expenditure increases from 4% to 6% upto the eighth income class and in the highest income class, it declines to 4%.

Regional comparison

In the first region the household expenditure in-

creases in the range of Rs. 6.00 to Rs. 14.00 and the average expenditure, Rs. 8.00, is exceeded in the three highest income classes. The movement of percentage expenditure shows that it declines from 8% to 5% in the final income class.

In the third region the household expenditure increases in the range of Rs. 2.00 to Rs. 7.00 and in terms of percentage expenditure, even in the sixth income class it is minimum around 6% and in the highest income class, 3%.

In the third region the household expenditure increases in the range of Rs. 1.00 to Rs. 14.00 and in terms of percentage expenditure, the range of increase is 3% to little over 6%.

6.7.7 S p i c e s

The household expenditure increases in the range of Rs. 2.00 to Rs. 5.00, and the average expenditure for all classes, which is about Rs. 3.50, is exceeded in the last four income classes. The percentage expenditure declines at the higher levels of income, from 5% to less than 2%.

Regional comparison

In the first region the percentage expenditure declines at the higher levels of income from 3% to 1.35%. In the second region it rises upto the fifth income class

to the level of 6% and then tapers off to 2% in the highest income class. In the third region the percentage expenditure declines from 5% to 2%.

6.7.8 Fuel and Lighting

The household expenditure rises in the range of Rs. 2.00 to Rs. 7.00 and the average expenditure, Rs. 4.62 is exceeded from the fifth income class onwards.

The percentage expenditure declines from 5% to less than 3% at the higher level of income. This is to be expected since the expenditure on fuel group, being in the nature of overhead cost and a necessity of life with income elasticity less than unity, is bound to be a diminishing proportion of total expenditure.

Regional comparison

In the first region the range of increasing household expenditure is Rs. 3.00 to Rs. 7.00. The corresponding range of differences in expenditure in the second and the third region are Rs. 1.00 to Rs. 6.00 and Rs. 3.00 to Rs. 9.00 respectively.

The greater availability of firewood on account of easy access to dense forests in the third region, namely, Mula valley, explains the relatively higher level of expenditure on fuel group of commodities. It may be noted

here that this expenditure is not actually incurred, excepting of course on kerosene oil, since market values have been imputed to bundles of firewood, which are daily collected by the local people from neighbouring forests.

6.7.9 T e a

The average household expenditure rises upto Rs.3.00 in the sixth income class, and then starts declining at the higher levels of income. The percentage expenditure rises upto the sixth class to 2.50% and then finally declines to less than 1% at the highest level of income.

Regional comparison

In the first region, the household expenditure is generally rising though the range of difference is less than one and a half rupee. In the second region, the household expenditure rises upto the sixth income class, and then starts receding. The range of difference is about five and a half rupees. In the third region, the household expenditure is continuously rising, and is maximum in the highest income class with Rs. 2. The average expenditure for all classes is less than one rupee, as compared to a little over two rupees and one rupee in the second and the first region respectively.

In terms of percentage expenditure on tea, in the first region, it declines at the higher levels of income,

from 2% to a little over 1/2%. In the second region, it increases to 5% in the sixth income class, and then starts declining to less than 1% in the highest income class. In the third region, in all the income classes, excepting the seventh one, the budget proportion is less than 1%. This is the lowest proportionate expenditure on tea among all the three regions.

Thus, only in the second region, the level of expenditure on tea is higher, and also occupies a relatively important position in the family budget.

6.7.10 Sugar and Gur

The household expenditure on sugar and gur increases from less than one rupee to seven rupees in the highest income class with an average of Rs. 3.54 for all the classes. In terms of percentage expenditure, it rises from 2% to 4% in the sixth income class, and is around 3% in the successive income classes.

Regional comparison

In the first region, the proportionate expenditure remains stable around 4%, whereas in the second region, it is around less than 3%, and in the third, more than 3% for the last four higher income classes.

The level of expenditure is relatively higher in the

first region. But the position of expenditure on sugar and gur in the family budget is relatively less important as compared to the family budget in the other two regions.

6.7.11 Pan-Supari

The household expenditure on Pan-supari is quarter of a rupee for most of the income classes, and only in the last two higher income classes, it is more than a rupee. In terms of percentage expenditure, it moves from quarter of a percent to one percent in the highest income class.

Regional comparison

In the first region, the percentage expenditure is stable around one percent, in the second, it is less than half of a percent, and in the third, it is a little more than half of a percent, but in all the classes it is less than one percent.

The level of expenditure is higher in the first region relative to the other two regions. Also, the proportionate expenditure is higher in the first region as compared to the family budget in the other two regions.

A significant point to be noted here, is that in all the three regions, there is no expenditure incurred on Pan-supari at the lower levels of income. Relatively, in the last two highest income classes, it is an important item in the family budget.

6.7.12 Tobacco and Tobacco Products

The household expenditure rises from about one rupee to five rupees upto the seventh income class, and declines to a little less than five rupees in the subsequent classes. The proportionate expenditure shows that at the higher levels of income upto the sixth class, about 4% of the budget is spent, and in the last two higher classes, it is around 2%.

Regional comparison

In terms of budget proportions, in the first region, the percentage expenditure is 4% initially and slowly recedes to 2% in the seventh class, and finally, recovers to 3%. In the second region, the percentage expenditure increases from 2% to 6% in the seventh class, and declines to 3% in the last two classes. In the third region, it is generally stable around 2%.

In all the three regions, at the higher levels of income, a certain declining tendency is observed in the consumption of tobacco products. Relatively, the level of expenditure is higher in the second region. In the first and second regions, the absolute amount spent on tobacco products is relatively higher in the last three income classes.

6.7.13 Miscellaneous

The household expenditure on miscellaneous items moves upwards from half of a rupee to four and a half rupee at the highest level of income. In percentage terms, it is in the range of 1 to 2%.

Regional comparison

In all the three regions, there is a certain stability in the expenditure on miscellaneous group.

6.7.14 Education

The percentage expenditure on education is less than half of a percent. This is to be expected since education is a free item of the budget on account of the State policy towards the education of tribal community.

6.7.15 Clothing

The household expenditure on clothing rises from Rs. 4.0 to Rs. 9.0 at the higher levels of income, and the average household expenditure for all the classes is Rs. 12.0. In terms of budget proportions, there is a steady rise from about 8 1/2% to about 11 1/2%.

Regional comparison

In the first region, the proportionate expenditure is steady around 10%; in the second region, it increases

in the range of 8% to 12%; the third region follows a similar pattern as in the second.

6.8 Per Capita Analysis⁸

Among the 15 commodity groups, cereals group is prominent. In the first region, per capita expenditure on cereals rises from about Rs. 6 to Rs. 22. The expenditure in the highest income bracket may be ignored since it is based on one household. In the second and third regions the similar ranges of increase in expenditure are from Rs. 5 to Rs. 21 and from Rs. 6 to Rs. 19 respectively. Thus the average expenditure on cereals for all the three regions combined is Rs. 10, and the range of increase is from about Rs. 5.50 to Rs. 19.00, approximately three and half times rise from the initial level of expenditure. In the second region the similar rise is four-fold and in the third region three-fold.

The pattern of percentage distribution of expenditure shows a generally declining tendency at higher levels of income. In the first region this pattern is not consistent. Here the percentage expenditure initially rises from 56% to 61% and subsequently starts receding downward and finally in the highest income bracket it is 47%. In the second region the percentage expenditure declines

⁸ Please refer to Tables 6.9 to 6.16.

Inequality in consumption is elaborated with the help of concentration curves. The degree of inequality is indicated by the concentration ratio (R). For seven cereals concentration curves are separately presented at the end of tables.

from the initial level of 53% to 45% in the highest income bracket. In the third region, the corresponding range of decline is from 62% to 39%, though in both the second and the third regions, the average percentage expenditure on cereals group is 49% of the family budget.

The other prominent commodity group is clothing, which claims nearly ten and half percent of the family budget. In all the three regions the pattern of rising expenditure is similar. The general average expenditure rises from less than Rs. 1 to about Rs. 6. The percentage expenditure rises from 6% to 13% at the highest level of income. In all the three regions the percentage expenditure shows a rising tendency.

The average expenditure on pulses group rises from Re. 1 to Rs. 4, in the highest income bracket. The range of variations is similar in respect of Milk and Milk Products. The average per capita expenditure on spices group in the highest income classes is almost double the initial level of expenditure. For all the commodity groups, excepting cereals and clothing, the distribution of percentage expenditure is more or less stable with a noticeable upward bias at the higher levels of income.

It is clear from the analysis that the average expenditure for all classes is usually approximated in the seventh income class, i.e. Rs. 21.0 to Rs. 24.0, and from

the eighth income class onwards, i.e. Rs. 24.00 and above, the level of expenditure is distinctly higher than the earlier income classes.

In the first and the third region the average expenditure for all classes is exceeded from the seventh class onwards only in the second region, viz., the Pravara valley, it is exceeded from the earlier income class, the sixth one, which shows that as compared to the other two regions the level of living is somewhat higher in this region. The observation noted earlier, that is, in the second and third regions the increase in expenditure on cereals being four-fold and three-fold respectively, may be added here in this context.

In all the three regions the percentage expenditure on cereals declines and on clothing increases at the higher levels of income. The behaviour of consumer expenditure on cereals is in conformity with one of the Engel's budgetary laws, namely, "the greater the income, the smaller the percentage outlay for subsistence."⁹

⁹H.Gregg Lewis and Paul H.Douglas, "Studies in consumer expenditures - 1901, 1918-19, 1922-24". The University of Chicago Press, Chicago, Illinois. Second footnote on p.1.

Lewis and Douglas have commented, "The pioneer in statistical studies of family income and expenditures was Ernest Engel. After analysing a large number of budgets of Belgian workmen, together with a number of those collected by Le Play, Engel noted in 1857 that, on the average, the percentage of income spent on food decreased as income increased and that one could, therefore, estimate the economic status of a family by the percentage of its income spent on food." This became known as Engel's Law and has been corroborated for most communities and most ranges of income." p.1.

In the lowest income bracket, that is, Rs. 0.00 to Rs. 8.00 there are no households and also in the highest income bracket, that is, Rs. 55.00 and above, there is only one household.

6.9 Family Holdings Analysis¹⁰

It is evident that the holdings with 20 acres and above have a distinctly higher level of income which is reflected in the higher order of spending. The average expenditure for all classes is more or less approximated in the group of holdings with 15 acres to 20 acres.

The average expenditure on cereals group in the highest group of holdings is about double that of the first few holdings groups. The same is the order of increase in expenditure on clothing.

For most of the minor commodity groups the average household expenditure shows an upward movement, though slowly, at the higher levels of holdings.

In terms of percentage expenditures the movements at the higher level of holdings are not indicative of any consistent behaviour. In the case of cereals, it appears that for households with less than twenty acres of holdings the percentage expenditure is less than 50% but in

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Please refer to Tables 6.17 to 6.24.

the case of holdings with more than twenty acres the average percentage expenditure is around 51%. In the case of pulses, a certain downward tendency is observed in percentage expenditure at the higher levels of holdings. The second region indicates this pattern and in third region, only in the last two highest groups of holdings, viz. 30 acres and above, the percentage expenditure shows a definite fall. For the first two regions, namely Pathar and Pravara valley, there is no consistent pattern in the movements of percentage expenditures though the average household expenditure generally shows an upward movement at the higher groups of holdings.

In the third region, namely Mula valley, household expenditure on cereals moves in the range of Rs. 34 to Rs.124. In this region, household with holdings of 15 acres and above show a distinctly higher level of living. Spices and fuel and lighting groups indicate a generally decreasing movement of percentage expenditures.

The expenditure patterns for the three regions show that the households without land show more or less the same pattern as that of the households with holdings less than five acres. Thus the standard of living of landless households and village craftsmen is quite comparable with that of the small holders.

In the first region, namely Pathar, beside landless

households, there are no households with holdings less than five acres.

In the second region, namely Pravara valley, there are no households with holdings more than 30 acres.

TABLE 6.1 : CONSUMER EXPENDITURE (IN Rs. 0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY HOUSEHOLD EXPENDITURE CLASSES IN ALL THE THREE REGIONS COMBINED : NOVEMBER 1963 - OCTOBER 1964

Item No.	0.00- 50.00	50.00- 66.00	66.00- 83.00	83.00- 100.00	100.00- 116.00	116.00- 133.00	133.00- 150.00	150.00- 200.00	200.00- and above Group 9	All Groups
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	
1. Cereals	21.00	31.30	38.43	44.64	52.43	58.64	62.63	85.49	138.12	58.86
2. Pulses	4.06	5.04	5.30	6.62	8.49	9.11	11.63	13.07	15.51	8.69
3. Milk and Milk Products	2.43	3.40	4.58	6.16	7.87	10.49	11.53	14.37	20.11	8.90
4. Vegetables	0.32	0.54	0.73	0.89	1.15	1.32	2.00	1.84	2.35	1.23
5. Mutton, fish etc.	0.71	1.00	2.12	3.03	3.05	1.67	4.20	3.25	4.05	2.67
6. Oil and Oil Products	1.74	2.82	3.81	4.66	6.11	7.36	7.26	10.74	11.58	6.25
7. Spices	1.85	2.17	2.83	3.40	3.97	3.56	4.15	4.67	4.57	3.54
8. Fuel and Light- ing	2.01	2.58	3.34	3.96	5.45	5.05	4.81	6.46	7.01	4.62
9. SUGAR-Gur Tea	0.07	0.35	0.50	1.23	1.52	3.10	2.67	2.32	2.04	1.54
10. Pan-supari <i>Sugar-gur</i>	0.72	1.50	2.59	2.73	3.06	4.28	4.68	5.48	6.74	3.54
11. Pan-supari	0.00	0.25	0.18	0.37	0.28	0.69	0.84	1.60	2.55	0.72
12. Tobacco	0.95	0.90	2.03	3.00	3.02	3.99	5.34	4.80	4.87	3.24
13. Miscellaneous	0.60	0.55	1.25	1.35	1.36	2.03	2.55	3.35	4.44	1.90
14. Education	0.00	0.00	0.05	0.10	0.36	0.26	0.39	0.10	0.83	0.23
15. Clothing	3.56	4.84	7.34	8.70	10.93	12.50	15.40	18.64	29.12	12.24
Total	40.01	57.24	74.98	90.84	109.05	124.05	140.08	176.18	253.89	118.17
Families	15	18	27	34	34	22	19	22	21	212
Persons	37.00	69.00	127.00	178.00	187.00	139.00	109.00	178.00	211.00	1235.00
Average family size	2.46	3.83	4.70	5.23	5.50	6.31	5.73	8.09	10.04	5.82

TABLE 6.2 : CONSUMER EXPENDITURE (IN Rs. 0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY HOUSEHOLD EXPENDITURE CLASSES IN THE FIRST REGION, VIZ. PATHAR : NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	50.00-	66.00-	83.00-	100.00-	116.00-	133.00-	150.00-	200.00	All Groups
	50.00	66.00	83.00	100.00	116.00	133.00	150.00	200.00	& above	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	
1. Cereals	0.00	27.64	48.42	42.67	57.11	63.40	78.24	89.40	156.69	71.95
2. Pulses	0.00	2.17	2.86	4.19	6.04	6.68	5.34	9.44	10.78	6.74
3. Milk & Milk Products	0.00	4.83	4.18	7.57	8.02	11.43	8.45	16.35	27.86	11.95
4. Vegetables	0.00	1.03	0.52	0.93	1.18	0.85	1.28	1.55	2.56	1.26
5. Mutton, fish etc.	0.00	0.00	1.96	0.93	1.91	0.33	1.75	0.89	2.83	1.32
6. Oil & Oil Products	0.00	6.83	5.82	6.51	7.60	6.73	7.92	9.65	13.69	8.21
7. Spices	0.00	1.91	2.36	2.79	2.88	2.93	3.26	3.37	3.81	3.03
8. Fuel & Lighting	0.00	3.76	3.02	4.28	4.98	5.39	5.58	6.34	6.78	5.30
9. Tea	0.00	1.35	0.50	0.97	1.19	1.00	1.40	1.44	1.77	1.21
10. Sugar-Gur	0.00	2.79	4.30	3.53	4.19	4.49	5.38	6.27	8.15	4.99
11. Pan-supari	0.00	2.36	0.00	1.17	0.00	1.16	1.32	2.93	3.84	1.47
12. Tobacco	0.00	0.92	3.30	3.59	2.92	3.19	2.81	5.55	7.12	3.98
13. Miscellaneous	0.00	0.00	1.31	1.63	1.62	1.77	1.79	3.49	3.26	2.14
14. Education	0.00	0.00	0.00	0.03	0.09	0.07	0.41	0.00	2.39	0.30
15. Clothing	0.00	7.81	5.84	10.62	10.70	12.68	13.97	18.80	30.10	14.44
Total	0.00	63.40	76.39	91.41	110.43	122.10	139.90	175.47	281.63	138.29
Families	0	1	2	6	10	7	2	8	4	40.
Persons	0.00	2.00	9.00	22.00	59.00	39.00	14.00	64.00	49.00	258.00
Average family size	0.00	2.00	4.50	3.66	5.90	5.57	7.00	8.00	12.25	6.45

TABLE 6.3 : CONSUMER EXPENDITURE (IN RS.0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY HOUSEHOLD EXPENDITURE CLASSES IN THE SECOND REGION: VIZ. PRAVARA VALLEY: NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	50.00-	66.00-	83.00-	100.00-	116.00-	133.00-	150.00-	200.00	All Groups
	50.00	66.00	83.00	100.00	116.00	133.00	150.00	200.00	& above	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	
1. Cereals	22.79	28.70	36.52	42.47	48.47	55.64	61.16	78.24	149.88	53.74
2. Pulses	5.54	6.63	5.97	7.81	9.29	9.71	9.75	15.15	14.49	8.79
3. Milk & Milk Products	2.82	3.40	4.68	5.47	8.93	10.66	13.22	13.66	16.53	8.85
4. Vegetables	0.28	0.43	0.74	0.94	1.28	1.65	2.36	1.93	1.81	1.19
5. Mutton, fish etc.	1.05	1.16	2.61	4.31	2.00	1.27	4.10	2.63	3.08	2.56
6. Oil & Oil Products	2.05	3.00	4.02	5.01	5.88	7.39	5.54	12.15	7.27	5.49
7. Spices	2.06	2.28	2.96	3.86	6.17	3.81	4.75	6.07	4.36	3.94
8. Fuel & Lighting	1.36	1.61	2.62	2.37	3.53	4.21	3.42	6.10	4.21	3.10
9. Tea	0.11	0.17	0.44	1.67	3.07	5.69	3.94	4.42	2.24	2.23
10. Sugar-Gur	0.92	1.34	2.45	2.57	2.28	3.83	4.61	4.64	5.38	2.94
11. Pan-supari	0.00	0.00	0.31	0.17	0.25	0.53	0.84	0.74	2.04	0.46
12. Tobacco	1.24	0.84	1.98	3.45	4.43	5.00	8.62	5.47	5.80	3.84
13. Miscellaneous	0.61	0.58	1.16	1.26	1.64	1.94	2.84	3.42	5.17	1.84
14. Education	0.00	0.00	0.03	0.20	0.22	0.52	0.21	0.33	0.00	0.17
15. Clothing	3.96	4.44	7.47	7.97	11.28	11.88	14.38	18.20	29.65	10.99
Totaling	44.79	54.58	73.96	89.53	108.72	123.73	139.74	183.15	253.04	109.33
Families	8	10	16	15	11	10	9	7	7	93
Persons	21.00	38.00	74.00	86.00	60.00	75.00	57.00	61.00	68.00	536.00
Average family size	2.62	3.80	4.62	5.73	5.45	7.10	6.33	8.71	9.71	5.76

TABLE 6.4 : CONSUMER EXPENDITURE (IN Rs.0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY HOUSEHOLD EXPENDITURE CLASSES IN THE THIRD REGION, VIZ. MULA VALLEY: NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	50.00-	66.00-	83.00-	100.00-	116.00-	133.00-	150.00-	200.00-	All Groups
	50.00	66.00	83.00	100.00	116.00	133.00	150.00	200.00 & above		
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	
1. Cereals	18.95	35.52	41.38	48.06	52.17	57.95	60.39	78.26	122.47	58.25
2. Pulses	2.38	3.18	4.66	6.37	9.69	11.33	15.30	15.13	18.12	9.57
3. Milk & Milk Products	1.98	3.20	4.49	6.29	6.85	8.85	10.40	12.82	19.52	8.35
4. Vegetables	0.34	0.63	0.76	0.81	1.02	1.34	1.77	2.10	2.65	1.26
5. Mutton, fish etc.	0.33	0.92	1.28	2.54	4.82	4.36	4.92	6.57	5.21	3.48
6. Oil & Oil Products	1.39	1.99	2.99	3.40	5.15	8.18	9.04	10.58	13.74	6.16
7. Spices	1.60	2.05	2.72	3.15	2.95	3.93	3.69	4.77	5.02	3.32
8. Fuel & Lighting	2.75	3.81	4.70	5.66	7.44	6.28	6.18	6.97	9.05	6.06
9. Tea	0.02	0.45	0.59	0.83	0.47	0.86	1.55	1.22	2.00	0.69
10. Sugar-Gur	0.50	1.55	2.45	2.56	2.86	4.87	4.59	5.41	7.13	3.51
11. Pan-supari	0.00	0.32	0.00	0.24	0.53	0.36	0.73	0.92	2.40	0.64
12. Tobacco	0.63	0.99	1.83	2.20	1.90	3.07	2.29	3.27	3.32	2.16
13. Miscellaneous	0.59	0.59	1.09	1.32	0.94	2.60	2.40	3.13	4.40	1.84
14. Education	0.00	0.00	0.11	0.01	0.68	0.00	0.59	0.00	0.78	0.28
15. Clothing	3.11	4.99	7.44	8.66	10.81	13.48	16.90	18.90	28.36	12.60
Total	34.57	60.19	76.49	92.10	108.28	127.46	140.74	170.05	244.17	118.37
Families	7	7	9	13	13	5	8	7	10	79
Persons	16.00	29.00	44.00	70.00	68.00	29.00	38.00	53.00	94.00	441.00
Average family size	2.28	4.14	4.88	5.38	5.23	5.80	4.75	7.57	9.40	5.58

TABLE 6.5 : PERCENTAGE DISTRIBUTION OF CONSUMER EXPENDITURE (IN Rs. 0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY HOUSEHOLD EXPENDITURE CLASSES IN ALL THE THREE REGIONS COMBINED, NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	50.00-	67.00-	83.00-	100.00-	116.00-	133.00-	150.00-	200.00	All classes & above combined
	50.00	67.00	83.00	100.00	116.00	133.00	150.00	200.00	Group 9	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	
1. Cereals	52.47	54.65	51.26	49.14	48.07	47.27	44.71	48.52	54.40	49.81
2. Pulses	10.16	8.81	7.07	7.29	7.78	7.35	8.30	7.42	6.11	7.36
3. Milk & Milk Products	6.07	5.94	6.11	6.78	7.21	8.46	8.23	8.16	7.92	7.53
4. Vegetables	0.77	0.95	0.97	0.98	1.06	1.07	1.43	1.05	0.93	1.04
5. Mutton, fish etc.	1.78	1.75	2.82	3.34	2.80	1.35	3.00	1.85	1.59	2.26
6. Oil & Oil Products	4.35	4.93	5.08	5.13	5.60	5.93	5.19	6.09	4.56	5.29
7. Spices	4.62	3.79	3.78	3.75	3.64	2.87	2.96	2.65	1.80	2.99
8. Fuel & Lighting	5.03	4.51	4.46	4.36	5.00	4.07	3.43	3.67	2.76	3.91
9. Tea	0.16	0.60	0.66	1.35	1.39	2.50	1.90	1.32	0.80	1.30
10. Sugar-Gur	1.81	2.63	3.45	3.01	2.81	3.45	3.34	3.11	2.66	2.99
11. Pan-supari	0.00	0.44	0.24	0.41	0.26	0.56	0.60	0.91	1.01	0.61
12. Tobacco	2.38	1.58	2.70	3.30	2.77	3.21	3.82	2.72	1.92	2.74
13. Miscellaneous	1.50	0.96	1.53	1.48	1.25	1.64	1.82	1.90	1.75	1.61
14. Education	0.00	0.00	0.07	0.11	0.33	0.21	0.28	0.06	0.33	0.20
15. Clothing	8.90	8.45	9.79	9.58	10.02	10.07	10.99	10.58	11.47	10.36
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Families	15	18	27	34	34	22	19	22	21	212
Persons	37.00	69.00	127.00	178.00	187.00	139.00	109.00	178.00	211.00	1235.00

TABLE 6.6 : PERCENTAGE DISTRIBUTION OF CONSUMER EXPENDITURE (IN RS.0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY HOUSEHOLD EXPENDITURE CLASSES IN THE FIRST REGION, VIZ. PATHAR, NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	50.00-	67.00	83.00-	100.00-	116.00	133.00-	150.00	200.00	All classes & above combined
	50.00	67.00	83.00	100.00	116.00	133.00	150.00	200.00		
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	
1. Cereals	0.00	43.61	52.92	46.68	51.72	51.92	56.33	50.95	55.63	52.02
2. Pulses	0.00	3.42	3.75	4.59	5.47	5.47	3.85	5.38	3.83	4.87
3. Milk & Milk Products	0.00	5.47	8.29	7.26	9.36	6.08	9.32	9.89	8.64	8.64
4. Vegetables	0.00	1.62	0.68	1.02	2.07	0.69	0.92	0.88	0.91	0.91
5. Mutton, fish etc.	0.00	0.00	2.56	1.02	1.73	0.27	1.26	0.51	1.01	0.96
6. Oil & Oil Products	0.00	10.77	7.61	7.13	6.88	5.51	5.71	5.50	4.86	5.94
7. Spices	0.00	3.01	3.08	3.05	2.60	2.40	2.35	1.92	1.35	2.19
8. Fuel & Lighting	0.00	5.94	3.95	4.68	4.51	4.41	4.02	3.61	2.41	3.83
9. Tea	0.00	2.14	0.66	1.06	1.08	0.82	1.00	0.82	0.63	0.88
10. Sugar-Gur	0.00	4.40	5.63	3.86	3.79	3.68	3.87	3.58	2.89	3.61
11. Pan-supari	0.00	3.73	0.00	1.28	0.00	0.95	0.95	1.67	1.36	1.07
12. Tobacco	0.00	1.44	4.33	3.93	2.65	2.62	2.02	3.16	2.53	2.88
13. Miscellaneous	0.00	0.00	1.71	1.78	1.46	1.45	1.29	1.99	1.16	1.54
14. Education	0.00	0.00	0.00	0.03	0.08	0.06	0.30	0.00	0.85	0.22
15. Clothing	0.00	12.32	7.64	11.61	9.69	10.39	10.06	10.71	10.69	10.44
Total	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Families	0	1	2	6	10	7	2	8	4	40
Persons		2.00	9.00	22.00	59.00	39.00	14.00	64.00	49.00	258.00

TABLE 6.7 : PERCENTAGE DISTRIBUTION OF CONSUMER EXPENDITURE (IN Rs. 0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY HOUSEHOLD EXPENDITURE CLASSES IN THE SECOND REGION, VIZ. PRAVARA VALLEY: NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	50.00-	66.00-	83.00-	100.00-	116.00-	133.00-	150.00-	200.00	All Groups
	50.00	66.00	83.00	100.00	116.00	133.00	150.00	200.00	& above	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	
1. Cereals	50.91	52.58	49.38	47.44	44.58	44.97	43.76	48.18	59.50	49.16
2. Pulses	12.36	12.15	8.08	8.72	8.55	7.85	6.98	8.27	5.75	8.04
3. Milk & Milk Products	6.30	6.24	6.33	6.11	8.22	8.61	9.46	7.46	6.56	7.36
4. Vegetables	0.63	0.79	1.00	1.05	1.18	1.33	1.69	1.05	0.72	1.09
5. Mutton, fish etc.	2.34	2.13	3.53	4.81	1.84	1.02	2.93	1.44	1.22	2.34
6. Oil & Oil Products	4.58	5.50	5.43	5.60	5.41	5.97	3.96	6.63	2.88	5.02
7. Spices	4.60	4.18	4.00	4.31	5.67	3.08	3.40	3.32	1.73	3.60
8. Fuel & Lighting	3.04	2.94	3.54	2.64	3.24	3.40	2.45	3.33	1.67	2.83
9. Tea	0.24	0.32	0.60	1.87	2.82	4.60	2.82	2.41	0.89	2.04
10. Sugar-Gur	2.05	2.46	3.31	2.87	2.10	3.10	3.30	2.53	2.14	2.69
11. Pan-supari	0.00	0.00	0.42	0.19	0.23	0.43	0.60	0.40	0.81	0.42
12. Tobacco	2.76	1.54	2.67	3.85	4.07	4.04	6.17	2.98	2.30	3.51
13. Miscellaneous	1.35	1.05	1.57	1.41	1.51	1.57	2.04	1.87	2.05	1.68
14. Education	0.00	0.00	0.04	0.23	0.20	0.42	0.15	0.18	0.00	0.15
15. Clothing	8.83	8.13	10.11	8.91	1.38	9.60	10.29	9.94	11.77	10.06
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Families	8	10	16	15	11	10	9	7	7	93
Persons	21.00	38.00	74.00	86.00	60.00	71.00	57.00	61.00	68.00	536.00

TABLE 6.8: PERCENTAGE DISTRIBUTION OF CONSUMER EXPENDITURE (IN RS.0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY-HOUSEHOLD EXPENDITURE CLASSES IN THE THIRD REGION, VIZ. MULA VALLEY: NOVEMBER 1963 TO OCTOBER 1964

Item	0.00- 50.00	50.00 66.00	66.00- 83.00	83.00- 100.00	100.00- 116.00	116.00 133.00	133.00- 150.00	150.00- 200.00	200.00 & above	All Groups
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	
1. Cereals	54.79	59.01	54.11	52.18	48.18	45.47	42.91	46.02	50.16	49.21
2. Pulses	6.89	5.28	6.09	6.91	8.95	8.89	10.87	8.90	7.42	8.08
3. Milk & Milk Products	5.74	5.31	5.88	6.83	6.32	6.94	7.39	7.54	8.00	7.06
4. Vegetables	0.98	1.05	0.99	0.88	0.94	1.05	1.26	1.23	1.08	1.06
5. Mutton, fish etc.	0.95	1.53	1.67	2.76	4.45	3.42	3.50	3.86	2.13	2.94
6. Oil & Oil Products	4.02	3.30	3.91	3.69	4.76	6.42	6.43	6.22	5.63	5.20
7. Spices	4.63	3.41	3.55	3.42	2.72	3.09	2.62	2.81	2.06	2.80
8. Fuel & Lighting	7.97	6.33	6.15	6.14	6.87	4.92	4.39	4.10	3.71	5.12
9. Tea	0.05	0.74	0.78	0.90	0.43	0.68	1.10	0.72	0.82	0.76
10. Sugar-Gur	1.45	2.57	3.20	2.78	2.64	3.82	3.26	3.18	2.92	2.96
11. Pan-supari	0.00	0.53	0.00	0.26	0.49	0.28	0.52	0.54	0.98	0.54
12. Tobacco	1.82	1.65	2.39	2.39	1.76	2.41	1.63	1.92	1.36	1.83
13. Miscellaneous	1.71	0.99	1.42	1.43	0.87	2.04	1.70	1.84	1.80	1.56
14. Education	0.00	0.00	0.14	0.01	0.62	0.00	0.42	0.00	0.32	0.24
15. Clothing	9.00	8.29	9.73	9.40	9.99	10.58	12.01	11.12	11.61	10.64
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Families	7	7	9	13	13	5	8	7	10	79
Persons	16.00	29.00	44.00	70.00	68.00	29.00	38.00	53.00	94.00	441.00

TABLE 6.9 : CONSUMER EXPENDITURE (IN RS.0.00) PER PERSON FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF EXPENDITURE AND BY MONTHLY PER CAPITA EXPENDITURE CLASSES IN ALL THE THREE REGIONS COMBINED: NOVEMBER 1963 - OCTOBER 1964

Item	0.00-	8.00-	11.00-	13.00-	15.00-	18.00-	21.00-	24.00-	28.00-	34.00-	43.00-	55.00 &	All Classes combined
	8.00	11.00	13.00	15.00	18.00	21.00	24.00	28.00	34.00	43.00	55.00	above	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12	
1. Cereals	0.00	5.52	6.22	8.03	8.51	9.51	10.44	12.48	14.41	19.45	19.08	30.62	10.10
2. Pulses	0.00	0.95	1.03	0.93	1.02	1.28	1.71	2.07	1.93	2.95	4.73	3.77	1.49
3. Milk & Milk Products	0.00	0.64	0.95	0.99	1.16	1.45	1.57	1.98	2.53	2.86	4.01	8.08	1.53
4. Vegetables	0.00	0.07	0.11	0.12	0.18	0.24	0.27	0.25	0.31	0.40	0.61	0.77	0.21
5. Mutton, fish etc.	0.00	0.26	0.22	0.21	0.27	0.39	0.77	0.64	0.65	0.82	1.46	0.00	0.46
6. Oil & Oil Products	0.00	0.51	0.74	0.60	0.82	1.11	1.27	1.29	1.55	1.78	3.87	6.94	1.07
7. Spices	0.00	0.42	0.44	0.50	0.59	0.55	0.62	0.67	0.96	0.78	1.03	0.95	0.61
8. Fuel & Lighting	0.00	0.31	0.50	0.67	0.63	0.81	1.13	0.86	1.21	1.25	2.27	2.26	0.79
9. Tea	0.00	0.06	0.17	0.08	0.20	0.30	0.34	0.32	0.59	0.34	0.44	0.49	0.26
10. Sugar-Gur	0.00	0.27	0.35	0.39	0.53	0.70	0.62	0.77	0.89	1.02	1.21	2.27	0.61
11. Pan-superi	0.00	0.02	0.03	0.09	0.11	0.11	0.07	0.13	0.33	0.29	0.31	1.55	0.12
12. Tobacco	0.00	0.20	0.33	0.24	0.43	0.63	0.56	0.77	0.93	0.96	1.53	1.97	0.56
13. Miscellaneous	0.00	0.07	0.19	0.16	0.24	0.30	0.36	0.47	0.63	0.54	1.03	0.66	0.33
14. Education	0.00	0.00	0.01	0.01	0.05	0.03	0.17	0.05	0.00	0.00	0.00	0.00	0.04
15. Clothing	0.00	0.63	0.79	1.01	1.51	1.89	2.33	3.04	3.82	4.86	6.21	5.48	2.10
Total	0.00	9.93	12.08	14.03	16.25	19.30	22.23	25.79	30.64	38.30	47.79	65.81	20.28
Families	0	15	17	17	32	24	27	37	23	15	4	1	212
Persons	0.00	125.00	130.00	109.00	199.00	156.00	139.00	190.00	112.00	63.00	9.00	3.00	1235.00
Average family size	0.00	8.3	7.6	6.4	6.2	6.5	5.1	5.1	4.9	4.2	2.3	3.0	5.8

TABLE 10 : CONSUMER EXPENDITURE (IN Rs. 0.00) PER PERSON FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF EXPENDITURE AND BY MONTHLY PER CAPITA EXPENDITURE CLASSES IN THE FIRST REGION, VIZ. PATHAR : NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	8.00-	11.00-	13.00	15.00-	18.00-	21.00-	24.00-	28.00-	34.00-	43.00-	55.00	All Groups
	8.00	11.00	13.00	15.00	18.00	21.00	24.00	28.00	34.00	43.00	55.00	& above	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12	
1. Cereals	0.00	5.85	7.18	8.98	8.48	10.22	11.81	12.60	13.88	22.40	0.00	30.62	11.15
2. Pulses	0.00	0.66	0.58	0.50	0.64	0.83	0.96	1.33	1.91	2.12	0.00	3.77	1.04
3. Milk & Milk Products	0.00	0.50	1.02	0.90	1.45	1.59	1.71	2.84	2.42	2.95	0.00	8.08	1.85
4. Vegetables	0.00	0.11	0.15	0.07	0.17	0.21	0.20	0.22	0.27	0.15	0.00	0.77	0.20
5. Mutton, fish etc.	0.00	0.33	0.31	0.13	0.17	0.06	0.29	0.04	0.52	0.34	0.00	0.00	0.21
6. Oil & Oil Products	0.00	0.57	0.65	0.90	0.98	1.16	1.28	1.62	1.85	1.66	0.00	6.94	1.27
7. Spices	0.00	0.24	0.26	0.31	0.34	0.41	0.51	0.64	0.79	0.68	0.00	0.95	0.47
8. Fuel & Lighting	0.00	0.53	0.48	0.57	0.56	0.69	1.07	1.11	1.32	1.13	0.00	2.26	0.82
9. Tea	0.00	0.14	0.09	0.08	0.13	0.16	0.18	0.27	0.34	0.25	0.00	0.49	0.19
10. Sugar-Gur	0.00	0.46	0.36	0.54	0.67	0.73	0.90	0.92	1.09	0.97	0.00	2.27	0.77
11. Pan-supari	0.00	0.00	0.13	0.00	0.25	0.13	0.00	0.21	0.39	0.63	0.00	1.55	0.23
12. Tobacco	0.00	0.38	0.34	0.48	0.43	0.86	0.56	0.79	0.59	0.73	0.00	1.97	0.62
13. Miscellaneous	0.00	0.16	0.28	0.28	0.26	0.32	0.29	0.37	0.59	0.34	0.00	0.66	0.33
14. Education	0.00	0.00	0.00	0.06	0.11	0.04	0.00	0.05	0.01	0.00	0.00	0.00	0.05
15. Clothing	0.00	0.52	0.73	1.03	1.47	1.79	2.40	3.10	3.86	5.27	0.00	5.48	2.24
Total	0.00	10.45	23.01	14.83	16.11	19.20	41.36	26.11	29.83	39.62	0.00	65.81	21.44
Families	0.00	1	2	1	7	7	4	7	7	3	0	1	40
Persons	0.00	11.00	23.00	8.00	66.00	51.00	20.00	32.00	26.00	18.00	0.00	3.00	258.00
Average Family Size	0.00	11.00	11.5	8.0	9.4	7.3	5.0	4.6	3.7	6.0	0.00	3.0	6.5

TABLE 6.11 : CONSUMER EXPENDITURE (IN RS.0.00) PER PERSON FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF EXPENDITURE AND BY MONTHLY PER CAPITA EXPENDITURE CLASSES IN THE SECOND REGION, VIZ. PRAVARA VALLEY; NOVEMBER 1963 TO OCTOBER 1964

Item	0.00- 8.00	8.00- 11.00	11.00- 13.00	13.00- 15.00	15.00- 18.00	18.00- 21.00	21.00- 24.00	24.00- 28.00	28.00- 34.00	34.00- 43.00	43.00- 55.00	55.00 & above	All classes combined
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12	
1. Cereals	0.00	5.25	5.43	6.90	7.80	9.27	10.07	13.44	15.17	15.51	20.98	0.00	9.32
2. Pulses	0.00	1.10	1.27	1.32	1.47	1.31	1.60	1.95	1.51	3.12	3.67	0.00	1.53
3. Milk & Milk Products	0.00	0.71	1.02	1.62	1.14	1.34	1.56	1.78	2.21	2.44	3.70	0.00	1.40
4. Vegetables	0.00	0.06	0.11	0.11	0.21	0.30	0.39	0.23	0.33	0.26	0.61	0.00	0.21
5. Mutton, fish etc.	0.00	0.29	0.22	0.31	0.50	0.46	0.66	0.52	0.37	1.14	2.20	0.00	0.44
6. Oil & Oil Products	0.00	0.54	0.88	0.85	0.93	1.22	1.24	2.01	1.07	1.19	2.26	0.00	0.95
7. Spices	0.00	0.44	0.50	0.55	0.82	0.69	0.72	0.66	1.35	0.94	0.89	0.00	0.68
8. Fuel & Lighting	0.00	0.22	0.48	0.37	0.56	0.55	0.82	0.57	0.68	1.10	1.88	0.00	0.54
9. Tea	0.00	0.06	0.24	0.07	0.32	0.62	0.71	0.39	1.02	0.48	0.06	0.00	0.39
10. Sugar-Gur	0.00	0.27	0.41	0.36	0.35	0.69	0.62	0.67	0.68	0.86	0.60	0.00	0.51
11. Pan-supari	0.00	0.03	0.01	0.09	0.04	0.09	0.04	0.16	0.25	0.00	0.00	0.00	0.08
12. Tobacco	0.00	0.21	0.36	0.32	0.55	0.61	0.81	0.85	1.66	1.56	3.60	0.00	0.67
13. Miscellaneous	0.00	0.06	0.19	0.16	0.24	0.28	0.47	0.52	0.61	0.56	1.23	0.00	0.32
14. Education	0.00	0.00	0.00	0.01	0.04	0.04	0.18	0.00	0.00	0.00	0.00	0.00	0.03
15. Clothing	0.00	0.60	0.80	1.05	1.60	1.99	2.30	3.09	3.36	4.36	5.34	0.00	1.91
Total	0.00	9.84	11.92	14.09	16.57	19.46	22.19	25.84	30.37	35.52	47.02	0.00	18.98
Families	0.00	10	11	6	13	9	11	18	7	7	1	0	93
Persons	0.00	87.00	82.00	35.00	65.00	52.00	54.00	100.00	40.00	20.00	1.00	0.00	536.00
Average family size	0.00	8.7	7.5	5.8	5.0	5.7	4.9	5.6	5.7	2.8	1.0	0.0	5.8

TABLE 6.12 : CONSUMER EXPENDITURE (IN RS.0.00) PER PERSON FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF EXPENDITURE AND BY MONTHLY PER CAPITA EXPENDITURE CLASSES IN THE THIRD REGION, VIZ. MULA VALLEY : NOVEMBER 1963 TO OCTOBER 1964

Items	0.00-	8.00-	11.00-	13.00	15.00-	18.00-	21.00-	24.00-	28.00-	34.00-	48.00-	55.00-	All classes & above combined
	8.00	11.00	13.00	15.00	18.00	21.00	24.00	28.00	34.00	43.00	55.00		
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12	
1. Cereals	0.00	6.27	7.95	8.51	9.22	9.07	10.32	10.78	14.5	18.87	18.84	0.00	10.44
2. Pulses	0.00	0.68	0.68	0.77	0.96	1.67	2.03	2.68	2.31	3.40	4.86	0.00	1.71
3. Milk & Milk Products	0.00	0.49	0.62	0.67	0.89	1.43	1.53	1.86	2.87	3.13	4.05	0.00	1.50
4. Vegetables	0.00	0.10	0.09	0.12	0.15	0.19	0.19	0.28	0.32	0.70	0.61	0.00	0.23
5. Mutton, fish etc.	0.00	0.13	0.14	0.18	0.14	0.64	1.02	1.19	0.96	0.92	1.37	0.00	0.62
6. Oil & Oil Products	0.00	0.39	0.34	0.44	0.57	0.95	1.28	1.59	1.80	2.34	4.07	0.00	1.10
7. Spices	0.00	0.45	0.40	0.50	0.61	0.54	0.57	0.71	0.71	0.72	1.05	0.00	0.59
8. Fuel and Lighting	0.00	0.53	0.61	0.84	0.76	1.17	1.41	1.22	1.37	1.44	2.32	0.00	1.05
9. Tea	0.00	0.03	0.03	0.09	0.16	1.17	0.08	0.22	0.36	0.29	0.49	0.00	0.16
10. Sugar-Gur	0.00	0.29	0.16	0.38	0.55	0.67	0.54	0.88	0.95	1.18	0.29	0.00	0.63
11. Pan-supari	0.00	0.00	0.00	0.11	0.04	0.09	0.11	0.04	0.36	0.27	0.35	0.00	0.11
12. Tobacco	0.00	0.10	0.21	0.16	0.32	0.44	0.36	0.63	0.47	0.64	1.27	0.00	0.39
13. Miscellaneous	0.00	0.07	0.12	0.14	0.23	0.29	0.30	0.43	0.67	0.68	1.00	0.00	0.33
14. Education	0.00	0.00	0.04	0.00	0.00	0.00	0.21	0.14	0.00	0.00	0.00	0.00	0.05
15. Clothing	0.00	0.75	0.82	0.98	1.47	1.90	2.34	2.92	4.19	4.96	0.32	0.00	2.26
Total	0.00	10.10	12.21	13.89	16.07	19.18	22.29	25.57	31.39	39.54	47.69	0.00	21.21
Families	0	4	4	10	12	8	12	12	9	5	3	0	79
Persons	0.00	27.00	25.00	66.00	68.00	53.00	65.00	58.00	46.00	25.00	8.00	0.00	441.00
Average family size	0.00	6.8	6.3	6.6	5.7	6.6	5.4	4.8	5.1	5.0	2.1	0.0	5.6

TABLE 6.13 : CONSUMER EXPENDITURE AS PERCENTAGE TO TOTAL CONSUMER EXPENDITURE BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY PER CAPITA EXPENDITURE CLASSES IN ALL THE THREE REGIONS COMBINED: NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	8.00-	11.00-	13.00	15.00-	18.00-	21.00-	24.00	28.00-	34.00	43.00	55.00	All classes combined
	8.00	11.00	13.00	15.00	18.00	21.00	24.00	28.00	34.00	43.00	55.00 & above		
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12	
1. Cereals	0.00	55.50	51.50	57.24	52.36	49.31	46.93	48.39	47.06	50.79	39.93	45.52	49.81
2. Pulses	0.00	9.58	8.56	6.63	6.26	6.61	7.69	8.02	6.31	7.69	9.90	5.73	7.36
3. Milk & Milk Products	0.00	6.45	7.82	7.08	7.13	7.53	7.05	7.68	8.26	7.46	8.39	12.28	7.53
4. Vegetables	0.00	0.73	0.92	0.82	1.09	1.22	1.22	0.96	1.01	1.06	1.28	1.17	1.04
5. Mutton, fish etc.	0.00	2.65	1.82	1.53	1.64	2.02	3.48	2.49	2.11	2.15	3.05	0.00	2.26
6. Oil & Oil Products	0.00	5.11	6.11	4.31	5.07	5.74	5.70	5.00	5.06	4.65	8.10	10.55	5.29
7. Spices	0.00	4.24	3.62	3.57	3.63	2.84	2.78	2.61	3.13	2.04	2.16	1.44	2.99
8. Fuel and Lighting	0.00	3.14	4.16	4.78	3.87	4.18	5.09	3.32	3.62	3.25	4.74	3.44	3.91
9. Tea	0.00	0.58	1.41	0.58	1.25	1.58	1.54	1.22	1.92	0.89	0.93	0.75	1.30
10. Sugar-Gur	0.00	2.70	2.92	2.75	3.24	3.61	2.80	3.00	2.90	2.66	2.53	3.45	2.99
11. Pan-supari	0.00	0.24	0.23	0.67	0.68	0.55	0.31	0.51	1.07	0.75	0.65	2.35	0.61
12. Tobacco	0.00	2.04	2.71	1.68	2.66	3.28	2.53	2.99	3.02	2.50	3.20	2.99	2.74
13. Miscellaneous	0.00	0.73	1.61	1.12	1.49	1.56	1.64	1.81	2.06	1.42	2.15	1.00	1.61
14. Education	0.00	0.00	0.06	0.06	0.31	0.15	0.75	0.20	0.00	0.00	0.00	0.00	0.20
15. Clothing	0.00	6.31	6.54	7.18	9.32	9.81	10.49	11.79	12.46	12.69	13.00	8.32	10.36
Total	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Families	0	15	17	17	32	24	27	37	23	15	4	1	212
Persons	0.00	125.00	130.00	109.00	199.00	156.00	139.00	190.00	112.00	63.00	9.00	3.00	1235.00

TABLE 6.14: CONSUMER EXPENDITURE AS PERCENTAGE TO TOTAL CONSUMER EXPENDITURE BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY PER CAPITA EXPENDITURE CLASSES IN THE FIRST REGION, VIZ. PATHAR: NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	8.00-	11.00-	13.00	15.00-	18.00-	21.00-	24.00-	28.00-	34.00-	43.00-	55.00	All classes combined
	8.00	11.00	13.00	15.00	18.00	21.00	24.00	28.00	34.00	43.00	55.00	& above	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12	
1. Cereals	0.00	56.03	57.11	60.51	52.59	53.22	53.30	48.26	46.54	56.52	0.00	46.52	52.02
2. Pulses	0.00	6.29	4.61	3.36	3.95	4.31	4.31	5.09	6.39	5.36	0.00	5.73	4.87
3. Milk & Milk Products	0.00	4.76	8.10	6.06	8.98	8.27	7.69	10.88	8.12	7.44	0.00	12.28	8.64
4. Vegetables	0.00	1.02	1.22	0.50	1.06	1.09	0.89	0.86	0.91	0.38	0.00	1.17	0.91
5. Mutton, fish etc.	0.00	3.19	2.49	0.85	1.07	0.30	1.33	0.15	1.74	0.85	0.00	0.00	0.96
6. Oil & Oil Products	0.00	5.44	5.18	6.10	6.09	6.02	5.79	6.20	6.20	4.18	0.00	10.55	5.94
7. Spices	0.00	2.32	2.10	2.11	2.11	2.16	2.31	2.46	2.66	1.72	0.00	1.44	2.19
8. Fuel and Lighting	0.00	5.07	3.82	3.87	3.47	3.60	4.83	4.25	4.41	2.86	0.00	3.44	3.83
9. Tea	0.00	1.37	0.73	0.53	0.83	0.85	0.83	1.02	1.24	0.62	0.00	0.75	0.88
10. Sugar-Gur	0.00	4.36	2.87	3.65	4.18	3.81	4.07	3.51	3.66	2.45	0.00	3.45	3.61
11. Pan-supari	0.00	0.00	1.02	0.00	1.55	0.67	0.00	0.79	1.31	1.60	0.00	2.35	1.07
12. Tobacco	0.00	3.60	2.71	3.25	2.68	4.47	2.52	3.04	1.98	1.85	0.00	2.99	2.88
13. Miscellaneous	0.00	1.54	2.20	1.87	1.62	1.69	1.29	1.43	1.98	0.87	0.00	1.00	1.54
14. Education	0.00	0.00	0.00	0.42	0.69	0.23	0.00	0.21	0.02	0.00	0.00	0.00	0.22
15. Clothing	0.00	5.01	5.83	6.92	9.12	9.30	10.85	11.85	12.93	13.31	0.00	8.32	10.44
Total	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	100.00	100.00
Families	0	1	2	1	7	7	4	7	7	3	0	1	40
Persons	0.00	11.00	23.00	8.00	66.00	51.00	20.00	32.00	26.00	18.00	0.00	3.00	258.00

TABLE 6.15 : CONSUMER EXPENDITURE AS PERCENTAGE TO TOTAL CONSUMER EXPENDITURE BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY PER CAPITA EXPENDITURE CLASSES IN THE SECOND REGION, VIZ. PRAVARA VALLEY; NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	8.00-	11.00-	13.00-	15.00-	18.00-	21.00-	24.00-	28.00-	34.00-	43.00-	55.00	All classes combined
	8.00	11.00	13.00	15.00	18.00	21.00	24.00	28.00	34.00	43.00	55.00	& above	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12	
1. Cereals	0.00	53.34	45.60	48.96	47.05	47.58	45.34	52.02	50.12	49.29	44.63	0.00	49.16
2. Pulses	0.00	11.20	10.65	9.39	8.84	6.74	7.22	7.56	5.00	8.77	7.80	0.00	8.04
3. Milk & Milk Products	0.00	7.18	8.59	11.49	6.88	6.89	7.02	6.88	7.30	6.87	7.87	0.00	7.36
4. Vegetables	0.00	0.59	0.89	0.80	1.28	1.55	1.77	0.90	1.08	0.74	1.30	0.00	1.09
5. Mutton, fish etc.	0.00	3.00	1.84	2.18	2.99	2.36	2.98	2.01	1.22	3.20	4.68	0.00	2.34
6. Oil & Oil Products	0.00	5.44	7.43	6.02	5.62	6.26	5.61	3.91	3.54	3.36	4.80	0.00	5.02
7. Spices	0.00	4.44	4.16	3.87	4.96	3.55	3.25	2.56	4.47	2.65	1.89	0.00	3.60
8. Fuel & Lighting	0.00	2.21	4.01	2.65	3.37	2.83	3.69	2.20	2.23	3.10	3.99	0.00	2.83
9. Tea	0.00	0.57	1.97	0.52	1.95	3.17	3.20	1.50	3.36	1.37	0.13	0.00	2.04
10. Sugar-Gur	0.00	2.74	3.45	2.56	2.12	3.54	2.79	2.58	2.24	2.43	1.28	0.00	2.69
11. Pan-supari	0.00	0.34	0.07	0.66	0.24	0.48	0.20	0.62	0.81	0.00	0.00	0.00	0.42
12. Tobacco	0.00	2.16	3.03	2.28	3.32	3.14	3.65	3.29	5.50	4.39	7.65	0.00	3.51
13. Miscellaneous	0.00	0.65	1.62	1.11	1.45	1.46	2.13	2.00	2.02	1.56	2.62	0.00	1.68
14. Education	0.00	0.00	0.00	0.10	0.26	0.23	0.82	0.00	0.00	0.00	0.00	0.00	0.15
15. Clothing	0.00	6.15	6.69	7.41	9.65	1.22	10.35	11.10	11.98	12.27	11.37	0.00	10.06
Total	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	100.00
Families	0	10	11	6	13	9	11	18	7	7	1	0	93
Persons	0	87.00	82.00	35.00	65.00	52.00	54.00	100.00	40.00	20.00	1.00	0.00	536.00

TABLE 6.16 : CONSUMER EXPENDITURE AS PERCENTAGE TO TOTAL CONSUMER EXPENDITURE BY GROUPED ITEMS OF CONSUMPTION AND BY MONTHLY PER CAPITA EXPENDITURE CLASSES IN THE THIRD REGION, VIZ. MULA VALLEY: NOVEMBER 1963 TO OCTOBER 1964

Item	0.00- 8.00	8.00- 11.00	11.00- 13.00	13.00- 15.00	15.00- 18.00	18.00- 21.00	21.00- 24.00	24.00- 28.00	28.00- 34.00	34.00- 43.00	43.00- 55.00	55.00 & above	All classes combined
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12	
1. Cereals	0.00	62.07	65.08	61.28	57.38	47.26	46.29	42.14	44.77	47.73	39.36	0.00	49.21
2. Pulses	0.00	5.91	5.58	5.56	5.96	8.70	9.12	10.48	7.37	8.61	10.16	0.00	8.08
3. Milk & Milk Products	0.00	4.90	5.10	4.83	5.57	7.46	6.87	7.28	9.14	7.90	8.45	0.00	7.06
4. Vegetables	0.00	1.03	0.71	0.87	0.93	1.01	0.87	1.11	1.01	1.77	1.28	0.00	1.06
5. Mutton, fish, etc.	0.00	1.33	1.14	1.26	0.85	3.34	4.56	4.66	3.06	2.33	2.85	0.00	2.94
6. Oil & Oil Products	0.00	3.90	2.79	3.16	3.54	4.94	5.75	6.23	5.73	5.91	8.50	0.00	5.20
7. Spices	0.00	4.42	3.29	3.59	3.81	2.79	2.54	2.80	2.25	1.82	2.19	0.00	2.80
8. Fuel & Lighting	0.00	5.24	4.96	6.04	4.76	6.10	6.33	4.76	4.36	3.65	4.84	0.00	5.12
9. Tea	0.00	0.28	0.26	0.62	0.98	0.69	0.38	0.85	1.13	0.74	1.02	0.00	0.76
10. Sugar-Gur	0.00	1.90	1.29	2.74	3.41	3.50	2.43	3.44	3.04	2.99	2.69	0.00	2.96
11. Pan-supari	0.00	0.00	0.00	0.77	0.25	0.49	0.49	0.15	1.15	0.68	0.73	0.00	0.54
12. Tobacco	0.00	1.00	1.71	1.16	1.97	2.28	1.62	2.46	1.51	1.61	2.65	0.00	1.83
13. Miscellaneous	0.00	0.65	1.02	1.03	1.40	1.54	1.35	1.69	2.13	1.72	2.09	0.00	1.56
14. Education	0.00	0.00	0.32	0.00	0.00	0.00	0.92	0.54	0.00	0.00	0.00	0.00	0.24
15. Clothing	0.00	7.38	6.73	7.08	9.18	9.90	10.49	11.41	13.35	12.55	13.20	0.00	10.64
Total	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	100.00
Families	0	4	4	10	12	8	12	12	9	5	3	0	79
Persons	0.00	27.00	25.00	66.00	68.00	53.00	65.00	58.00	46.00	25.00	8.00	0.00	441.00

TABLE 6.17 : CONSUMER EXPENDITURE (IN Rs. 0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY FAMILY HOLDINGS OF LAND IN ALL THE THREE REGIONS COMBINED; NOVEMBER 1963 - OCTOBER 1964

Item	0.00-	0.025-	2.50-	5.0-	7.50-	10.0-	12.50-	15.0-	20.0-	30.00-	40.00-	All Groups
	0.025	2.50	5.00	7.50	10.00	12.50	15.00	20.00	30.00	40.00	& above	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	
1. Cereals	45.16	41.15	49.24	52.14	59.91	65.01	43.79	60.76	91.49	102.81	92.95	58.86
2. Pulses	7.87	5.97	7.62	7.55	8.74	9.08	9.07	10.43	12.50	12.45	10.45	8.69
3. Milk & Milk Products	6.62	5.71	7.06	5.87	9.24	8.92	8.69	10.98	15.43	15.86	16.91	8.90
4. Vegetables	1.19	0.93	1.18	0.95	1.46	1.19	1.03	1.29	1.43	2.47	1.49	1.23
5. Mutton, fish etc.	1.31	3.26	2.18	2.02	3.09	2.64	3.82	3.01	3.48	3.16	1.10	2.67
6. Oil & Oil Products	6.25	3.70	5.40	4.12	7.33	6.60	6.40	7.52	9.12	10.04	9.39	6.25
7. Spices	3.70	3.28	4.27	2.87	3.09	4.07	2.60	3.58	4.24	3.79	3.56	3.54
8. Fuel & Lighting	3.81	3.68	3.45	3.93	5.15	4.42	5.69	5.15	5.84	7.16	7.73	4.62
9. Tea	1.60	1.74	2.45	0.43	1.76	1.01	1.31	1.97	1.54	1.87	1.32	1.54
10. Sugar-Gur	3.22	2.56	2.95	2.44	4.26	3.72	3.58	3.83	4.89	5.71	6.00	3.54
11. Pan-supari	0.64	0.28	0.44	0.34	0.56	0.74	0.01	0.93	1.81	3.10	1.51	0.72
12. Tobacco	3.34	3.62	3.26	2.47	3.82	3.07	2.14	2.99	3.81	4.31	4.09	3.24
13. Miscellaneous	1.46	1.50	1.62	1.37	2.04	1.79	1.36	2.36	2.73	3.39	3.53	1.90
14. Education	0.23	0.00	0.16	0.15	0.47	0.17	0.84	0.12	0.51	0.62	0.00	0.23
15. Clothing	9.86	9.21	10.31	8.78	12.09	12.86	10.16	13.42	19.95	23.48	21.37	12.24
Total	95.46	86.65	101.59	95.43	123.01	125.29	100.49	128.34	178.77	199.62	181.40	118.17
Families	10	23	33	35	27	20	11	23	17	7	6	212
Persons	52.00	99.00	166.00	186.00	179.00	138.00	61.00	146.00	121.00	51.00	36.00	1235.00
Average family size	5.2	4.3	5.0	5.3	6.6	6.9	5.5	6.3	7.1	7.3	6.0	5.8

TABLE 6.18 : CONSUMER EXPENDITURE (IN Rs.0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY FAMILY-HOLDINGS OF LAND IN THE FIRST REGION, VIZ. PATHAR: NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	0.025-	2.50-	5.00-	7.50-	10.00-	12.50-	15.00-	20.00-	30.00	40.00	All Groups
	0.025	2.50	5.00	7.50	10.00	12.50	15.00	20.00	30.00	40.00	& above	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	
1. Cereals	52.32	0.0	0.00	49.68	79.67	62.80	52.43	62.02	101.11	76.76	77.42	71.95
2. Pulses	4.78	0.00	0.00	3.04	6.19	5.18	8.58	6.42	9.10	6.71	8.32	6.74
3. Milk & Milk Products	9.31	0.00	0.00	7.75	12.16	7.68	9.82	9.95	18.67	8.72	16.95	11.95
4. Vegetables	1.66	0.00	0.00	1.45	1.57	1.26	1.13	0.88	0.90	1.37	1.58	2.26
5. Mutton, fish etc.	0.03	0.00	0.00	2.79	2.30	1.76	4.04	0.65	1.22	0.00	0.00	1.32
6. Oil & Oil Products	8.79	0.00	0.00	6.28	9.67	8.19	7.52	6.95	8.11	8.15	9.10	8.21
7. Spices	2.56	0.00	0.00	2.41	2.84	2.97	2.66	3.10	3.92	2.32	3.35	3.03
8. Fuel & Lighting	8.79	0.00	0.00	4.18	4.93	4.98	5.30	4.98	5.86	5.37	6.91	5.30
9. Tea	1.86	0.00	0.00	0.83	0.91	0.90	1.22	1.11	1.33	1.43	1.39	1.21
10. Sugar-Gur	5.04	0.00	0.00	3.42	5.24	4.32	5.10	4.74	5.18	5.01	6.09	4.99
11. Pan-supari	1.10	0.00	0.00	1.10	1.67	0.53	0.00	1.29	2.25	3.01	1.79	1.47
12. Tobacco	5.91	0.00	0.00	2.13	4.49	3.83	1.66	2.83	3.76	5.98	4.73	3.98
13. Miscellaneous	1.63	0.00	0.00	1.19	2.72	1.52	1.52	2.30	2.01	2.27	3.33	2.14
14. Education	0.57	0.00	0.00	0.00	1.30	0.03	0.00	0.15	0.12	0.00	0.00	0.30
15. Clothing	12.02	0.00	0.00	11.92	13.73	8.55	12.47	12.74	22.33	13.56	17.47	14.44
Total	122.23	0.00	0.00	98.17	149.39	112.50	113.45	120.11	185.87	140.66	158.43	138.29
Families	4	0	0	2	6	5	3	6	7	3	4	40
Persons	20.00	0.00	0.00	8.00	55.00	38.00	17.00	32.00	44.00	21.00	23.00	158.00
Average family size	5.0	0.00	0.00	4.00	9.1	7.6	5.7	5.3	6.3	7.0	5.7	6.5

TABLE 6.19 : CONSUMER EXPENDITURE (IN Rs. 0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY FAMILY HOLDINGS OF LAND IN THE SECOND REGION, VIZ. PRAVARA VALLEY, NOVEMBER 1963 TO OCTOBER, 1964.

Item	0.00- 0.025	0.025- 2.50	2.50- 5.00	5.00- 7.50	7.50- 10.00	10.00- 12.50	12.50- 15.00	15.00- 20.00	20.00- 30.00	30.00- 40.00	4000 & above	All Groups
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	
1. Cereals	38.56	46.48	46.01	53.66	55.30	65.41	36.91	58.52	97.40	0.00	0.00	53.74
2. Pulses	8.10	7.00	7.44	9.09	10.46	10.33	8.77	9.61	11.63	0.00	0.00	8.79
3. Milk & Milk Products	4.24	6.73	6.97	6.51	9.20	9.10	9.97	11.81	13.23	0.00	0.00	8.05
4. Vegetables	0.81	1.03	1.21	0.99	1.56	1.07	1.16	1.31	1.89	0.00	0.00	1.19
5. Mutton, fish etc.	1.29	4.72	2.11	2.05	3.10	1.95	1.18	2.41	3.27	0.00	0.00	2.56
6. Oil & Oil Products	4.68	4.03	5.89	4.38	7.90	4.64	5.56	6.44	7.66	0.00	0.00	5.49
7. Spices	4.78	3.71	4.53	2.77	3.65	4.50	2.72	3.90	5.29	0.00	0.00	3.94
8. Fuel & Lighting	2.13	3.14	3.01	2.29	4.20	2.80	5.40	2.81	4.83	0.00	0.00	3.10
9. Tea	1.71	2.27	3.30	0.28	3.46	0.99	2.88	3.50	2.19	0.00	0.00	2.23
10. Sugar-Gur	1.88	2.25	3.02	2.50	4.59	2.80	3.26	3.16	3.65	0.00	0.00	2.94
11. Pan-superi	0.39	0.24	0.31	0.28	0.52	0.72	0.05	0.68	1.56	0.00	0.00	0.46
12. Tobacco	1.51	4.19	4.15	3.11	6.02	3.40	3.25	2.93	5.28	0.00	0.00	3.84
13. Miscellaneous	1.39	1.60	1.79	1.60	2.06	1.66	1.97	2.25	3.15	0.00	0.00	1.84
14. Education	0.00	0.00	0.23	0.21	0.55	0.00	0.00	0.20	0.00	0.00	0.00	0.17
15. Clothing	7.97	10.68	10.40	9.02	12.79	13.97	6.30	11.23	17.34	0.00	0.00	10.99
Total	79.44	98.07	100.37	98.74	125.36	134.34	89.38	120.76	178.37	0.00	0.00	109.33
Families	5	13	22	17	9	10	3	9	5	0	0	93
Persons	26.00	62.00	102.00	92.00	58.00	61.00	21.00	70.00	44.00	0.00	0.00	536.00
Average family size	5.2	4.7	4.6	5.4	6.4	6.1	7.0	7.8	8.8	0.00	0.00	5.8

TABLE 6.20: CONSUMER EXPENDITURE (IN RS.0.00) PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY FAMILY HOLDINGS OF LAND IN THE THIRD REGION, VIZ. MULA VALLEY, NOVEMBER 1963 TO OCTOBER 1964

Item	0.00-	0.025-	2.50-	5.00-	7.50-	10.00-	12.50-	15.00-	20.00-	30.00-	40.00 &	All Groups
	0.025	2.50	5.00	7.50	10.00	12.50	15.00	20.00	30.00	40.00	above	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	
1. Cereals	49.52	34.23	55.68	50.83	53.49	66.44	42.74	62.34	72.11	122.35	124.03	58.25
2. Pulses	11.09	4.63	7.99	6.48	8.73	10.48	9.55	14.36	18.13	16.75	14.72	9.57
3. Milk & Milk Products	7.73	4.39	7.24	4.96	7.81	9.79	7.24	10.82	19.11	21.22	16.82	8.35
4. Vegetables	1.25	0.81	1.12	0.84	1.34	1.37	0.89	1.58	1.73	3.29	1.30	1.26
5. Mutton, fish etc.	6.50	1.36	2.32	1.89	3.47	4.92	5.28	5.46	6.84	5.53	3.30	3.48
6. Oil & Oil Products	3.96	3.28	4.44	3.58	5.74	8.91	6.23	9.16	11.99	11.45	9.96	6.16
7. Spices	2.84	2.73	3.76	3.04	2.80	4.30	2.50	3.58	3.63	4.89	4.00	3.32
8. Fuel & Lighting	8.84	4.39	4.34	5.64	5.97	7.09	6.11	7.92	6.83	8.51	9.39	6.06
9. Tea	0.00	1.04	0.76	0.55	0.92	1.17	0.43	0.88	1.17	2.20	1.18	0.89
10. Sugar-Gur	2.63	2.97	2.79	2.26	3.53	4.96	2.87	3.89	5.74	6.23	5.84	3.51
11. Pan-supari	0.00	0.32	0.69	0.31	0.03	0.99	0.00	0.94	1.43	3.16	0.96	0.64
12. Tobacco	2.20	2.89	1.48	1.83	1.84	1.66	1.77	3.19	2.40	3.05	2.79	2.16
13. Miscellaneous	1.15	1.38	1.30	1.16	1.68	2.31	0.89	2.54	3.32	4.22	3.95	1.84
14. Education	0.00	0.00	0.00	0.11	0.00	0.66	1.84	0.01	1.56	0.04	0.00	0.28
15. Clothing	10.68	7.44	10.12	8.14	10.75	14.96	11.10	16.39	19.23	30.92	29.18	12.60
Total	108.39	71.86	104.03	91.62	108.10	140.01	99.44	143.06	169.22	243.81	227.42	118.37
Families	1	10	11	16	12	5	5	8	5	4	2	79
Persons	6.00	37.00	64.00	86.00	66.00	39.00	23.00	44.00	33.00	30.00	13.00	441.00
Average Family size	6.1	3.7	5.8	5.3	5.5	7.8	4.6	5.5	6.6	7.5	6.5	5.6

TABLE 6.21 : PERCENTAGE CONSUMER EXPENDITURE PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY FAMILY HOLDINGS OF LAND IN ALL THE THREE REGIONS COMBINED: NOVEMBER 1963 TO OCTOBER 1964

Item	0.00- 0.025	0.025- 2.50	2.50- 5.00	5.00- 7.50	7.50- 10.00	10.00- 12.50	12.50- 15.00	15.00- 20.00	20.00- 30.00	30.00- 40.00	40.00 & above	All Groups
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	
1. Cereals	47.31	47.48	48.47	54.63	48.70	51.89	43.58	47.34	51.18	51.51	51.24	49.81
2. Pulses	7.41	6.89	7.50	7.91	7.10	7.25	9.03	8.12	6.99	6.23	5.76	7.36
3. Milk & Milk Products	6.93	6.59	6.95	6.15	7.51	7.12	8.64	8.55	8.63	7.95	9.32	7.53
4. Vegetables	1.25	1.08	1.16	0.99	1.19	0.95	1.02	1.01	0.80	1.24	0.82	1.04
5. Mutton, fish etc.	1.37	3.76	2.15	2.12	2.51	2.11	3.80	2.35	1.94	1.58	0.61	2.26
6. Oil & Oil Products	6.55	4.27	5.32	4.32	5.96	5.27	6.37	5.86	5.10	5.03	5.17	5.29
7. Spices	3.88	3.79	4.21	3.01	2.51	3.25	2.59	2.79	2.37	1.90	1.96	2.99
8. Fuel & Lighting	3.99	4.25	3.40	4.12	4.19	3.53	5.67	4.02	3.27	3.59	4.26	3.91
9. Tea	1.68	2.00	2.41	0.45	1.43	0.81	1.31	1.53	0.86	0.94	0.73	1.30
10. Sugar-Gur	3.37	2.96	2.90	2.56	3.47	2.97	3.57	2.98	2.74	2.86	3.31	2.99
11. Pan-supari	0.67	0.32	0.43	0.36	0.45	0.59	0.01	0.72	1.01	1.55	0.83	0.61
12. Tobacco	3.50	4.18	3.21	2.59	3.11	2.45	2.13	2.33	2.13	2.16	2.25	2.74
13. Miscellaneous	1.53	1.73	1.60	1.44	1.65	1.43	1.35	1.84	1.53	1.70	1.95	1.61
14. Education	0.24	0.00	0.15	0.16	0.38	0.14	0.83	0.09	0.28	0.01	0.00	0.20
15. Clothing	1.33	10.70	10.15	9.20	9.83	10.27	10.11	10.45	11.16	11.76	11.78	10.36
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Families	10	23	33	35	27	20	11	23	17	7	6	212
Persons	52.00	99.00	166.00	186.00	179.00	138.00	61.00	146.00	121.00	51.00	36.00	1235.00

TABLE 6.22 : PERCENTAGE CONSUMER EXPENDITURE PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY FAMILY HOLDINGS OF LAND IN THE FIRST REGION, VIZ. PATHAR: NOVEMBER 1963 TO OCTOBER 1964

Item	0.00- 0.025	0.025- 2.50	2.50- 5.00	5.00- 7.50	7.50- 10.00	10.00- 12.50	12.50- 15.00	15.00- 20.00	20.00- 30.00	30.00- 40.00	40.00 &	All Groups
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	
1. Cereals	46.63	0.00	0.00	50.61	53.33	54.85	46.22	51.63	54.40	54.57	48.87	52.02
2. Pulses	4.26	0.00	0.00	3.09	4.14	4.52	7.56	5.35	4.89	4.77	5.25	4.87
3. Milk & Milk Products	8.29	0.00	0.00	7.89	8.14	6.71	8.66	8.28	10.05	6.20	10.70	8.64
4. Vegetables	1.48	0.00	0.00	1.48	1.05	1.10	1.00	0.73	0.48	0.97	1.00	0.91
5. Mutton, fish etc.	0.02	0.00	0.00	2.85	1.54	1.54	3.56	0.54	0.66	0.00	0.00	0.96
6. Oil & Oil Products	7.83	0.00	0.00	6.39	6.47	7.15	6.63	5.78	4.36	5.79	5.74	5.94
7. Spices	2.29	0.00	0.00	2.45	1.90	2.60	2.34	2.58	2.11	1.65	2.11	2.19
8. Fuel & Lighting	4.14	0.00	0.00	4.26	3.30	4.35	4.67	4.14	3.15	3.82	4.36	3.83
9. Tea	1.65	0.00	0.00	0.84	0.61	0.78	1.08	0.93	0.72	1.02	0.87	0.88
10. Sugar-Gur	4.49	0.00	0.00	3.49	3.51	3.78	4.49	3.95	2.79	3.56	3.84	3.61
11. Pan-supari	0.98	0.00	0.00	1.12	1.12	0.46	0.00	1.07	1.21	2.14	1.13	1.07
12. Tobacco	5.26	0.00	0.00	2.17	3.01	3.35	1.46	2.35	2.02	4.25	2.99	2.88
13. Miscellaneous	1.46	0.00	0.00	1.21	1.82	1.32	1.34	1.92	1.08	1.62	2.10	1.54
14. Education	0.50	0.00	0.00	0.00	0.87	0.03	0.00	0.13	0.06	0.00	0.00	0.22
15. Clothing	10.71	0.00	0.00	12.14	9.19	7.41	10.99	10.61	12.02	9.64	11.03	10.44
16. Clothing												
Total	100.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Families	4	0	0	2	6	5	3	6	7	3	4	40
Persons	20.00	0.00	0.00	8.00	55.00	38.00	17.00	32.00	44.00	21.00	23.00	258.00

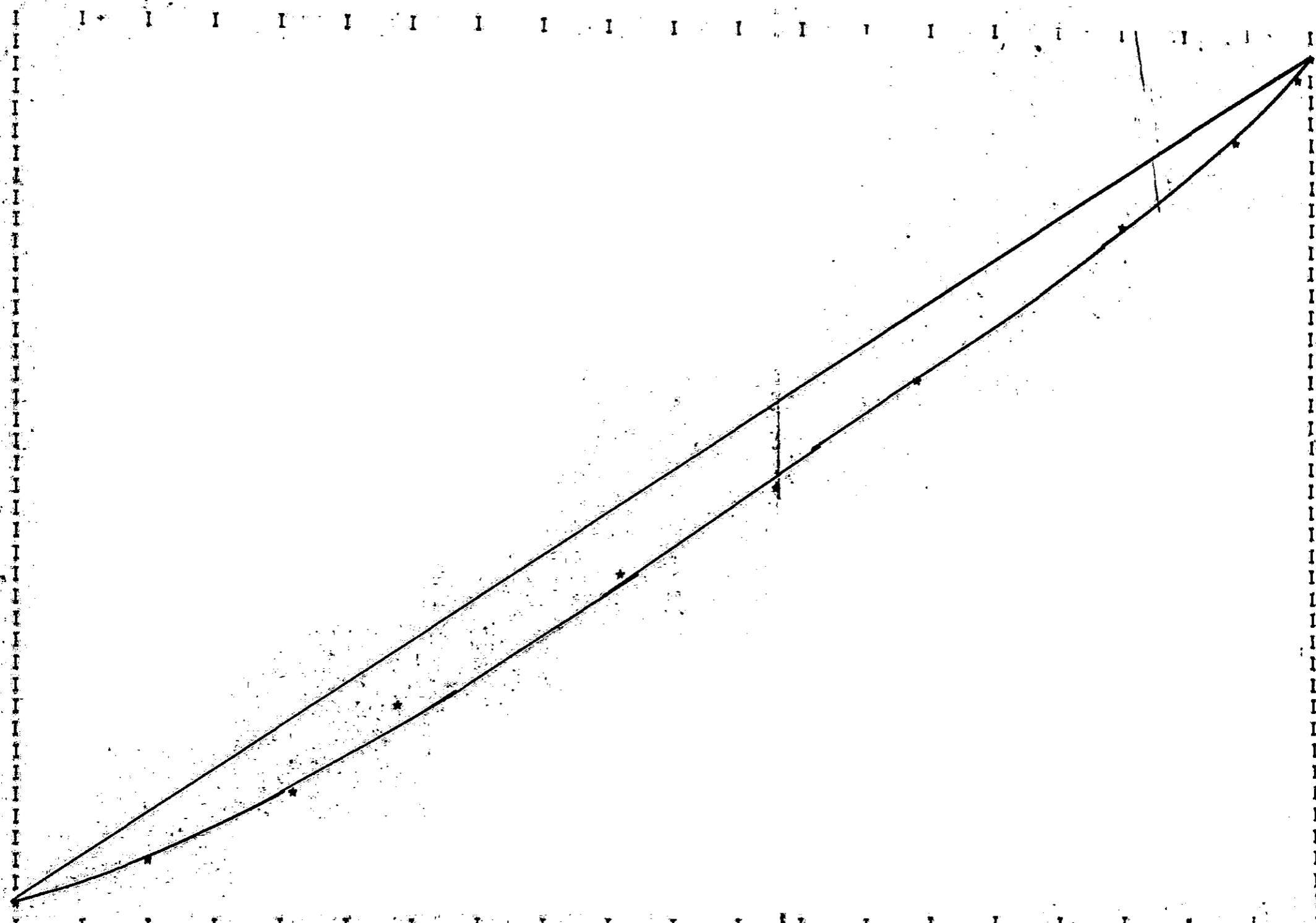
TABLE 6.23 : PERCENTAGE CONSUMER EXPENDITURE PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY FAMILY HOLDINGS OF LAND IN THE SECOND REGION, VIZ. PRAVARA VALLEY : NOVEMBER 1963 TO OCTOBER 1964

Item	0.00- 0.025	0.025- 2.50	2.50- 5.00	5.00- 7.50	7.50- 10.00	10.00- 12.50	12.50- 15.00	15.00- 20.00	20.00- 30.00	30.00- 40.00	40.00 & above	All Groups
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	
1. Cereals	48.54	47.39	45.85	54.35	44.12	53.03	41.30	48.46	54.60	0.00	0.00	49.16
2. Pulses	10.19	7.14	7.41	9.20	8.34	8.38	9.81	7.95	6.52	0.00	0.00	8.04
3. Milk & Milk Products	5.34	6.87	6.94	6.59	7.34	7.38	11.16	9.78	7.41	0.00	0.00	7.36
4. Vegetables	1.02	1.05	1.21	1.01	1.24	0.87	1.29	1.06	1.06	0.00	0.00	1.09
5. Mutton, fish etc.	1.62	4.81	2.10	2.08	2.47	1.58	1.31	2.00	1.83	0.00	0.00	2.34
6. Oil & Oil Products	5.89	4.11	5.87	4.43	6.30	3.77	6.23	5.33	4.30	0.00	0.00	5.02
7. Spices	6.02	3.78	4.51	2.81	2.91	3.65	3.04	3.23	2.97	0.00	0.00	3.60
8. Fuel & Lighting	2.68	3.20	3.00	2.32	3.35	2.37	6.04	2.33	2.71	0.00	0.00	2.83
9. Tea	2.16	2.31	3.29	0.28	2.76	0.81	3.22	2.90	1.23	0.00	0.00	2.04
10. Sugar-Gur	2.37	2.30	3.01	2.53	3.66	2.27	3.65	2.62	2.05	0.00	0.00	2.69
11. Pan-supari	0.50	0.24	0.31	0.29	0.42	0.58	0.06	0.57	0.87	0.00	0.00	0.42
12. Tobacco	1.90	4.27	4.13	3.15	4.80	2.75	3.63	2.42	2.96	0.00	0.00	3.51
13. Miscellaneous	1.75	1.63	1.78	1.62	1.64	1.34	2.21	1.86	1.76	0.00	0.00	1.68
14. Education	0.00	0.00	0.23	0.21	0.44	0.00	0.00	0.17	0.00	0.00	0.00	0.15
15. Clothing	10.04	10.89	10.37	9.13	10.20	11.33	7.05	9.30	9.72	0.00	0.00	10.06
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	100.00
Families	5	13	22	17	9	10	3	9	5	0	0	93
Persons	26.00	62.00	102.00	92.00	58.00	61.00	21.00	70.00	44.00	0.00	0.00	536.00

TABLE 6.24 : PERCENTAGE CONSUMER EXPENDITURE PER HOUSEHOLD FOR A PERIOD OF 30 DAYS BY GROUPED ITEMS OF CONSUMPTION AND BY FAMILY HOLDINGS OF LAND IN THE THIRD REGION, VIZ. MULA VALLEY ; NOVEMBER 1963 TO OCTOBER 1964

Item	0.00- 0.025	0.025- 2.50	2.50- 5.00	5.00- 7.50	7.50- 10.00	10.00- 12.50	12.50- 15.00	15.00- 20.00	20.00- 30.00	30.00- 40.00	40.00 & above	All Groups
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	
1. Cereals	45.68	47.64	53.52	55.49	49.48	47.46	42.99	43.58	42.62	50.18	54.64	49.21
2. Pulses	10.23	6.44	7.68	7.07	8.08	7.48	9.61	10.04	10.71	6.87	6.47	8.08
3. Milk & Milk Products	7.13	6.11	6.95	5.41	7.22	6.99	7.28	7.57	7.75	8.70	7.40	7.06
4. Vegetables	1.16	1.13	1.08	0.92	1.24	0.98	0.89	1.10	1.02	1.35	0.57	1.06
5. Mutton, fish etc.	6.00	1.90	2.23	2.06	3.21	3.51	5.31	3.82	4.04	2.27	1.45	2.94
6. Oil & Oil Products	3.66	4.56	4.27	3.90	5.31	6.37	6.27	6.40	7.08	4.70	4.38	5.20
7. Spices	2.62	3.80	3.62	3.32	2.59	3.07	2.51	2.50	2.14	2.01	1.76	2.80
8. Fuel & Lighting	8.16	6.10	4.18	6.15	5.53	5.07	6.14	5.54	4.03	3.49	4.13	5.12
9. Tea	0.00	1.45	0.73	0.60	0.85	0.84	0.43	0.61	0.69	0.90	0.52	0.76
10. Sugar-Gur	2.43	4.13	2.68	2.47	3.26	3.54	2.89	2.72	3.39	2.56	2.57	2.96
11. Pan-supari	0.00	0.45	0.67	0.34	0.03	0.71	0.00	0.66	0.85	1.29	0.42	0.54
12. Tobacco	2.03	4.02	1.42	1.99	1.70	1.18	1.78	2.23	1.42	1.25	1.23	1.83
13. Miscellaneous	1.06	1.92	1.25	1.26	1.55	1.65	0.89	1.77	1.96	1.73	1.73	1.56
14. Education	0.00	0.00	0.00	0.12	0.00	0.47	1.85	0.01	0.92	0.02	0.00	0.24
15. Clothing	9.86	10.35	9.73	8.89	9.95	10.69	11.16	11.45	11.37	12.68	12.83	10.64
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Families	1	10	11	16	12	5	5	8	5	4	2	79
Persons	6.00	37.00	64.00	86.00	66.00	39.00	23.00	44.00	33.00	30.00	13.00	441.00

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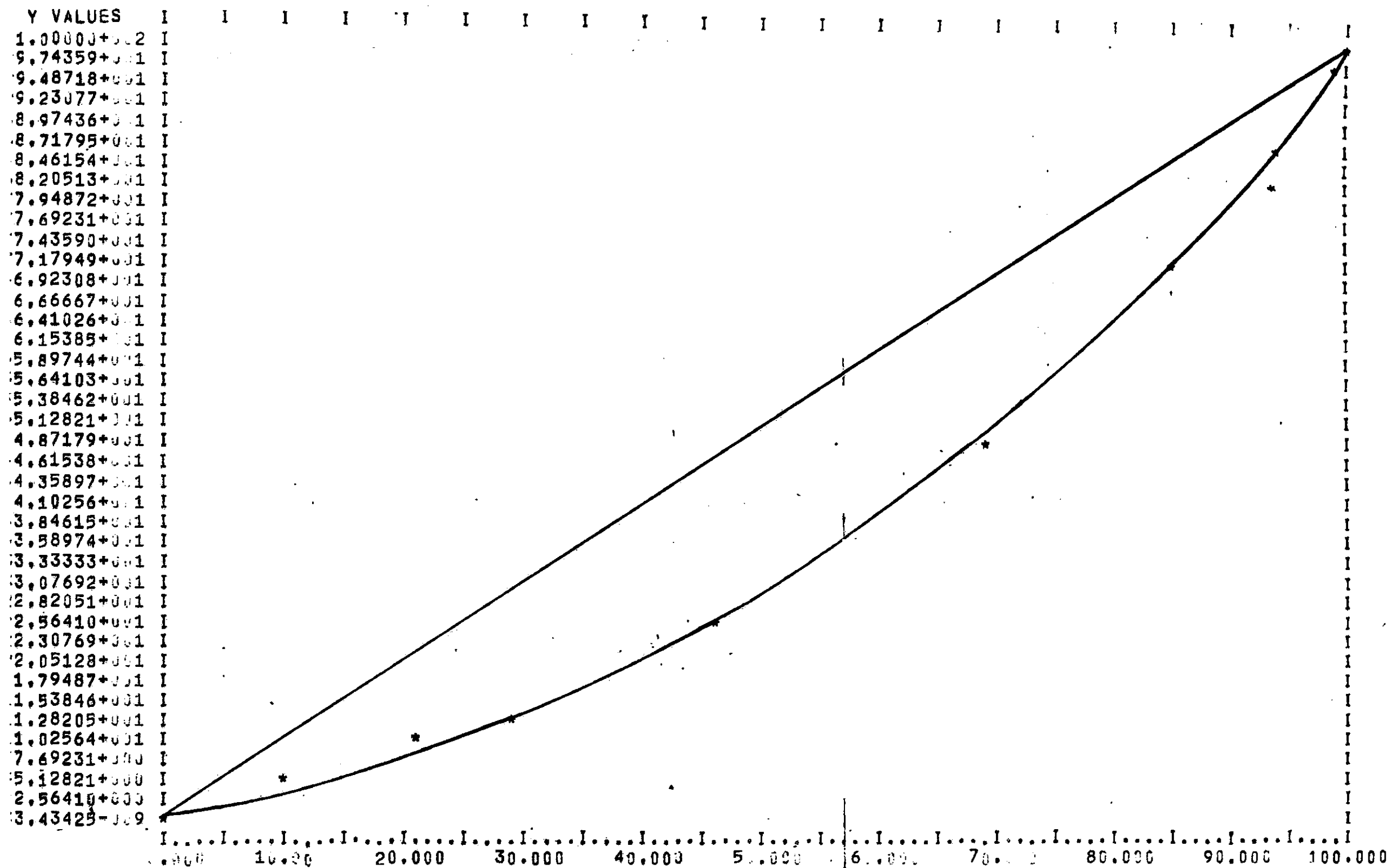


0.000 10.000 20.000 30.000 40.000 50.000 60.000 70.000 80.000 90.000 100.000
 YSCALE= 2.56+000 XSCALE= 1.00+000

SET NO 1

CUMULATIVE EXPEND.	0.00	388.75	865.85	1373.79	2327.00	3080.48	3760.19	4888.79	5595.51	6093.84	6154.23	6202.02
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	6.27	13.96	22.15	37.52	49.67	60.63	78.83	90.22	98.26	99.23	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

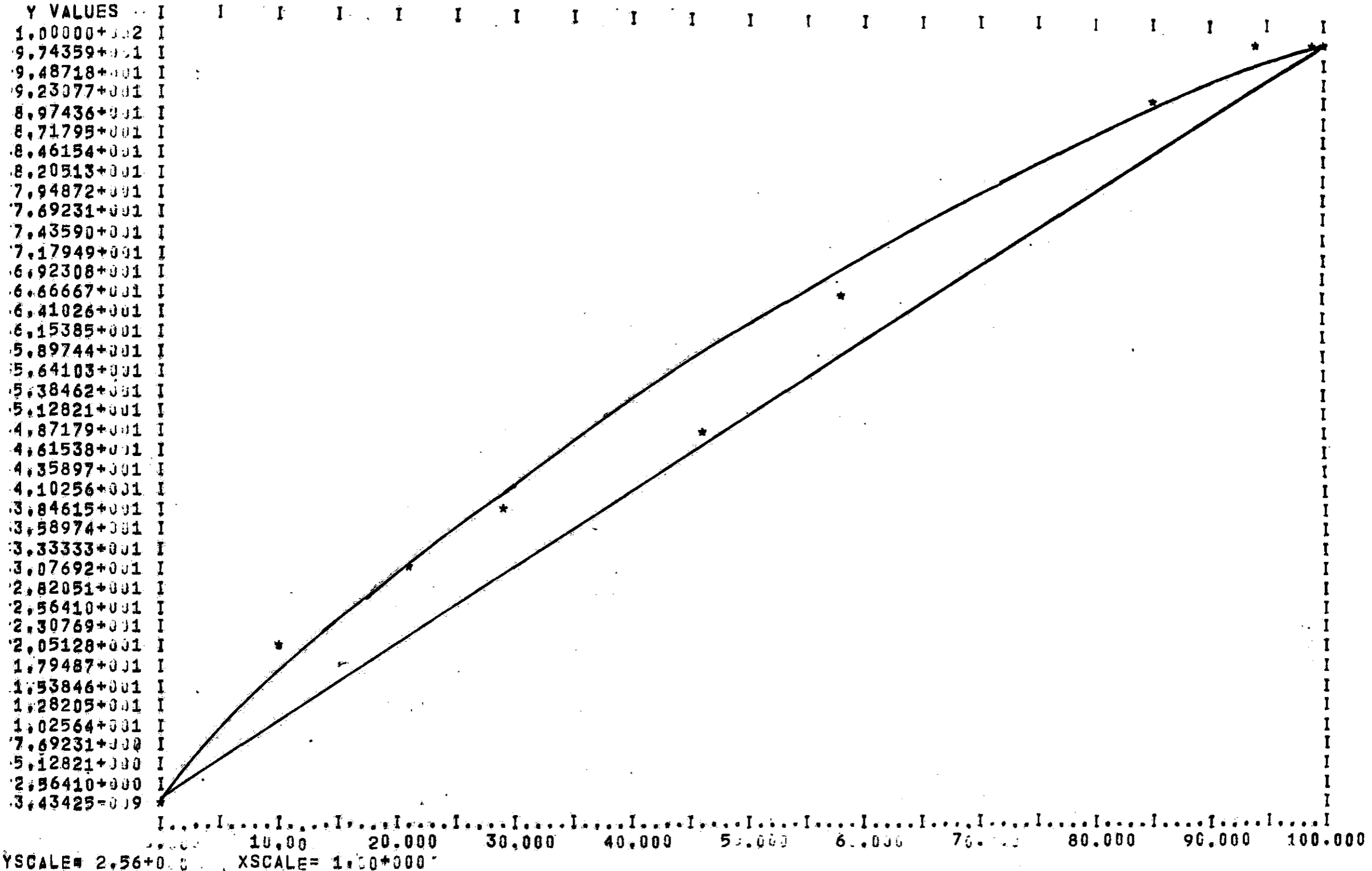
CONCENTRATION RATIO R= 0.0634



SET NO 5

CUMULATIVE EXPEND.	0.00	66.25	158.55	232.67	443.61	624.57	834.46	1218.26	1472.50	1669.06	1699.12	1711.51
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	3.87	9.26	13.59	25.92	36.49	48.76	71.18	86.04	97.52	99.28	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

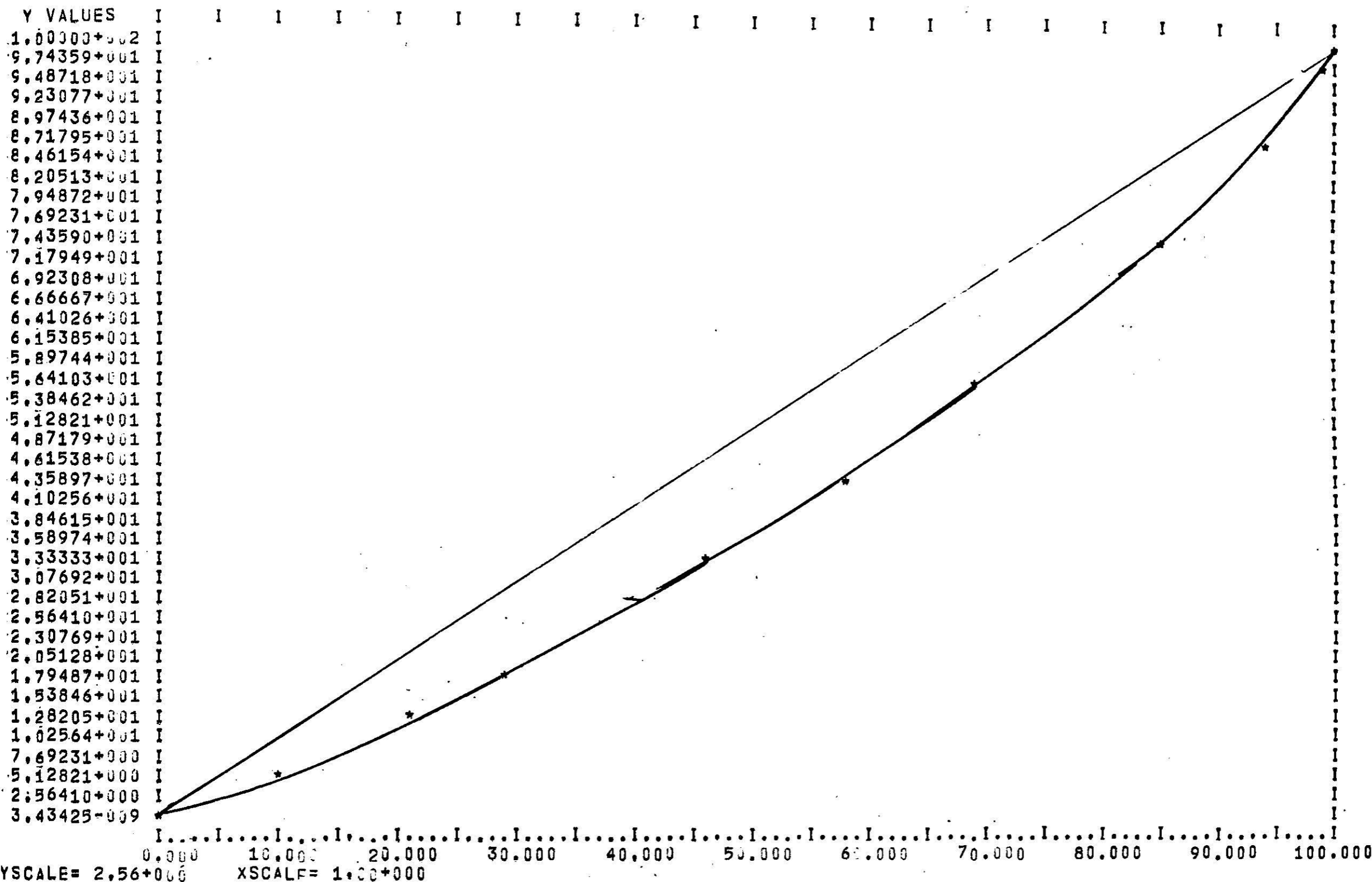
CONCENTRATION RATIO R= 0.1419



SET NO 6

CUMULATIVE EXPEND.	0.00	38.75	59.55	73.72	95.61	131.49	163.46	178.66	194.34	195.60	195.60	195.60
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	19.81	30.44	37.69	48.88	67.22	83.57	91.34	99.36	100.00	100.00	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

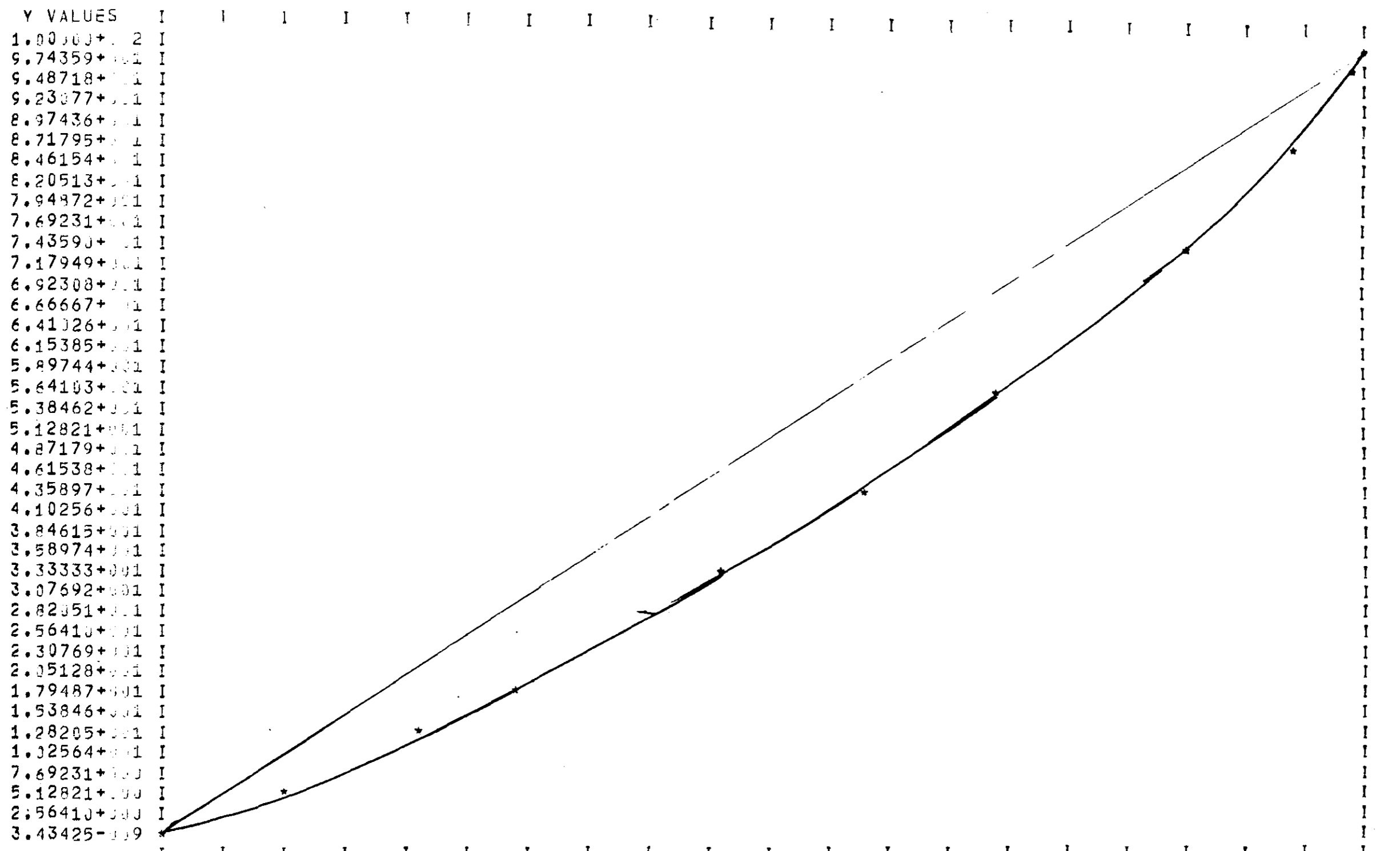
CONCENTRATION RATIO R= -0.0761



SET NO 1

CUMULATIVE EXPEND.	0.00	688.75	1497.35	2372.62	4066.11	5549.67	7000.83	9375.83	10990.87	12216.22	12387.94	12479.83
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	5.52	12.00	19.01	32.58	44.47	56.10	75.13	88.07	97.89	99.26	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

CONCENTRATION RATIO R= .0.0955

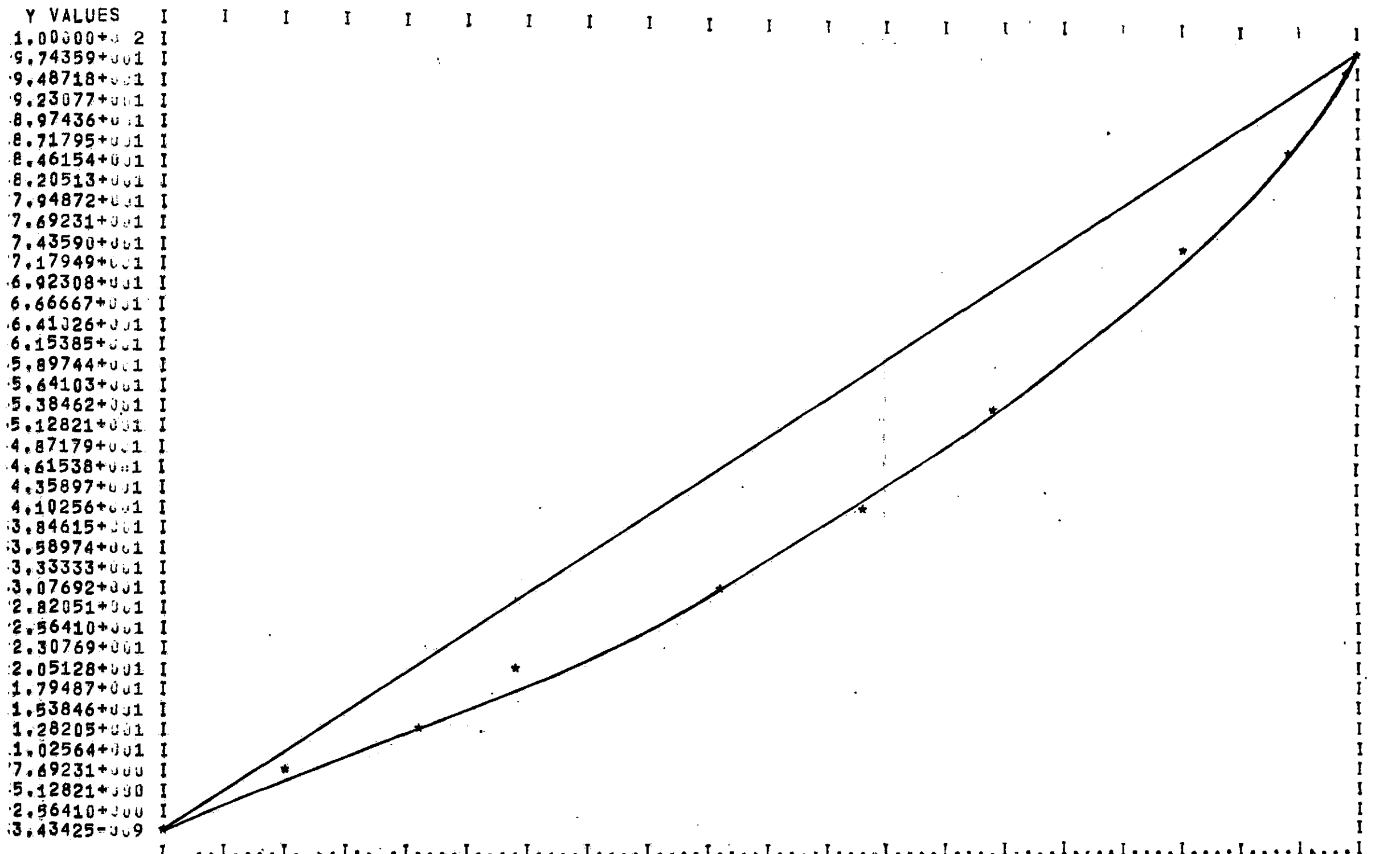


YSCALE= 2.56+000 XSCALE= 1.00+000

SET NO 1

CUMULATIVE EXPEND.	0.00	688.75	1497.35	2372.62	4066.11	5549.67	7310.83	9375.83	10990.87	12216.22	12387.94	12479.83
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM FXP	0.00	5.52	12.01	19.01	32.58	44.47	56.1	75.13	88.07	97.89	99.26	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

CONCENTRATION RATIO R= 0.1955

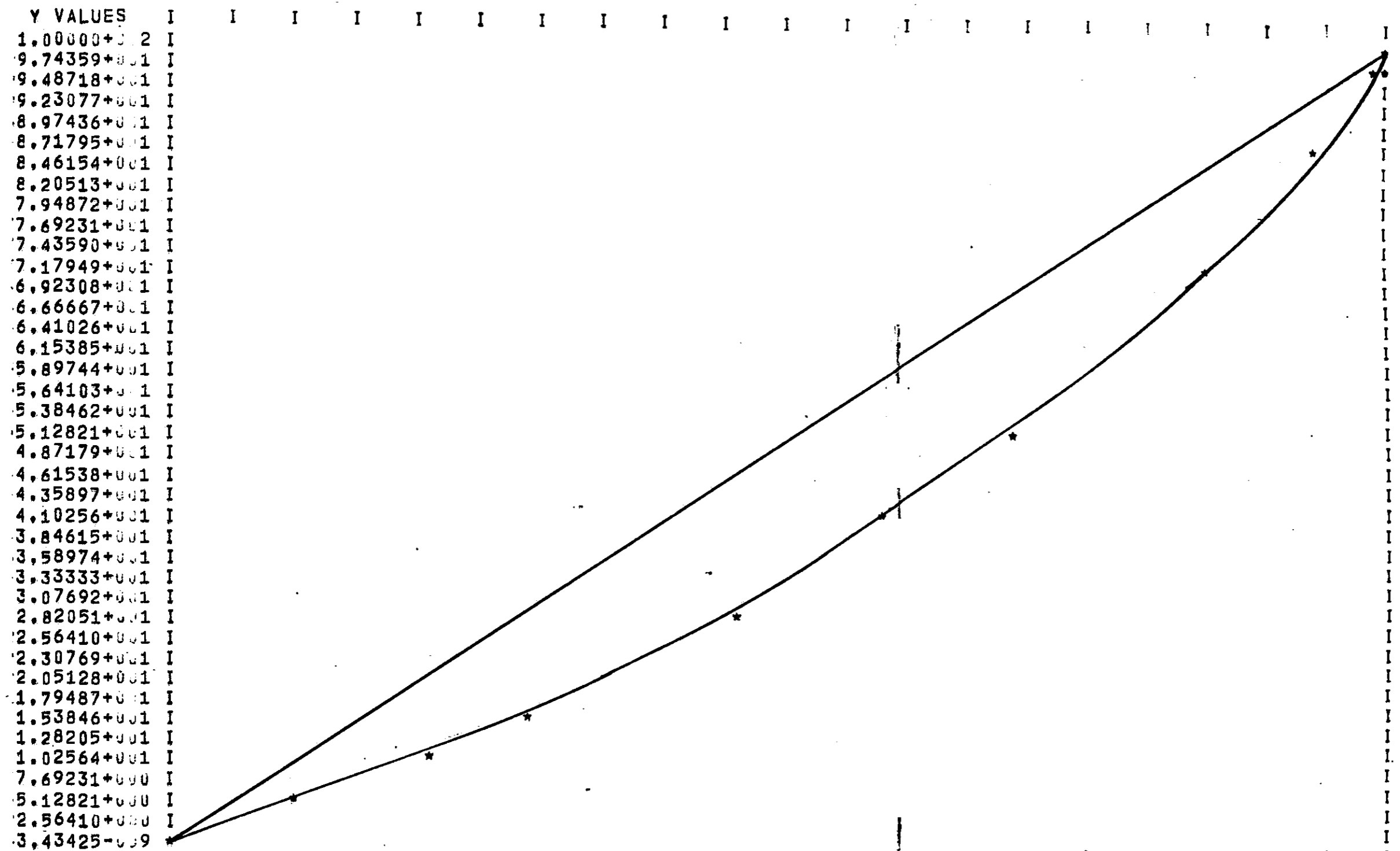


YSCALE= 2.56+000 XSCALE= 1.00+000

SET NO 2

CUMULATIVE EXPEND.	0.00	120.00	252.60	353.97	552.97	749.53	987.22	1380.52	1597.80	1783.65	1826.04	1837.38
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	6.53	13.75	19.26	30.10	41.79	53.73	75.14	86.96	97.08	99.38	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

CONCENTRATION RATIO R= 0.146

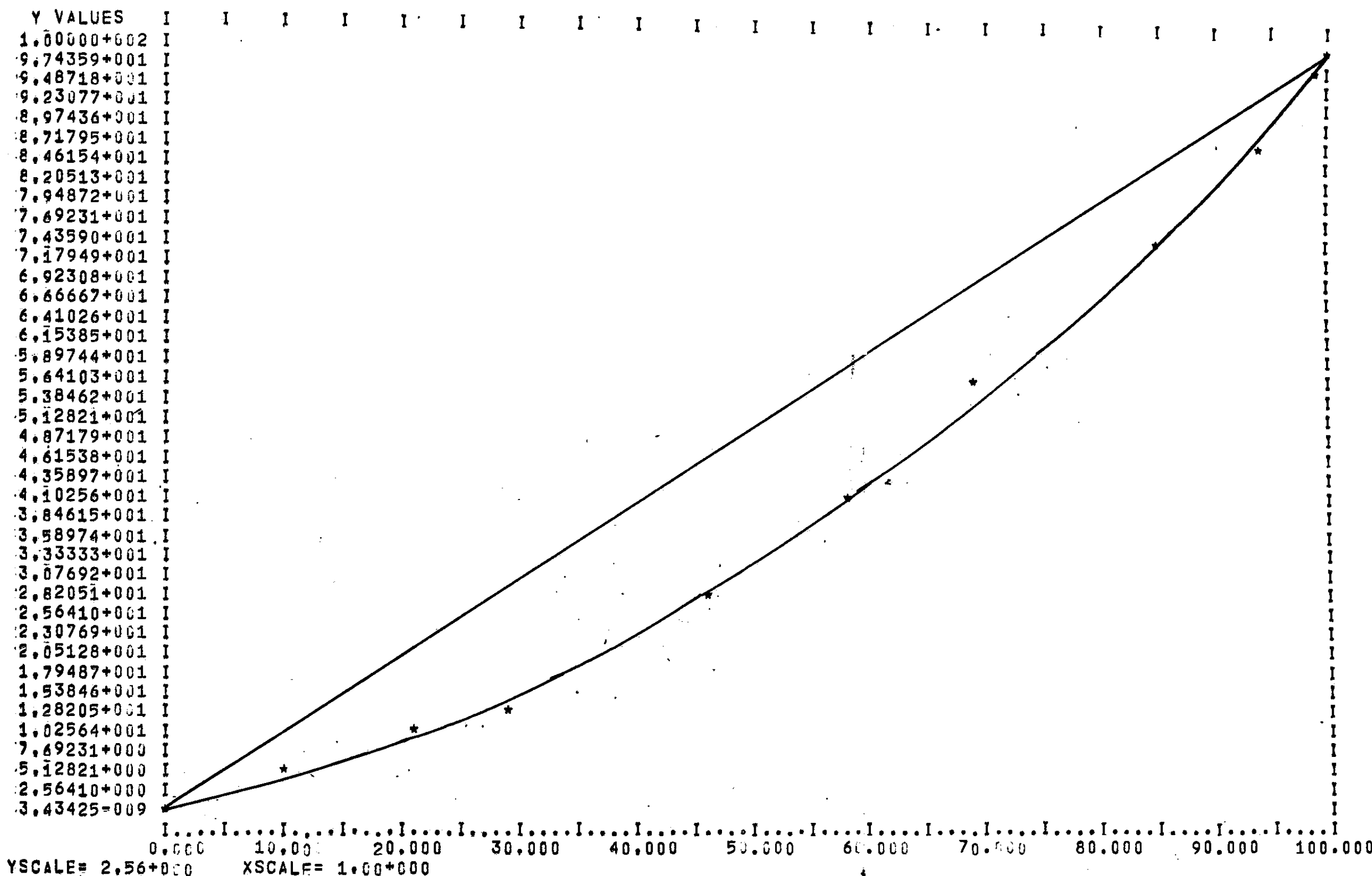


YSCALE= 2.56+000 XSCALE= 1.00+000

SET NO 3

CUMULATIVE EXPEND.	0.00	80.00	202.20	310.11	540.95	767.15	983.99	1361.19	1643.55	1823.73	1859.73	1883.97
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	4.25	10.73	16.46	28.71	44.72	52.23	72.20	87.24	96.80	98.71	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

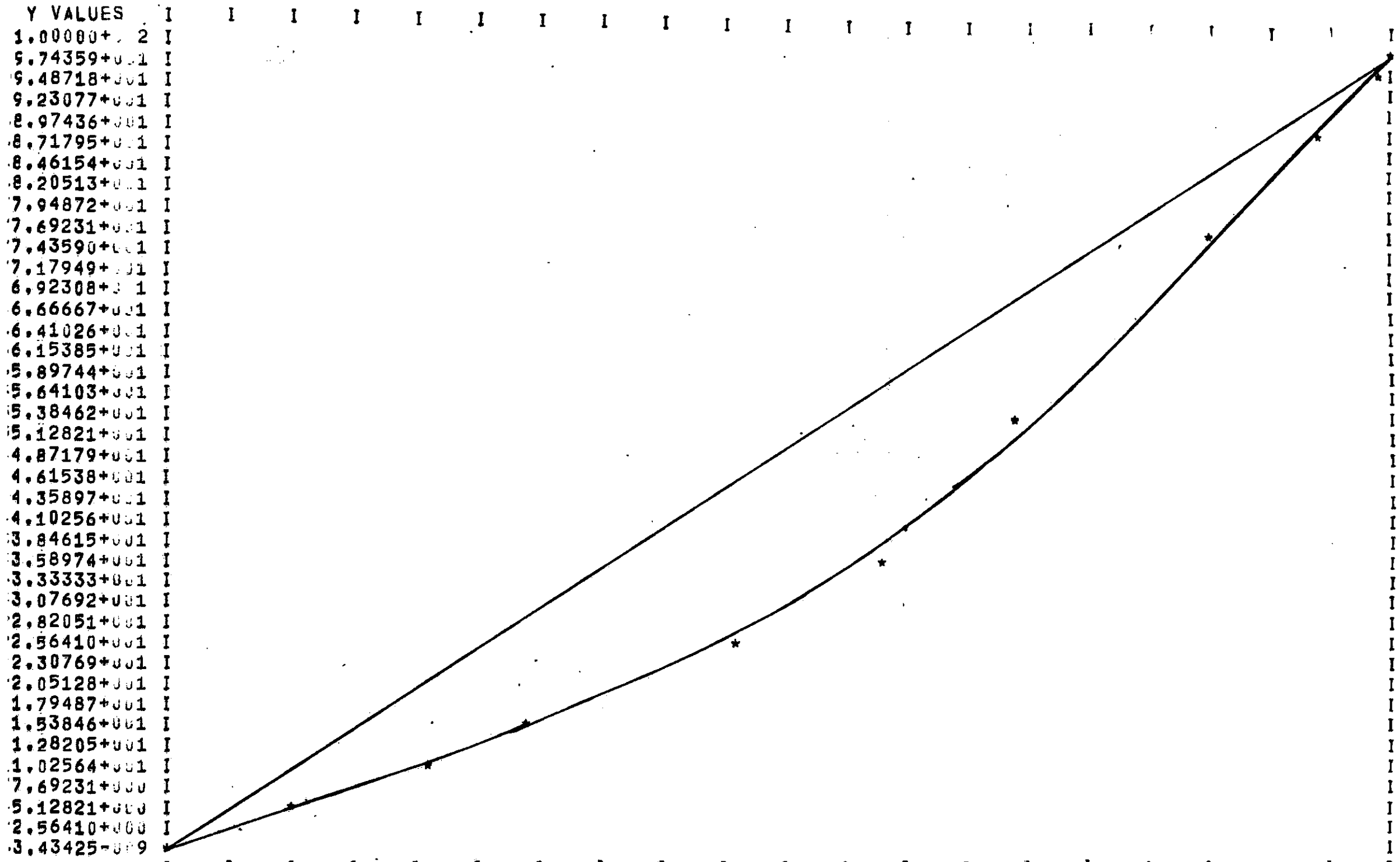
CONCENTRATION RATIO R= 0.1209



SET NO 4

CUMULATIVE EXPEND.	0.00	10.00	24.30	36.29	70.12	106.00	143.53	191.03	225.75	251.58	257.07	259.41
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	3.85	9.37	13.99	27.03	40.86	55.33	73.64	87.02	96.98	99.10	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

CONCENTRATION RATIO R= 0.1222

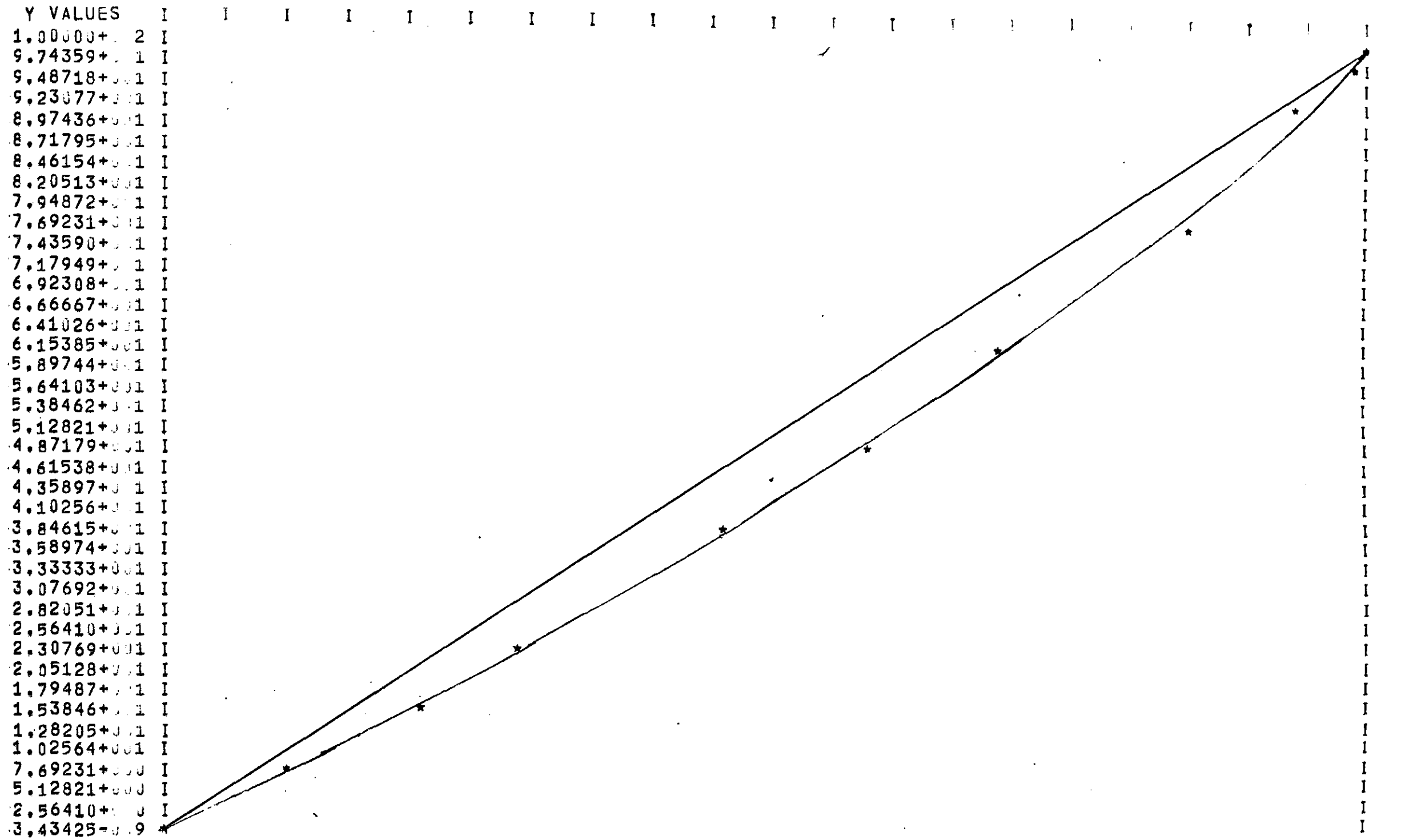


YSCALE= 2.56+000 XSCALE= 1.00+000

SET NO 5

CUMULATIVE EXPEND.	0.00	33.75	62.35	85.24	138.97	199.81	316.34	428.44	511.24	552.90	565.95	565.95
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	5.96	11.02	15.06	24.56	35.31	54.22	75.70	88.57	97.69	100.00	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

CONCENTRATION RATIO R= 0.1249

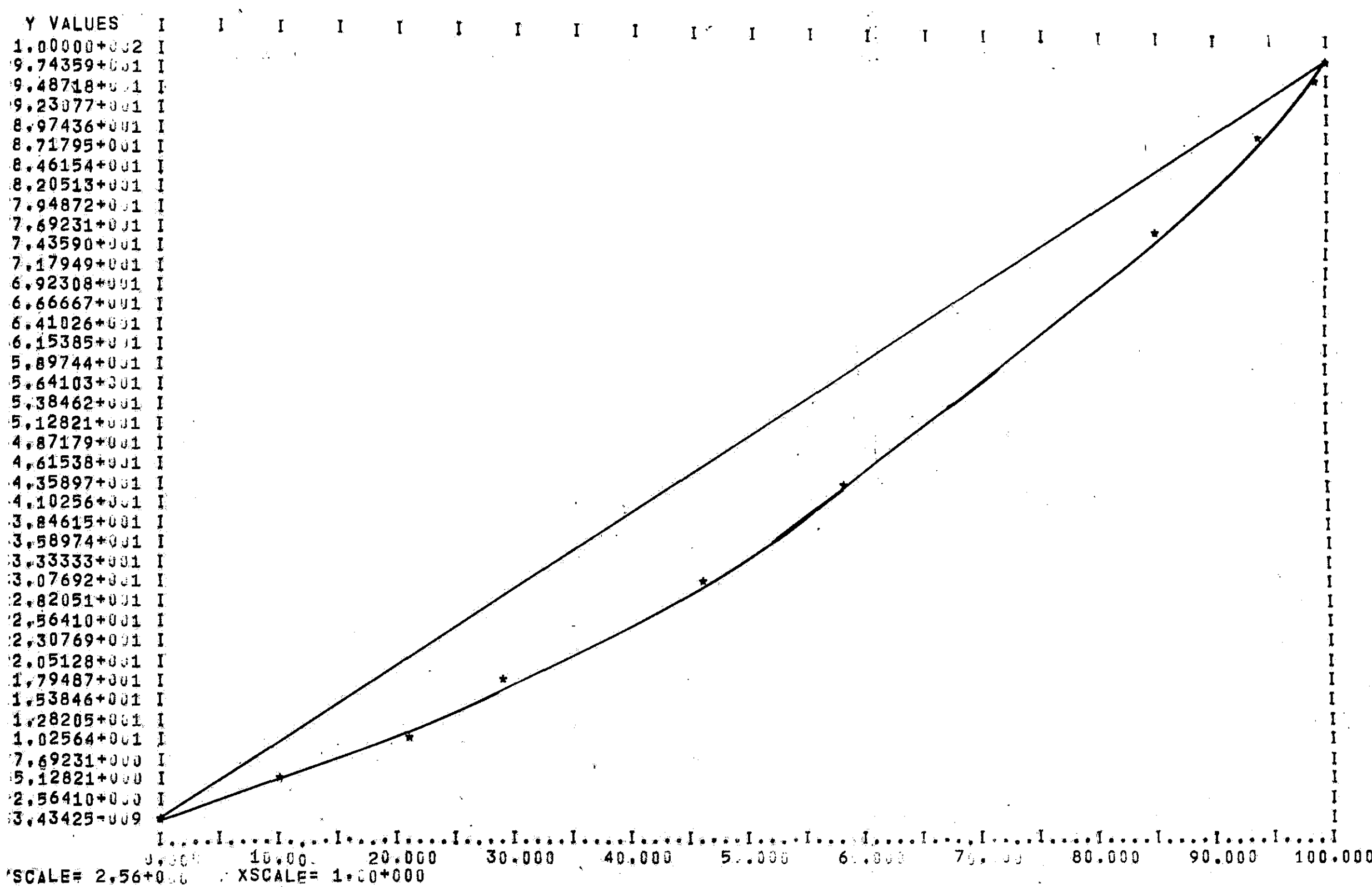


YSCALE= 2.56+000 XSCALE= 1.00+000

SET NO 7

CUMULATIVE EXPEND.	0.0	52.50	198.40	163.99	281.4	367.2	453.38	581.68	688.20	737.34	746.61	749.46
CUMULATIVE PERSONS	0.0	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	7.01	14.46	21.88	37.55	49.00	61.49	77.48	91.83	98.38	99.62	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

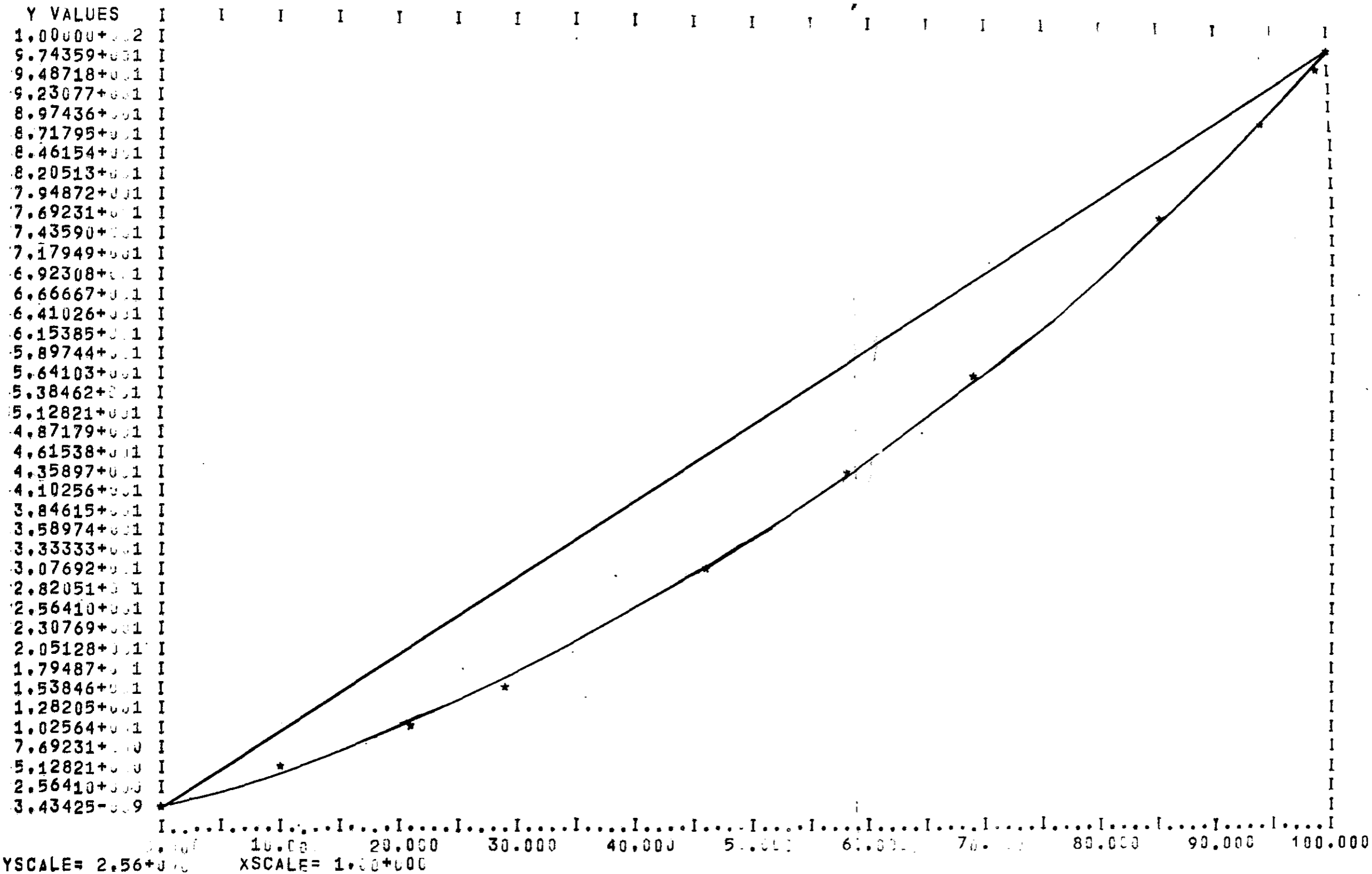
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SET NO 8

CUMULATIVE EXPEND.	0.00	38.75	103.75	176.78	300.16	424.96	582.33	745.43	869.75	947.87	968.21	975.02
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	3.97	10.64	18.13	30.79	43.58	59.69	76.45	89.20	97.22	99.30	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

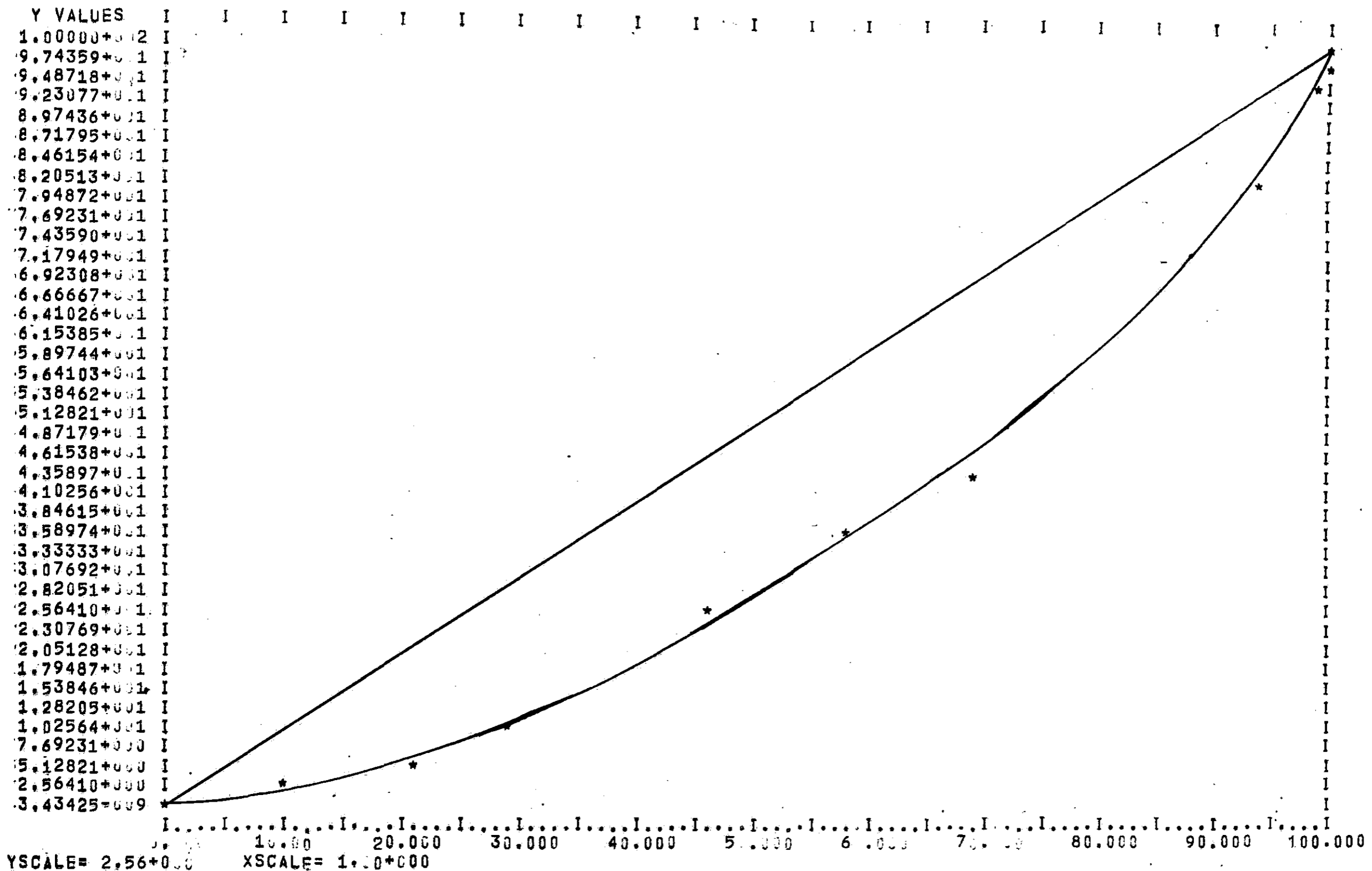
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SET NO 10

CUMULATIVE EXPEND.	0.0	33.75	80.55	123.06	226.54	335.74	421.92	568.22	667.90	732.16	743.05	749.83
CUMULATIVE PERSONS	0.0	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	4.50	10.74	16.41	33.21	44.78	56.27	75.78	89.07	97.64	99.10	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

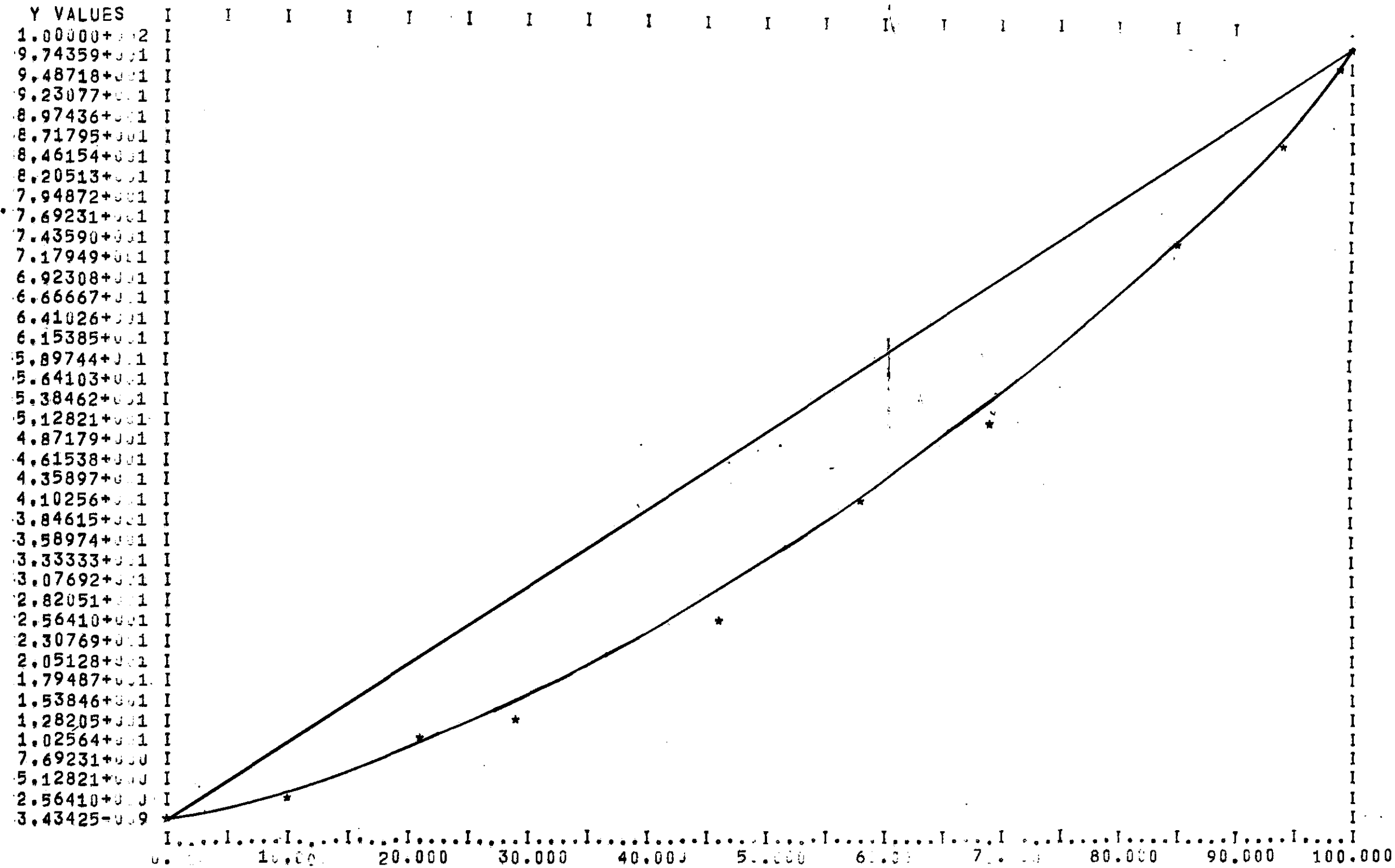
CONCENTRATION RATIO R= 0.124



SET NO 11

CUMULATIVE EXPEND.	0.00	2.50	6.40	16.21	38.10	55.26	64.99	89.69	126.65	144.92	147.71	152.36
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	1.64	4.20	10.64	25.10	36.27	42.66	58.87	83.13	95.12	96.95	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

CONCENTRATION RATIO R= 0.1804



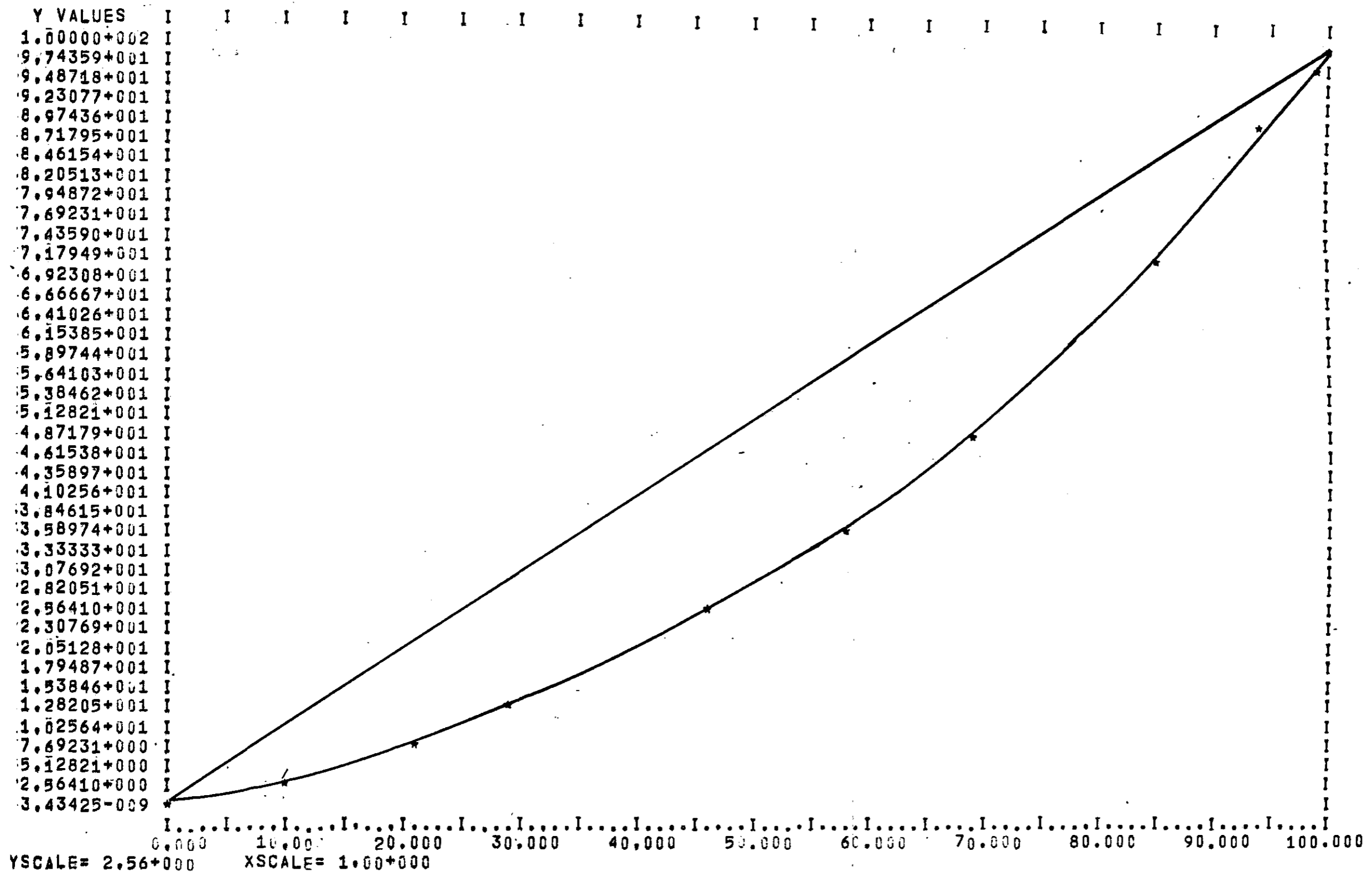
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XSCALE= 1.00+000

SET NO 12

CUMULATIVE EXPEND.	0.00	26.25	67.85	92.92	178.49	278.33	356.17	502.47	606.63	666.48	680.16	686.07
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	3.83	9.89	13.54	26.22	40.57	51.91	73.24	88.42	97.14	99.14	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

CONCENTRATION RATIO R= 0.1281



SET NO 13

CUMULATIVE EXPEND.	0.00	8.75	33.45	50.89	98.65	145.45	195.49	284.79	355.35	389.37	398.64	400.62
CUMULATIVE PERSONS	0.00	125.00	255.00	364.00	563.00	719.00	858.00	1048.00	1160.00	1223.00	1232.00	1235.00
PERCENT CUM EXP	0.00	2.18	8.35	12.70	24.62	36.31	48.80	71.09	88.70	97.19	99.51	100.00
PERCENT CUM PERSONS	0.00	10.12	20.65	29.47	45.59	58.22	69.47	84.86	93.93	99.03	99.76	100.00

CONCENTRATION RATIO R= 0.1459

CHAPTER VII

HOUSEHOLD BUDGET - AN ECONOMETRIC ANALYSIS

7.1.1 Introduction

The concern with the consumption aspect of economic problem is traditional and long-standing. The fact-finding inquiry on the basis of regional differentiation of consumption habits, which cannot be deduced from the other available data on production, sales, imports, exports, etc., is important for number of reasons.

1

Vera Cao Pinna says:

"Another important set of independent information required for the construction of a regional input-output table concerns the consumption patterns of the various social classes. Notwithstanding the already mentioned difficulties related to the blowing up of the data derived from family budgets this information is essential not only because it provides additional elements for testing the consistency of the data and of the estimates on the supply side, but also (and may be primarily) because it provides a valuable statistical basis for investigating the potential evolution of the final demand for consumer goods. The cross-section analysis of family budgets is actually the method usually applied for determining the functional relationships between the demand for individual commodities and the income (or total expenditure) level of the various consumer categories."

The statistical interest is made clear by Bowley's statement in which he outlines three purposes of scientific statistics: establishment of averages, description of

¹
Vera Cao Pinna, "Problems of Establishing and Using Regional Input-Output Accounting", in Isard and Cumberland, edited, "Regional Economic Planning : Techniques of Analysis for less developed areas". European Productivity Agency of the Organization for European Economic Cooperation, Paris, p. 314.

variations and solution of problems of causation.²

Houthakker proposed to discuss only "the econometric analysis which is intended to isolate and measure the regularities of an economic nature by statistical methods."³

The discussion in the fifth chapter revealed the deficiencies in the consumption pattern arising out of seasonal variations in the cereal consumption and also additionally, disclosed the points at which these deficiencies appear in the consumption of cereals.⁴ Now the econometric exercise undertaken in the present chapter would highlight the regional features of the behaviour of consumption pattern. In Engles' term⁵ the purpose is conceived as that of discovering whether uniformities exist that might be called 'laws'. The principal interest of this econometric

² Hazel Kyrk: "Discussion", Journal of the American Statistical Association, Volume 32, March, 1937, p. 47.

³ Houthakker, "The Econometrics of Family Budgets", Department of Applied Economics, Reprint Series No. 64, University of Cambridge, 1952, p. 2.

⁴ It was of primary interest in this study of the region to disclose the likely inadequacies of the region in income and consumption choices and the preceding discussion of levels of living serves as a general background to the econometric analysis of family budgets presented in this chapter.

⁵ Allen and Bowley say "It may be possible to discover, from records of expenditure, whether individuals do in fact behave in similar ways when prices and incomes change, or to what extent their behaviour varies, and so to throw light on the homogeneity of the group in respect of the complex of desires." Allen, R.C.D., and Bowley, A.L., "Family Expenditure: A Study of Its Variation", King and Sons, London (1935), pp. 1-2.

investigation⁶ is adequately summed up by Hazel Kyrk.

"The objective of these studies is the discovery of factors that control consumptive choices and the relative power of each. As Lively puts it, it is to determine the internal laws of budgetary organization and variation, and to explain budgetary behaviour in terms of associated non-budgetary variables."

The economic theory states that the consumption of a household is primarily determined by its income on one hand, and prices on the other. The household⁷ here pre-

6

Hazel Kyrk, *ibid.*, p. 49.

Foote and Fox have commented rather cautiously:-

"The immediate object of a statistical demand analysis is the measurement of relationships rather than an explanation of the particular values obtained. But the analyst feels under pressure to rationalise the numerical results on either a commonsense or a theoretical basis. It is often said, for example, that the demand for an item which is a trivial object of expenditure (that is, one that takes up an almost infinitesimal fraction of total income) is likely to be highly inelastic. To support this, another factor that tends to make for inelasticity would have to be added, that is, that the commodity has no close substitutes. A commodity such as potatoes or onions, on this score would have a less elastic demand than a commodity such as beef, port or chicken which has several fairly close substitutes... Whether two commodities are effective (economic) substitutes depends on consumer attitudes toward them and not directly upon their nutritional and physical attributes."

Richard J. Foote and Karl A. Fox, "Analytical Tools for Measuring Demand", Agriculture Handbook No. 64, United States Department of Agriculture, January, 1954, Washington, p. 37.

⁷ Utting and Cole have defined household as "any group of people who live together and whose main household expenses are met from a common pool."

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supposes a certain unanimity between the members that constitute it. "The family is selected because it is still the principal consumption unit and what industry, farm, forest and mine are to produce depends for the most part, on the wants of individuals as expressed through the family purse."⁸ It is necessary that such an enquiry be limited to homogeneous people. The region under study, does not exhibit racial heterogeneity and as such is a compact tribal tract.⁹

Utting, J.E.G., Cole, Dorothy, "Sampling for Social Accounts : Source Aspects of the Cambridgeshire Survey". Reprint Series No. 92. University of Cambridge, Department of Applied Economics, 1955, p. 5. Also refer, Samuelson, "The problem of integrability in utility theory", *Economica*, N.S. 17, 355, 1950, pp. 374-75.

⁸ Louis Bader, "The American family Income and Prosperity", *Journal of the American Statistical Association*, September, 1933, p. 303.

⁹ "It is quite clear that different choices will be made by different individuals according to the cultural, environment in which they find themselves. Individuals will naturally be influenced by such variables as climate, divergent composition of population and social environment, whether rural or urban, large city or small community. There are likely to be great divergencies as to the specific amounts....but when all these are combined in the single item of food, such differentiations tend to disappear. This is so because with an increase in the number of items of choice the more uniform and homogeneous does the average become."

Leifur Magnusson, "An International Inquiry into Costs of Living : A Comparative Study of Workers' Living Costs in Detroit and Fourteen European Cities", *Journal of the American Statistical Association*, June 1933, Volume XXVIII, p. 12.

7.1.2 Logic of Cross Section Enquiry

The purpose of a household budget study is to determine the relationship between the consumption of various commodities that enter the budget and the level of income. This relationship is often described in terms of 'income elasticities'. The ratio of a percentage change in consumption to percentage change in income, whether in a time-series analysis or a family budget study is usually referred to as 'income elasticity of demand' or 'elasticity of demand with respect to income'¹⁰

The household budget study is based on inter-family comparisons with respect to different levels of consumption in relation to different levels of income, in the same period of time. Therefore the implicit assumption of prices being the same for all households in the survey is important.¹¹ Thus the effect of prices on consumption

¹⁰ "Some writers apply the term 'income elasticity of demand', to the ratio of percentage change in retail expenditures to the corresponding percentage change in consumer income." Richard J. Foote and Karl A. Fox, "Analytical Tools for Measuring Demand". Agriculture Handbook No. 64, United States Department of Agriculture, Agriculture Marketing Service, Washington, January 1954, p. 36.

¹¹ "The study is 'econometrical' in the sense that it attempts to apply measurement to economic actions. It is well to distinguish it from the more familiar econometric analysis of the demand for goods. These usually consider the variations in the amounts demanded by a group of consumers in relation to price variations without reference to the differences between the incomes of the individuals who make up the group. Here, on the other hand, we do not

cannot be studied from one cross-section data on household budgets. Jacob Paroush comments, "As with many econometric problems, the study of economic behaviour over time from a cross section has often been approached as a problem of estimation. In other words, attempts have been made to derive a parameter which describes behaviour over time from data relating to one point in time."¹²

It is to be remembered here that the problem of translating the results of cross-section data among households at a given moment in time into what the given set of households would be expected to behave as their incomes change over time is indeed basic to any meaningful interpretation. The other problem, though of different order of importance, is whether all the probable influences are accounted in the choice of explanatory variables.¹³

consider price variations at all. We assume that prices are the same within the group to which the budget collection relates. We are obliged to ignore any difference in prices that in fact may exist owing to the different locations of the members of the group or to their different incomes, and there is thus some want of precision in our results, especially when the group investigated is at all heterogeneous."

Allen, R.G.D. and Bowley, A.L., "Family Expenditure : A Study of Its Variation", P.S.King and Son, Ltd., London, 1935, p.3.

¹² Paroush Jacob, *Econometrica*, "The Order of Acquisition of Consumer Durables", Vol. 33, No. 1, January 1965, p. 225.

¹³ "It is necessary to provide a specific mathematical formulation of the way in which the influences explicitly taken into account enter into the relationships. This formulation will depend, in part on commonsense considerations which may be supposed usually to be true, such as

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It is necessary to specify the period of adjustment during which the income and consumption changes would work out fully. In a study of long-run income elasticities the interaction of income and size of the household has to be noted. The changes in consumers preferences and lags in adjustment of consumption habits cannot be adequately visualized. Nissan Liviatan¹⁴ has noted, "that insofar as marginal propensities to spend vary with income (and they usually do) account must be taken of the change both in the level of aggregate income and in its distribution among families. The same can of course be said with respect to the demographic variables which affect consumption, the interaction between the various variables should likewise be borne in mind." But in the short-run it is reasonable to assume away such effects, and the estimates of cross-section regression analysis may be expected to provide the

that consumption is a monotonic function of income and prices, though such assumptions will sometimes have been built into the theory. In part it will depend on ease of computation and on a certain simplicity in reflecting the parameters of theory, in this case, elasticities."

Stone, Richard, "The Measurement of Consumer Expenditure and Behaviour in the United Kingdom 1920-1938", Volume I, Studies in the National Income and Expenditure of the United Kingdom, Cambridge University Press, Cambridge, 1954, p. 238.

¹⁴ Liviatan, Nissan, "Consumption Patterns in Israel", Falk Project for Economic Research in Israel, Jerusalem, April 1964, p. 12.

Prais and Houthakker in "The Analysis of Family Budgets" have discussed the implications of inter-dependence in consumers' tastes on the aggregation problem.

estimates of income elasticities over time. Gregg Lewis and Paul Douglas have said, "For there is a presumption that a typical family at an income level (A) will, when it is moved to another income level (B) and kept within a specified living situation, spend within the specified 'length of run' substantially as did the typical family in the cross-section study which previously received income level B."¹⁵

7.1.3 Independent Variables

The second problem is related to the influence of variables other than income, which may have an appreciable effect on the consumption of a household. The statistical description with the help of estimated parameters of regression equation explaining the covariation of household expenditure and income is not adequate.¹⁶ When the simple regression function of expenditure on income is fitted, the influence of other factors is left out.¹⁷

¹⁵ Gregg Lewis, Douglas, Paul H., "Studies in Consumer Expenditure (1901, 1918-19, 1922-24)", The University of Chicago Press, Illinois, U.S.A., p. 4.

¹⁶ "The simplifications of economic theory and the omission of influences and terms in the actual expression used mean that in applications no exact correspondence between hypothesis and observation can be expected. It is necessary therefore to specify the inexactness, that is, to set up a statistical model of the hypothesis which is actually to be tested. Such a step cannot be avoided because the appropriate estimation procedure involves such a specification."

Nissan Liviatan^{17a} says "Among the explanatory variables to be analyzed in addition to income, the most important is family size (measured by number of persons in the family)". The additional point would be not merely the size but also the composition of family in terms of children and adults. The methods have been devised to take care of age-sex composition of the household based on the concept of "equivalent adult" or "unit consumer" scales.¹⁸ This reduces the composition vector to a weighted sum of unit consumers.

Houthakker says "Family size, occupation and location are no doubt the three main factors on the preference side which make for differences in consumption."¹⁹

Stone, Richard, "The Measurement of Consumers' Expenditure and Behaviour in the United Kingdom 1920-1938", Volume I, Studies in the National Income and Expenditure of the United Kingdom. Cambridge University Press, 1954, p. 239.

¹⁷The bivariate frequency distribution of all households classified according to income and expenditure gives the regression in, what Lewis and Douglas term as 'a total sense' see, H. Gregg Lewis and Paul H. Douglas, *ibid.*, p.5.

^{17a}Nissan Liviatan, *ibid.*, p. 3.

¹⁸R.G.D. Allen originally constructed such scales in 1942: "Expenditure Patterns of Families of Different Types", in Lange, McIntyre, and Yutema edited "Studies in Mathematical Economics and Econometrics", Chicago University Press, p. 190.

Also for the standard reference see Woodbury, R.M., "Economic Consumption Scales and Their Uses", *Journal of the American Statistical Association*, Vol. 39, December 1944, pp. 445-68.

¹⁹Houthakker, "The Econometrics of Family Budgets", Reprint Series No. 64, University of Cambridge, 1952, p.3.

The region under study being characterized exclusively by agriculture, occupation as an independent variable has not been considered here. The household size is given by the number of persons. As regards the location, three sub-regions have been distinguished to differentiate 212 sampled households. They are as follows :-

- (1) Pathar region i.e. plateau, is a group of about seven villages in the north west of Akola taluka.
- (2) Pravara valley is a group of about thirty-eight villages and Pravara river passes through this region.
- (3) Mula valley is a group of about forty-two villages and Mula river passes through this region.

These broad geographic divisions are based on the considerations such as early revenue history, topography, etc. Out of nine sampled villages, the Khirvire village belongs to the first region, and the other five villages viz. Ambevangan, Deogaon, Guhire, Malegaon and Kehugaon, belong to the second region, Pravara valley, and the rest of the three villages, viz. Sakirwadi, Padalane and Vakdari, belong to the third region, Mula valley. Amongst 212 sampled households, 40 households belong to the first region, 93 households belong to the second region and the rest of 79 households belong to the third region.

Thus, the independent variables considered are income and size of the household, and location. The prices are assumed to be approximately constant for all sampled households at a point of time.

One simple way out would be to conduct a bivariate analysis in which the data on appropriate variables namely, expenditure and income of the household, are grouped in a fashion that would hold all explanatory variables save one, i.e. income, constant. This procedure is useful only in the case of sufficiently large number of sampled households under observation.

However the other approach would be to devise a suitable statistical technique in which the most important factors influencing the household consumption -- "those in fact having an intrinsic economic importance as opposed to those causing a more superficial variation" -- viz., the total disposable income and size of the household, are taken as independent or explanatory variables. The differences in situations on account of different locations are not directly considered but since the sampled households are grouped according to broad geographic divisions, this influence is more or less held constant. Thus though the total number of observations is reduced thereby, the gain in statistical estimation procedure on account of enhanced homogeneity may be mentioned here. Hence any

remaining variations in the household consumption may be directly correlated to variations in the total disposable income and size of the household plus an error variation of account of secondary factors such as varying preferences reflecting different consumers' tastes and habits. Houthakker says:²⁰

"We have said already that any other factors will in practice have to be lumped together in a probability distribution of the residuals from some appropriate regression. The question then arises what form this distribution will have. It would be convenient to have a homoscedastic normal distribution and Allen and Bowley (1935, pp. 140-1) have given reasons why this might in fact be found, but their argument is not convincing since they ignore the fact that consumption cannot be negative. It seems probable, if one takes this fact into account, that the distribution is skew (with the median smaller than the mean) and that the variance will increase when income rises as there will then be more scope for variations of taste, income effects being less serious."

The technique of model building to establish the causal relationship between variations in household consumption on one hand and variations in disposable income and size of the household on the other is provided by multiple regression analysis. The parameters of the model are estimated through appropriate functional form.

²⁰ Houthakker, "The Econometrics of Family Budgets", Department of Applied Economics, University of Cambridge, Reprint Series No. 64, 1952, p. 3.

7.1.4 Concept of Income

At this stage an explanation about the concept of income is relevant here. Theoretically, the economic position of the household is best expressed in terms of the net worth which also includes anticipated receipts and liabilities. But in practice, the exhaustive details of household income are not usually available. The income of subsidiary earners and income from property is also missed in reporting. Thus, the concept of income is not satisfactory, reliable and exhaustive.²¹ Instead of total expenditure of the household is taken as the indicator of real income.²² Liviatan says: "It is for this reason that in many studies 'total expenditure', i.e. the sum of expenditures on all commodities, is used as the independent variable instead of income."²³ This is called as the 'budget restraint' which means that the sum of expenditures on individual commodities in the budget must not exceed the total expenditure or total disposable income of the

²¹ Tobin has discussed the difficulties of ascertaining the income in "A Statistical Demand Function for Food in the U.S.A." *Journal of Royal Statistical Society*, A, 113, 1959, pp. 115-7.

²² Allen and Bowley, "The independent variable we consider, therefore, is income or total expended income". Allen and Bowley, "Family Expenditure : A Study of Its Variation", P.S.King and Son, Ltd., London, 1935, p. 3.

²³ Liviatan, *ibid.*, p. 12.

household. When the simple regression analysis is carried out in which the consumption of a commodity is a function of household income (or total expenditure) it means, in statistical terms that "(The technique consists of calculating the simple least-squares regression...) when this is done the sum of slopes ("b" values) of these regression equations equals 1.0 and the sum of the constant terms ("a") values equals 0.0".²⁴

7.1.5 Absolute Income Hypothesis

An important assumption regarding the interpretation of consumption function that explains the determination of family consumption behaviour may be underlined here. James Deusenbury and Dorothy Brady and Rose Friedman have raised these questions and contributed their points of views. Students of family budgets study from Engle onwards have believed that the array of Engle curves at a point of time represents the causal relationship between consumption and income of the household. This is known as the 'absolute income hypothesis'. The estimated parameters

²⁴ Foote and Fox, "Analytical Tools for Measuring Demand", p. 8.

Foote and Fox have given a mathematical proof in Appendix note 1.

"Proof that if X equals Y_1 plus Y_2 and simple regressions are run between X and Y_1 and Y_2 respectively, the sum of the slopes will equal 1.0 and the sum of the constant values will equal 0.0".

Foote and Fox, *ibid.*, pp. 79-81.

of regression of consumption on income are useful as the basis of demand projections at macro level. The other interpretation known as the "relative income hypothesis" believes that the Engle curves reflect the relationship between household consumption and relative income measured by the position of a household in the income distribution. Tobin says that "under the first interpretation which will be called the 'absolute income' hypothesis, the expected value of the consumption of a family whose new income is 'Y' is the observed average consumption of families who formerly received income Y. Under the second interpretation, which will be called the 'relative income' hypothesis, the expected value of the proportion of income devoted to consumption by a family whose new income is Y is the proportion observed for families who formerly stood in the same percentile of the income distribution as families with Y do now."²⁵

According to the 'relative income' hypothesis if the ratio of family income to mean income remains unchanged, it means that national consumption will be a constant proportion of national income, whatever the level of national income. The distribution of households by proportion of

²⁵ James Tobin, "Relative Income, Absolute Income and Saving" Reprint Series No. 56. Department of Applied Economics, University of Cambridge, 1952, pp. 135-36.

income devoted to consumption will be unchanged. Thus this hypothesis denies the method of 'blowing up' the estimated parameters of consumption function to forecast demand projections at the macro level.²⁶ In conclusion the basis of argument presented in this chapter is the traditional assumption described earlier as the 'absolute income' hypothesis.

7.1.6 Types of Curves Fitted

The following three forms are fitted to consumption function in which the variations in household expenditure on an individual commodity are explained by the variations in total disposable income (or total expenditure) and size of the household.

$$x = a + b_1 y + b_2 s \text{ (Linear curve)}$$

$$x = a + b_1 \log y + b_2 \log s \text{ (Semi-logarithmic curve)}$$

$$\log x = a + b_1 \log y + b_2 \log s \text{ (Logarithmic curve)}$$

²⁶ "The relative income' hypothesis has been developed to explain the division of income between saving and consumption, and it is in this connection that it will be considered here. Presumably it would not be applied without modification to individual consumption goods. However it has wide implications for the interpretation of budget data. Demand relationships, whether for consumption as a whole or for individual commodities cannot usually be estimated satisfactorily from time series of national totals alone. If estimates can be obtained from micro-economic data, the statistical difficulties of evaluating the parameters in demand functions from macro-economic time series are reduced. Such estimates can be derived from budget data on the 'abso-

Here, the constants in the linear curve, viz. b_1 and b_2 are the marginal propensities to consume with respect to y and s . In the logarithmic curve, the coefficients b_1 and b_2 are estimates of the partial elasticities of x with respect to y and s viz. total expenditure and size of the household respectively. The consumption elasticities with respect to income (or expenditure) and household size are referred to, henceforward, as η_{xy} and η_{xs} respectively. The linear curve assumes that the marginal propensity to consume (MPC) is constant over all the ranges of income. The logarithmic curve assumes that it is the elasticity which is constant. The semi-logarithmic curve assumes that both marginal propensity to consume and elasticity decline with the rise in level of income (or total expenditure). These functions are fitted by Prais and Houthakker in the "The Analysis of Family Budgets" and they have concluded that the semi-logarithmic curve is the most appropriate form for food items.

Foote and Fox²⁷ while discussing the use of arithmetic and logarithmic variables have said, "Linear (arithmetic) and logarithmic equations are the principal func-

-solute income' hypothesis. But if the absolute income interpretation is incorrect in regard to saving and total consumption, it cannot be used with any confidence in estimating the demand for components of consumption."

James Tobin, *ibid.*, p. 136.

²⁷Foote and Fox, *ibid.*, pp. 9-10.

tional forms used in commodity analysis. In most cases no data are available for the extreme values and there is little interest in them. Logarithmic equations have the mechanical advantage of yielding constant elasticity curves and in many analyses they appear to fit the data better than arithmetic relationships. In general, logarithmic equations should be used when the relationships are believed to be more stable in percentage than in absolute terms or both. If the relationship between the variables is believed to be additive, arithmetic variables should be used ... In general, the type of functional form to be used should be decided before the analysis is run. Except in a few special cases, the form of the equation cannot be determined from the data."

Nissan Liviatan²⁸ has said, "We may note that the use of the full logarithmic form is very common in recent budget studies, and it has therefore the advantage of being comparable with other studies. It is also very convenient both for computation and interpretation."

Nissan Liviatan²⁹ further says that, "...even if the true elasticities are not constant but rather change with the level of income, the fitting of constant elasticity

28 Liviatan, *ibid.*, p. 14.

29 *ibid.*, p. 27.

curve can still be regarded as a reasonable approximation for many purposes. It should be remembered that in most cases we are interested in knowing the income elasticity of a commodity at the average income level and it is very likely that the desired income elasticity can be fairly well approximated by the constant elasticity curve even though the elasticity does in fact change with the level of income."

It is explained later that the choice of form does not give particularly better results, and the restrictive assumption of constant elasticity in the full logarithmic form does not come in the way of obtaining a good fit.

7.1.7 Discussion of Concepts used in Analysis

The average expenditure curve measures the proportion of the given total income spent on the commodity group in question. Marginal expenditure curve is described by the relationship,

$m = dx/dy$ where dx/dy is the derivative of x with respect to y , i.e. total income and m is the marginal propensity to consume. Geometrically, the marginal expenditure corresponding to any point on the total expenditure is given by the slope (with respect to the income axis) of the curve at that point. Marginal expenditure is

less than, equal to, or greater than average expenditure as average expenditure is decreasing constant or increasing.

The income elasticity of expenditure is the ratio of the percentage change in expenditure corresponding to a small, say one percent, percentage change in income. In other words, the income elasticity is obtained by dividing marginal expenditure by average expenditure.

The expenditure curve is elastic or inelastic as the proportion of income spent at the margin is greater or less than that spent on the average. Since the marginal expenditure is greater than the average expenditure when average expenditure is increasing and is less when average expenditure is decreasing, it follows that the elasticity is greater than, less than or equal to unity as average expenditure is increasing, decreasing or constant. When the total expenditure is plotted on logarithmic scales the income elasticity can be measured graphically as the slope of the curve.

The linear multiple regression function assumes that the marginal propensity to consume is constant and this is a serious inflexibility of the consumption function. Allen and Bowley originally fitted the simple linear regression function which is known as the 'law of linearity'. The principal criticism of this Allen and Bowley approach is that it ignores that the consumption cannot be negative.

Also, the common-sense meaning of the terms such as necessities and luxuries understood to take the elasticity values as less than and greater than unity respectively, cannot be elaborated with the help of law of linearity, since the income elasticities will not be different numerically at high-income levels. The simple criterion,³⁰ is provided when the point of intercept is positive, it means that families will spend money on given commodities even though they have no income and they will borrow or draw on past savings to obtain them. These commodities may be classed as 'necessities'. If however 'a' is negative this means that the expenditure will not be incurred on the given commodities until income reaches a certain level. Such commodities may be called 'luxuries' or 'comforts'. Both the negative value of 'a' and the slope of the regression coefficient 'b' will determine the income level where expenditure on the given commodity would begin. There is no economic meaning to negative expenditures on commodities which are not purchased. The linear curve is a broken line in the region where 'a' is negative. In reality wherever there is a negative intercept the expenditure will be zero rather than negative.

³⁰ Allen and Bowley have discussed the scale of urgency. They say, "The validity of the linear expenditure law can be observed from a graphical presentation of the data, and the

The other serious restriction arises out of the assumption of constant marginal propensity to consume given by the constant value of the slope in the regression equation. This assumption means that for a given commodity group any redistribution of income among income classes will not affect the aggregate amount spent on the commodity group. In other words, this means that the changes in the distribution of income between income levels would not bring about any change in the aggregate expenditure.

As against the linear form, the full logarithmic curve is preferred in number of studies. According to this form the income elasticities are constant whereas the marginal propensity to consume varies. Where the income elasticities are less than unity, i.e., where expenditures on a given group of commodities increase proportionally less rapidly than the income, the marginal expenditures decrease as income increases. On the other hand, if the income elasticity is greater than unity, the marginal expenditures will rise as income increases. This is an acceptable generalization.

relative gradients and positions of the lines representing different expenditures can then be interpreted as expressing the relative urgency of needs. An item has been defined as a necessity if c (constant) is positive. Similarly, an item is a luxury, if c is negative."

Allen, R.G.D., and Bowley, A.L., "Family Expenditure: A Study of Its Variation". P.S.King and Son, Ltd., London, 1935, pp. 9-11.

The disadvantage of the restrictive assumption of constant elasticity obtained through full logarithmic curve can be avoided with the help of semi-logarithmic curve which is flexible enough to let the income elasticities vary at different levels of income. This also implies that the marginal propensity to consume would vary with changes in income.

7.2 Suitability of the form

A regional comparison of the multiple correlation coefficients of the three forms is based on the values of R and the highest value of R is taken as an indication of the most suitable form.

7.2.1 First Region (Please see table on next page)

The linear form is most suitable to commodity groups such as cereals, vegetables, oil and oil products, education, and clothing.

The semi-log form is most suitable to commodity groups such as pulses, milk and milk-products, spices, fuel and lighting, tea, sugar and gur, pan-supari and miscellaneous.

The double log form is most suitable to two commodity groups, mutton-fish, etc. and tobacco and tobacco products. In the case of former commodity group, out of

Inter-forms comparison of multiple correlation coefficients(R)

First Region

Sr. No.	Commodity Groups	Linear	Semi-log	Double-log
1	Cereals	0.9751	0.9125	0.9631
2	Pulses	0.7450	0.7969	0.7720
3	Milk products	0.7554	0.7815	0.8133
4	Vegetables	0.5730	0.5257	0.4733
5	Mutton-fish etc.	n.e.*	n.e.	0.4378
6	Oil products	0.6063	0.6038	0.5313
7	Spices	0.4836	0.4923	n.e.
8	Fuel-lighting	0.6608	0.6993	0.6953
9	Tea	n.e.	0.3973	n.e.
10	Sugar, Gur	0.7852	0.8001	0.7908
11	Pan-supari	0.5895	0.6222	0.4937
12	Tobacco	0.5250	0.5192	0.5533
13	Miscellaneous	0.5899	0.6048	0.5450
14	Education	0.6405	0.4731	n.e.
15	Clothing	0.9392	0.8853	0.8945

* n.e. : The overall regression of consumption on income and family size is not explained.

three forms considered here, the double-log form alone is suitable, and in the case of tea, it is found that the semi-log form alone gives statistically significant results.

Excepting education, for all other commodity groups, the maximum difference is invariably less than 0.10 among three forms. In the case of education, it is somewhat higher, about 0.20.

7.2.2 Second Region (Please see table on next page)

The linear form is most suitable to major commodity groups such as cereals, milk and milk products, pan-supari, miscellaneous and clothing.

The semi-log form is most suitable to commodity groups like vegetables and sugar-gur.

The double log form is most suitable to commodity groups like pulses, mutton-fish etc., oil and oil products, spices, fuel and lighting, tea, tobacco and tobacco products. In the case of mutton-fish group, the double-log form gives statistically significant R at five percent level of significance.

The maximum difference in values of multiple correlation coefficients among three forms is generally less than 0.20, but in the case of sugar-gur group the difference is of higher order, about 0.30.

In the case of education, none of the three forms

Inter-forms comparison of multiple correlation
coefficients (R)

Second Region

Sr. No.	Commodity Groups	Linear	Semi-log	Double-log
1	Cereals	0.9343	0.8193	0.9128
2	Pulses	0.6389	0.6412	0.6680
3	Milk products	0.7925	0.7603	0.6960
4	Vegetables	0.5421	0.5808	0.4299
5	Mutton-fish etc.	n.e.*	n.e.	0.2638
6	Oil products	0.6010	0.6039	0.7265
7	Spices	0.3144	0.3587	0.4112
8	Fuel lighting	0.5109	0.5581	0.6988
9	Tea	0.2607	0.3500	0.4337
10	Sugar, Gur	0.6758	0.6943	0.3709
11	Pan-supari	0.5858	0.4559	0.3978
12	Tobacco	0.5000	0.5750	0.5903
13	Miscellaneous	0.8207	0.7743	0.5828
14	Education	n.e.	n.e.	n.e.
15	Clothing	0.9516	0.8812	0.9398

* n.e. : The overall regression of consumption on income and family size is not explained.

gives statistically significant coefficient of R at five percent level of significance.

7.2.3 Third Region (Please see table on next page)

The linear form is most suitable for commodity groups like milk and milk products, sugar-gur, pan-supari, miscellaneous and clothing.

The semi-log form is most suitable for only one commodity group, mutton-fish, etc.

The double-log form is most suitable for a number of commodity groups such as cereals, pulses, vegetables, oil and oil products, spices, fuel and lighting, tea, tobacco and tobacco products.

For education none of the forms gives statistically significant R at five percent level of significance.

The maximum difference in values of multiple correlation coefficient among three forms is generally less than 0.10, but only in the case of vegetables and sugar-gur it is higher, about 0.20 and in the case of mutton-fish, etc., about 0.30. Otherwise, either of the forms may be chosen to fit the multiple regression function.

In the case of cereals group, in this region, viz. the Mula valley, the double-log form is suitable as against the linear form in the first two regions viz. the Pathar and the Pravara valley. Even here it may be noted that

Inter-forms comparison of multiple correlation
coefficients (R)

Third Region

Sr. No.	Commodity Groups	Linear	Semi-log	Double-log
1	Cereals	0.9528	0.8647	0.9630
2	Pulses	0.8573	0.8516	0.9086
3	Milk products	0.9324	0.8688	0.9329
4	Vegetables	0.7824	0.6841	0.8563
5	Mutton-fish etc.	0.5746	0.6083	0.3114
6	Oil products	0.8203	0.7802	0.8841
7	Spices	0.7589	0.7283	0.8062
8	Fuel lighting	0.6091	0.6860	0.7180
9	Tea	0.5525	0.5647	0.5739
10	Sugar, Gur	0.8219	0.8126	0.6024
11	Pan-supari	0.5873	0.4740	0.4226
12	Tobacco	0.5050	0.5646	0.3989
13	Miscellaneous	0.7744	0.7068	0.3778
14	Education	n.e.*	n.e.	n.e.
15	Clothing	0.9770	0.9178	0.9731

* n.e. : The overall regression of consumption on income and family size is not explained.

in the third region also, the linear form is acceptable along with the double-log form since the difference in values of correlation coefficient is hardly of the order of 0.01, which is quite negligible.

7.2.4 The general conclusions of the foregoing discussion may be noted briefly :

(1) The linear form is most suitable in the case of commodity groups like cereals, clothing, milk and milk products, pan-supari and miscellaneous.

(2) For the rest of the commodity groups, the semi-log form in the first region and the double log form in the second and third regions are the most suitable forms to yield higher values of multiple correlation coefficient.

(3) The choice of form has a little effect on the values of multiple correlation coefficient in the case of major commodity groups like cereals and clothing, since the difference has been always less than 0.10.

7.3 Inter-forms Comparison of Elasticities³¹

In the interest of convenience of discussion, inter-forms regional comparison has been separately attempted in

³¹ The main emphasis is on differences arising out of the three forms, namely, linear, semi-logarithmic and double-logarithmic, which have been fitted to family budgets from three regions.

respect of income and family size elasticities for broad commodity groups. The partial income and family size elasticities have been referred to as η_{xy} and η_{xs} respectively. *

7.3.1 Cereals

In all the three regions, the η_{xy} coefficient based on the double logarithmic form^s gives a lower value than the other two forms. In fact, the values of η_{xy} coefficient indicate the inelasticity of consumption expenditure on cereals. As against this, in the third region, the Mula valley, the value of η_{xs} coefficient based on the double logarithmic form, is higher than that of the corresponding coefficient in the other two regions, though all the η_{xs} coefficients are less than 0.40. In the first region, wherein alone both the slope coefficients of income and family size are statistically significant, the elasticities are slightly less than unity when the double logarithmic form is fitted. In respect of the other two forms in this region, the slope coefficient of income alone is statistically significant, and the values of income elasticity are greater than unity. In the third region, both the partial elasticities based on either of the forms, are relatively stable. In respect of income elasticity, the range of variations in the values is from 0.63 based on the

* Please see the table on next page.

INTER-FORMS COMPARISON OF ELASTICITIES*

Commodity groups	Linear form						Semi-logarithmic form						Double-logarithmic form					
	First Region		Second Region		Third Region		First Region		Second Region		Third Region		First Region		Second Region		Third Region	
	η_{xy}	η_{xs}	η_{xy}	η_{xs}	η_{xy}	η_{xs}	η_{xy}	η_{xs}	η_{xy}	η_{xs}	η_{xy}	η_{xs}	η_{xy}	η_{xs}	η_{xy}	η_{xs}	η_{xy}	η_{xs}
1. Cereals	1.1289		1.2027		.7628	0.3254	1.3173		1.1584		0.6807	0.2552	0.9741	0.1360	0.8986		0.6323	0.3829
2. Pulses	.9752		.2845	.3707	1.2408	-0.3230	1.3618	-0.3859	0.4770	0.2137	1.2908	-0.4152	1.2412		0.4209	0.2107	1.4465	-0.3388
3. Milk & Milk Products	1.1222		.8755	.2752	1.4404	-0.3747	1.5457		1.0501		1.4185	-0.4780	1.3714		1.3387		1.5766	-0.5521
4. Vegetables		.5924	.9801		1.5984	-0.5879			1.2172		1.4182	-0.5868			1.2897		1.2309	-0.2569
5. Mutton-fish etc.					1.3541	-0.7130					1.4617	-0.7102		3.9634	-2.8925			
6. Oil and Oil Products	.6131		.2767	-.5685	1.5544	-0.4573	.9329		0.5374	0.3570	1.5770	-0.6052	0.6892		0.5873	0.3069	1.6810	-0.6222
7. Spices	.3524				0.3037	0.4637	0.4222		0.4923		0.3556	0.3226					0.3837	0.3709
8. Fuel & Lighting	.4168		.5073		0.4775		0.5404		0.7543		0.5556		0.5048		0.8512		0.6587	
9. Tea			.9960		1.2475		0.5539		1.5913		1.3936				3.2605		4.3665	
10. Sugar-gur	.3828	.2219	.6326		1.0391		0.5759		0.8666		1.1125		0.5124	0.1820	1.1449		2.7799	
11. Pan-supari	1.7453		2.8000		2.5455		2.6043		2.3612		2.1589		2.1252				3.1267	
12. Tobacco Products		.3862	1.1172		0.8389	-0.3954			1.5013	-0.5963	0.9611	-0.4389	0.5243		2.0077	-0.9619	1.3804	
13. Miscellaneous		.4816	1.5299	-0.3694	1.5954	-0.5078	0.6537		1.6883	-0.4133	1.5173	-0.5506			2.5271	-1.1860	1.3744	
14. Education		4.3332																
15. Clothing	1.4580	-0.4064	1.4750	-0.4799	1.4565	-0.4808	1.7702	-0.5064	1.5684	-0.4483	1.4296	-0.5406	1.5249	-0.5232	1.5727	-0.5628	1.5509	-0.5729

* Only statistically significant coefficients are noted here. For details, please see the Appendix.

double logarithmic form, to 0.76 based on the linear form. These respective values of income elasticity are also the minimum among the three regions under consideration. In respect of size elasticity, the range of variations is from 0.26 based on the semi-logarithmic form to 0.33 based on the double logarithmic form. In the second region, the range of variations in values of income elasticity is from 0.90 based on the double logarithmic form to 1.20 based on the linear form.

7.3.2 Pulses

The linear form gives the lower value of η_{xy} coefficient in all the three regions, and particularly in the first region, it indicates the inelasticity of consumption expenditure viz. 0.98 whereas in the second region, the η_{xs} coefficient based on the linear form takes a higher value viz. 0.37, and again in the third region, it takes the lowest value viz. 0.32 as compared to the respective elasticities based on the semi-logarithmic and double logarithmic forms.

7.3.3 Milk and Milk Products

The η_{xy} coefficients based on the linear form take a lower value as compared to those based on the other two forms excepting in the third region. In the second region,

the positive η_{xs} coefficient, 0.28, is accompanied by η_{xy} coefficient, 0.88, which is less than unity when the linear form is fitted. Among η_{xs} coefficients in the third region wherein alone the slope coefficients of family size are statistically significant for all the three forms, the linear one takes the lower value -0.38. In the second region, the slope coefficient of family size is statistically significant only in respect of the linear form, and the corresponding coefficient of size elasticity is 0.28. Here, the coefficient of income elasticity is nearly three times greater than that of the size elasticity.

7.3.4 Vegetables

The slope coefficients of income and family size based on all the three forms are statistically significant only in the third region. Here, η_{xy} and η_{xs} coefficients based on the double logarithmic form, takes the lower values viz. 1.23 and -0.26 respectively. The η_{xy} coefficient is greater than unity, and the range of variations is from 1.23 based on the double logarithmic form to 1.60 based on the linear form. The range of variations in values of the η_{xs} coefficient is from -0.26 based on the double logarithmic form to -0.59 based on the linear form. In the second region, the slope coefficient of income alone is statistically significant, and the range of variations

in values of the η_{xs} coefficient is from -0.26 based on the double logarithmic form to -0.59 based on the linear form. In the second region, the slope coefficient of income alone is statistically significant, and the range of variations in the values of η_{xy} elasticity is from 0.98 based on the linear form to 1.29 based on the double logarithmic form. In the first region, the slope coefficient of family size is statistically significant only when the linear form is fitted and η_{xs} coefficient is inelastic, 0.59. This positive coefficient here indicates that vegetables are necessities in the local diet in the first region.

7.3.5 Mutton-Fish, etc.

In the third region alone both the slope coefficients based on the linear and semi-logarithmic forms are statistically significant. Here, the difference in the values of η_{xy} elasticity is 0.10, the minimum value being 1.35 based on the linear form. The η_{xs} elasticity is stable in both the forms with value -0.71. In the second region, the slope coefficient based on the double logarithmic form alone is statistically significant, being itself the η_{xy} elasticity, its value stands at -0.89. The negative slope indicates that this expenditure group is an inferior commodity. Similarly, in the first region,

the slope coefficient based on the double logarithmic form alone is statistically significant and the elasticity coefficient is as high as 3.96.

7.3.6 Oil and Oil Products

In the first region, the slope coefficients of income alone are statistically significant in all the three forms and the range of variations in the values of η_{xy} coefficient is 0.61 based on the linear form to 0.93 based on the semi-logarithmic form. In the second region both the income and size elasticities based on all the three forms are individually less than 0.60. The range of variations in the values of η_{xy} coefficient is from 0.28 based on the linear form to 0.59 based on the double logarithmic form, whereas the range of variations in the values of η_{xs} coefficient is from 0.31 based on the double logarithmic form 0.57 based on the linear form. It may be seen that the respective values of η_{xy} and η_{xs} coefficients are lower and higher respectively when the linear form is fitted, whereas it is the other way round when the double logarithmic form is fitted. In the third region, the order of difference in the values of η_{xy} coefficient between the linear and the double logarithmic forms is 0.13, and the minimum value of η_{xy} elasticity based on the linear form is 1.55. The range of variations in the values of

η_{xs} coefficient is from -0.46 based on the linear form to -0.62 based on the double logarithmic form. Both the elasticity values in the second region based on either of the forms being less than unity indicate the inelasticity of consumption expenditure on oil and oil-products.

7.3.7 S p i c e s

In the third region, wherein alone both the coefficients of income and family size are statistically significant, all the three forms indicate the inelasticity of income and family size, the former being less than 0.4 and the latter less than 0.5. The range of variations in the values of η_{xy} coefficient is from 0.30 based on the linear form to 0.38 based on the double logarithmic form. The range of variations in values of η_{xs} coefficient is from 0.32 based on the semi-logarithmic form to 0.46 based on the linear form. It is seen that the range of variations is wider in respect of η_{xs} coefficient based on the three forms. Also the η_{xy} coefficient is less than η_{xs} coefficient only when the linear form is fitted and the difference is as much as 0.16 whereas the other two forms, namely semi-logarithmic and double logarithmic, yield higher η_{xy} coefficients than the respective η_{xs} coefficients though the difference is not more than 0.04 in either.

In the second region, the semi-logarithmic form alone fits the data well. The value of η_{xy} coefficient is 0.49. In the first region, the linear and semi-logarithmic forms are suitable and the respective values of η_{xy} coefficient are 0.35 and 0.42.

7.3.8 Fuel and Lighting

In the first region the range of variations in the values of η_{xy} coefficient is from 0.42 based on the linear form to 0.54 based on the semi-logarithmic form. In the second region, the similar range is from 0.51 based on the linear form to 0.85 based on the double logarithmic form. In the third region, this range is from 0.48 based on the linear form to 0.66 based on the double logarithmic form. It is seen that the range is the maximum of the order of 0.34 in respect of η_{xy} values based on the three forms in the second region. Also income alone explains the variations in consumption by any of the forms, in all the three regions.

7.3.9 T e a

In the first region, the semi-logarithmic form alone is suitable, and the value of η_{xy} coefficient is 0.55, indicating that the consumption expenditure on tea is a necessity. In the second region, the range of variations

in the values of η_{xs} coefficient is from 1.00 based on the linear form to 3.26 based on the double logarithmic form. The value of η_{xy} coefficient based on the semi-logarithmic form, 1.59, is near to that based on the linear form. In the third region, the range of variations in the values of η_{xy} coefficient is from 1.25 based on the linear form to 4.37 based on the double logarithmic form. Here again, the income elasticity based on the semi-logarithmic form, 1.39, is near to that based on the linear form. It is seen that in both the second and the third region, the range of variations is wider, of the order of more than 2.00.

7.3.10 Sugar and Gur

in the first region, the range of variations in the values of η_{xy} coefficient is from 0.38 based on the linear form, to 0.58 based on the semi-logarithmic form. The slope coefficients of family size are statistically significant only when the linear and the double logarithmic forms are fitted, and their respective coefficients of elasticity are 0.22 and 0.18. It seems, when the family size does not explain the variations in the consumption of sugar and gur, still it introduces an upward influence in the value of income elasticity, as is evident from the multiple regression function based on the semi-logarithmic form. In the second region, the range of variations in

values of η_{xy} coefficient is from 0.63 based on the linear form, to 1.15 based on the double logarithmic form. The important difference here is that the income elasticity coefficients, obtained from the linear and semi-logarithmic forms, indicate the inelasticity of consumption. The family size does not explain the variations in consumption expenditure when any of the three forms is fitted. In the third region, the range of variations in the values of η_{xy} coefficient is from 1.04 based on the linear form to 2.78 based on the double logarithmic form. The value of η_{xy} coefficient based on the semi-logarithmic form, 1.11, is near to that based on the linear form. As in the second region, here also the family size does not explain the variations when any of the three forms is fitted. But an additional point of difference is that, all the values of income elasticities are greater than unity and the range of variations is the maximum, of the order of 1.75.

7.3.11 Pan-supari

The range of variations in the values of η_{xy} coefficient is from 1.75 based on the linear form, to 2.60 based on the semi-logarithmic form. In the second region, only the linear and the semi-logarithmic forms are suitable and the respective income elasticity coefficients are 2.80 and 2.36. In the third region, the range of variations

in the values of η_{xy} coefficient is from 2.16 based on the semi-logarithmic form to 3.13 based on the double logarithmic form. It is seen that in all the three regions, the family size does not explain the variations in the consumption expenditure on pan-supari. In the first region, it is the linear form and in the second and third, it is the semi-logarithmic form that yield the minimum values of η_{xy} coefficient.

7.3.12 Tobacco products

In the first region, it is the family size that explains the variations in the consumption expenditure when the linear form is fitted, with the value 0.39, and it is the income that explains the variations in the consumption expenditure when the double logarithmic form is fitted, with the value 0.52. In this region, the semi-logarithmic form is not suitable. In the second region, the range of variations in the values of η_{xy} coefficient is from 1.12 based on the linear form to 2.01 based on the double logarithmic form, and in respect of the family size, the slope coefficients based on the semi-logarithmic and the double logarithmic only are statistically significant and their corresponding elasticity coefficients are -0.60 and -0.96 respectively. It seems, when the family size does not explain the variations in consumption expenditure, in case the linear form is fitted, there is a downward

influence in the value of income elasticity. In fact, both the η_{xy} and η_{xs} coefficients based on the semi-logarithmic forms, are less than those based on the double logarithmic form and in both these respects, the order of difference is 0.49 and 0.36 respectively. In the third region, the range of variations in the values of η_{xy} coefficient is from 0.84 based on the linear form to 1.38 based on the double logarithmic form. The family size explains the variations only when the linear and the semi-logarithmic forms are fitted and their corresponding η_{xs} coefficients are -0.40 and -0.44 respectively. It seems that while the family size does not explain the variations in the consumption expenditure, it still introduces an upward influence in the corresponding value of η_{xy} coefficient when the double logarithmic form is fitted. Also, the η_{xy} and η_{xs} coefficients based on the semi-logarithmic form are higher than those based on the linear form. It is to be noted here that in the second region, the η_{xy} and η_{xs} coefficients are uniformly less than those based on the double logarithmic form and are uniformly more than those based on the linear form. Also, in the second region, when the family size does not explain the variations in consumption expenditure, it still introduces a downward influence, whereas in the third region, it introduces an upward influence in the corresponding income elasticity coefficients.

7.3.13 Miscellaneous

In the first region, it is the family size alone that explains the variations in the consumption expenditure when the linear form is fitted and it is the income that explains such variations when the semi-logarithmic form is fitted. The values of η_{xs} and η_{xy} coefficients here are 0.48 and 0.65 respectively and in both the cases the coefficients indicate inelasticity. It may be noted that the behaviour of these coefficients is similar to that of the corresponding coefficients of the tobacco group. In the second region, the range of variations in the values of the η_{xy} coefficient is from 1.53 based on the linear form to 2.53 based on the double logarithmic form. The similar range of variations in respect of the η_{xs} coefficient is from -0.37 based on the linear form to -1.19 based on the double logarithmic form. It is notable that the difference in respect of the values of η_{xy} coefficient is of the order of 1.00 and in respect of the η_{xs} it is of the order of 0.72. In the latter case the η_{xs} coefficients based on the linear and semi-logarithmic form are less than -0.41, and the corresponding coefficient based on the double logarithmic form is nearly three times higher. It seems that both the η_{xy} and η_{xs} coefficients based on the linear form give the minimum values.

In the third region, the range of variations in the

values of the η_{xy} coefficient is from 1.37 based on the double logarithmic form to 1.60 based on the linear form. In respect of the family size, the linear and the semi-logarithmic form only are suitable and the corresponding elasticity coefficients are -0.51 and -0.55 respectively. It seems that, when the family size does not explain the variations in the consumption expenditure, it still introduces downward bias in the income elasticity coefficient when the double logarithmic form is fitted.

The values of η_{xy} and η_{xs} coefficients are the maximum in the third region and the minimum in the second region when the linear form is fitted. The range of variations in the values of the η_{xy} and η_{xs} coefficients is much less in the third region than that in the second.

7.3.14 Education

Among the three regions only in the first the family size explains the variations in expenditure on education when the linear form is fitted. The other two forms are not suitable. The linear value of η_{xs} coefficient is high viz. 4.30.

7.3.15 Clothing

In the first region the range of variations in the values of the η_{xy} coefficient is from 1.46 based on the

linear form to 1.77 based on the semi-logarithmic form and the similar range of variations in respect of η_{xs} coefficient is from -0.41 based on the linear form to -0.52 based on the double logarithmic form. The order of difference in the latter range, i.e. in respect of the family size, is less than in the former.

In the second region the range of variations in the values of η_{xy} coefficient is from 1.48 based on the linear form to 1.57 based on the double logarithmic form. It may be added that the η_{xy} coefficient based on the semi-logarithmic form also is 1.57. Similar range in respect of the family size is from -0.55 based on the semi-logarithmic form to -0.56 based on the double logarithmic form. Here the order of difference in the latter range, i.e. with respect to the family size, is higher than in the former.

In the third region, the range of variations in the values of the η_{xy} coefficient is from 1.43 based on the semi-logarithmic form to 1.55 based on the double-logarithmic form. The corresponding range in respect of the family size is from -0.48 based on the linear form to -0.57 based on the double-logarithmic form. The order of difference in the latter range, here, is less than in the former. This is contrary to the behaviour in the second region.

Among the three regions, the η_{xy} coefficient based on the linear form is stable around 1.46, whereas it is stable around 1.55 when it is based on double-logarithmic form. In the latter case, the range of deviations is small, 0.02 on either side. In the first region, in respect of both the η_{xy} and η_{xs} coefficients the linear form gives the lower value. In the second region, in respect of the η_{xy} coefficient the linear form gives the lower value and higher in respect of the η_{xs} coefficient. In the third region in respect of the η_{xy} coefficient the semi-logarithmic form and in respect of the η_{xs} coefficient, the linear form give the lower values.

7.3.16 Conclusions

For most of the commodity groups, the elasticity coefficients based on the linear form are generally lower than those based on the other two forms, viz. the semi-logarithmic and the double-logarithmic.

Wherever the family size does not explain the variations in the consumption expenditure it has introduced a certain influence in the values of income elasticity, either in the upward or in the downward direction.

In respect of rice, the values of η_{xy} coefficient based on the double logarithmic form are lower than those based on the other two forms. Also, in the first region

alone, both the income and the family size together explain the variations in the consumption expenditure when the double logarithmic form is fitted. And this shows that the double logarithmic form introduces a downward influence in the corresponding value of the income elasticity. Again, both the coefficients, η_{xy} and η_{xs} , based on the double logarithmic form indicate inelasticity of expenditure, whereas the values of income elasticity are greater than unity when the linear and the semi-logarithmic form are fitted.

In respect of sugar and gur, in the first region, when the semi-logarithmic form is fitted the family size, not explaining the variations, introduces an upward influence in the corresponding value of income elasticity.

In respect of tobacco products, in the second region, when the linear form is fitted, there is a downward influence in the corresponding value of income elasticity. In fact, both the η_{xy} and η_{xs} coefficients based on the semi-logarithmic form are uniformly lower than those based on the double-logarithmic form. In the third region, when the double-logarithmic form is fitted the family size, not explaining the variations, introduces an upward bias in the corresponding value of the income elasticity. Also, both the coefficients based on the semi-logarithmic forms are uniformly higher than those based on the linear form.

In respect of the miscellaneous group, in the first region, it is the family size alone that explains the variations in the consumption pattern when the linear form is fitted and it is the income that explains such variations when the semi-logarithmic form is fitted. In the third region, when the double logarithmic form is fitted the family size not explaining the variations, introduces a downward influence in the corresponding income elasticity.

7.4 Comparison of Elasticities Based on the Linear Form *

In the following discussion, the regional differences in the partial elasticities, namely, income and family size, are commented upon.

7.4.1 Cereals

In the third region, viz., the Mula valley, alone, both the explanatory variables, income and family size, explain the variations in consumption expenditure on cereals. In the first two regions, the Pathar and the Pravara valley respectively, where income alone explains the variations in the consumption expenditure on cereals, the values of elasticities are greater than unity, whereas in the third region, both the income and the family size elasticities are individually less than unity. The inelasticity of

* Please refer to the table in the preceding discussion.

consumption expenditure on cereals in the Mula valley indicates that, relatively the level of living is lower as compared to the other two regions.

7.4.2 Pulses

In the first and the second region, the partial elasticities are less than unity. In the first region, the income elasticity is approximately unity, but in the second, both the partial elasticities income and family size, are low, viz. 0.29 and 0.37 respectively. In this Pravara valley, the consumption expenditure on pulses is a necessity, whereas in the third region, it is a luxury, as the income elasticity, which is greater than unity, is accompanied by the negative family size elasticity.

7.4.3 Milk and Milk Products

In the second region the consumption of milk and milk products is a necessity since the income in elasticity is doubled with positive coefficient of size elasticity. In the third region, it is the other way round as the partial income elasticity is greater than unity and the size elasticity is negative. In the first region, the partial income elasticity is greater than unity and the family size has no effect on the variations in consumption expenditure on milk and milk-products.

7.4.4 Vegetables

In the first region, the partial size elasticity alone is statistically significant and the coefficient shows inelasticity of expenditure. In the third region, the consumption expenditure on vegetables is a luxury, whereas in the second, income elasticity is nearly unity.

7.4.5 Mutton, Fish, etc.

In the third region alone the statistically significant R is obtained. Both the partial elasticities, income and family size, indicate that the expenditure on mutton and fish is a luxury, since the former coefficient is greater than unity and the latter negative.

7.4.6 Oil and Oil products

In the first and the second region, both the partial elasticities are less than unity, i.e. inelastic, indicating that the expenditure on this group of items is a necessity. But in the third region, it is a luxury, since the income elasticity is greater than unity, and the size elasticity negative.

7.4.7 Spices

In the third region, both the income and size coefficients are inelastic and positive. The notable point

here is that the coefficient of size elasticity is greater than that of income elasticity. In the first region, income elasticity is less than unity, and the slope coefficient of family size is statistically not significant.

7.4.8 Fuel and Lighting

In all the three regions, income alone explains the variations in expenditure on fuel and lighting. The coefficients of income elasticity are less than unity. This is to be expected, since the expenditure on this group is unavoidable.

7.4.9 T e a

In the second and the third region, the coefficients of income elasticities are either unity or greater than unity, indicating that the expenditure on tea is a luxury. Here, income alone explains the variations in consumption expenditure.

7.4.10 Sugar and Gur

In the first and the second region, the coefficients of income elasticity show that these items are necessities, whereas in the third, a luxury. In other words, so far as the consumption expenditure on sugar and gur is concerned, the level of living in the first two regions, the Pathar

and the Pravara valley, is relatively higher than in the third region, the Mula valley.

7.4.11 Pan-supari

In all the three regions, income alone explains the variations in consumption expenditure on this item and the values of income elasticity which are greater than unity indicate that this expenditure is a luxury at the given standard of living.

7.4.12 T o b a c c o

In the first region, the size - elasticity shows that it is a necessity. Here, the slope coefficient of income is statistically not significant. In the other two regions, the Pravara and the Mula vallies, the expenditure on tobacco is a luxury, since either the income elasticity is greater than unity or the size elasticity is negative.

7.4.13 Miscellaneous

In the second and the third region, the high coefficient values of income elasticity, that is, values greater than unity, are accompanied by the negative coefficient values of size elasticity. In the first region, the expenditure on miscellaneous items is a necessity, indicating

a higher standard of living.

7.4.14 Education

In the first region, the size elasticity being quite high, the expenditure on education is a luxury. In the other two regions, the R is statistically not significant.

7.4.15 C l o t h i n g

In all the three regions, the coefficient of partial income elasticity is high and uniformly stable around 1.46, and the negative coefficients of size elasticity are in the range of -0.41 to -0.48.

7.4.16 The general conclusions of the foregoing discussion may be noted thus :-

(1) Wherever both the coefficients of partial elasticity are less than unity, the value of size elasticity is greater than that of income elasticity. The instances are : pulses and oil and oil products group in the second region, the exception being the case of milk and milk-products group, and spices in the third group, the exception being the case of cereals group.

(2) In the first region, partial income elasticity of items such as pulses, oil and oil-products, spices, fuel and lighting, sugar and gur, tobacco, miscellaneous

are less than unity, and as such necessities in the family budget. In the second region, the similar items of necessity are pulses, milk and milk-products, oil and oil-products, fuel and lighting, sugar and gur. In the third region, the similar items of necessity are: cereals, spices, fuel and lighting.

(3) In the third region, namely, the Mula valley, considering the items of consumption that are necessities of life, particularly cereals, it is evident that the level of living here is comparatively lower than that in the rest of the region.

(4) The inelasticity of consumption expenditure on sugar and gur in the first and the second ^{region} indicates the higher level of living.

(5) A limitation of a linear expenditure form is brought out here. The items like cereals appear luxuries and the elasticity is computed on the basis of slopes of the linear regression. But when the elasticities are based on the double logarithmic form the inelasticity of demand for cereals is indicated.

7.5 Comparison of Elasticity Coefficients for Cereals Based on the Linear Form

The detailed elasticities of cereals are discussed in the following paragraphs. These elasticities are based

on the linear multiple regression function.³²

7.5.1 R i c e

The value of income elasticity of rice is generally less than unity excepting in the first region, where it is exceeding unity but here the value of size elasticity coefficient is statistically not significant. It is possible that if the family size is unable to explain the variations in consumption then it still introduces an upward influence in the estimates of income elasticity. It is of interest to note that the low value of income elasticity in the third region, 0.22 is nearly one-fourth of that in the second region. Along with this, the corresponding value of size elasticity, viz. 0.77, in the third region is nearly three times higher than the one in the second region. The average income and size elasticities for all the three regions combined come to 0.67 and 0.40 respectively.

7.5.2 R a g i

The value of income elasticity of ragi in the third region, where income alone explains the variations in consumption is inelastic, viz. 0.78. In the other two regions

³² Please see the table on next page.

COMPARISON OF CEREAL ELASTICITIES BASED ON THE LINEAR FORM

Sr. No.	Cereal Group	First Region		Second Region		Third Region		All Regions combined	
		η_{xy}	η_{xs}	η_{xy}	η_{xs}	η_{xy}	η_{xs}	η_{xy}	η_{xs}
1	Rice	1.1369	0.1325*	0.8168	0.2643	0.2171	0.7645	0.6714	0.3975
2	Ragi	1.5293	-0.4341	1.5659	-0.5516	0.7784	0.2297*	1.2561	-0.2621
3	Bajra	0.7589*	0.5183*	3.7726	-0.9489*	3.6392	-1.0983	3.1733	-0.7962
4	Jowar	-0.9168*	1.9763*	0.5559*	0.0757*	0.7235	-0.5347*	0.3554*	0.0315*
5	Wheat	0.9065	0.1154*	2.4753	-0.7128	0.6674	0.0329*	1.4604	-0.1446*
6	Sava	-0.4241*	0.5871*	1.5124	1.4613	0.3756*	0.2436*	-0.9877	0.9082
7	Varai	0.8306	0.0228*	-0.2027*	0.9386	-0.1380*	0.5542*	-0.0885*	0.7664
Seven cereals combined		1.1289	0.0256*	1.2027	-0.0424*	0.7628	0.3254	1.0268	0.0995*

* These coefficients are statistically not significant, still they are retained in this table since their influence sometimes is noticeable as in the case η_{xy} of bajra and in the case of jowar, in a negative way.

η_{xy} : income elasticity.

η_{xs} : size elasticity.

it is stable around 1.55. The negative value of size elasticity shows that with an increase in the size of family, the expenditure on ragi will be reduced. This in other words, means that ragi is a less necessary item of consumption. The general average values of η_{xy} and η_{xs} coefficients are lowered when all the three regions are combined viz. 1.26 and -0.26 respectively. The position of constants in the regression equations shows that the expenditure on ragi is a less necessary item in all the three regions individually, but when all the three regions are combined, the average value of constant is positive, viz. + 1.04 which means that the consumption of ragi is a necessity of life.

7.5.3 B a j r a

The values of income and size elasticity coefficients for bajra are statistically significant only in the third region and all the three regions combined. The value of η_{xy} coefficient is quite high, above 3.00, accompanied by the negative value of η_{xs} which means that the consumption of bajra is a less necessary cereal item. Though η_{xy} and η_{xs} are statistically not significant coefficients in the first and the second region, they have influenced the general average values for all the three regions combined in a downward direction. The positions of constants

in the regression equations are uniformly negative, confirming the earlier conclusion that bajra is a less necessary item of consumption.

7.5.4 J o w a r

The income and size elasticity coefficients for jowar are uniformly statistically not significant in all the regions, excepting the third region where η_{xy} alone is statistically significant, showing an inelasticity of demand for jowar, 0.72. Still the overall multiple regression function of consumption on income and family size is not explained.

7.5.5 W h e a t

In the first and the third region, wherein η_{xy} alone is statistically significant, the coefficients are inelastic, 0.91 and 0.67 respectively. But in the second region, the values of η_{xy} and η_{xs} coefficients are high, 2.48 and -0.71 respectively. The combined effect of all this is the general average value of η_{xy} coefficient for all the three regions combined, 1.46. The positive position of the constant for the third region indicates that the consumption expenditure on wheat is a necessity of life in the Mula valley.

7.5.6 S a v a

In the second and all the three regions combined η_{xy} and η_{xs} coefficients are statistically significant. The negative η_{xy} coefficient, -0.99 is accompanied by the positive inelastic η_{xs} coefficient 0.91 which means that sava is an inferior commodity in this region. In the second region, both the elasticity coefficients viz. income and family size, are positive and stable around 1.5 which means that in the Pravara valley, with an increase in family size the consumption expenditure on sava will increase, indicating that it is a necessity of life. It is notable that in the second region the η_{xs} coefficient is significant with high positive elasticity 1.46. This means that with one percent increase in family size, the expenditure on sava will go up by 1.46%. The constants with positive value also confirm that sava is a necessity in this region.

7.5.7 V a r a i

All the η_{xy} coefficients are statistically not significant excepting in the first region. Whereas, in the second and all the three regions combined the η_{xs} coefficients are statistically significant with positive inelastic values, 0.94 and 0.77 respectively. This means that changes in total household expenditure do not explain the variations

in consumer expenditure on varai but the changes in size of the household explain, by way of inelasticity of expenditure on varai, and also confirm, as in the case of sava, that this cereal enters into diet as a matter of necessity. The position of constants also indicates the same feature.

7.6 Discussion of Marginal Propensities to Consume in the Three Regions under Study

The following table presents the statistical results of the linear functional form fitted to 45 individual items of consumption expenditure. As noted earlier, the linear function is,

$$x = a + b_1y + b_2s,$$

where

x is the family expenditure on a particular item,

y is the total family expenditure, and

s is the total number of persons in family,

a , b_1 and b_2 are the constants.

The slope coefficients of this linear function, viz. b_1 and b_2 are the respective marginal propensities to consume of the given item.³³

³³ Marginal Propensity to Consume is referred to as (MPC). Sometimes MPCs with respect to total expenditure and family size are referred to as b_1 and b_2 , respectively, viz. the slopes of the linear multiple regression function:

★

It is seen from the table that consumption items such as rice, ragi, wheat, gram, milk, kerosene, sugar and clothing are amongst those commodities in whose case both the coefficients of marginal propensity to consume (MPC) viz. b_1 and b_2 , are statistically significant in all the three regions. In the case of expenditure on sugar in the first region, the MPC in respect of family size alone is statistically significant.

The coefficients b_2 , viz. MPC with respect to the family size, in respect of consumption of rice, are uniformly high. In the third region b_2 is as high as + 46.74. For all the three regions combined, the general average MPC of rice is + 24.29, which means that with an addition of one member to the family, the total family expenditure on rice will go up by about Rs. 24/- per annum. It may be added here that the negative constant 'a' also takes approximately the same value, -24.50, which shows that rice is a luxury at the given level of income.³⁴

Again, the corresponding coefficients of the MPC of clothing due to size are uniformly high. In the third region, MPC of clothing is -13.20, and for all the three regions combined, the corresponding coefficient is -11.72.

³⁴ Allen and Bowley, "Family Expenditure : A Study of its Variation", P.S.King and Son, Ltd., London, 1935, pp. 9-11.

★ Please see the table on next page.

Commodity	Constant 'a'				B ₁ , Marginal Propensity to consume with reference to				B ₂ , Marginal Propensity to consume with reference to			
	Reg.1	Reg. 2	Reg. 3	All together	Reg. 1	Reg. 2	Reg. 3	All together	Reg. 1	Reg. 2	Reg. 3	All together
1. Rice	-116.2498*	-27.2073*	6.2630*	-24.5006*	0.2916*	0.2061*	0.0514*	0.1662*	8.8628	14.3994*	46.7391*	24.2852*
2. Ragi	-18.7638*	-2.1202*	-1.555*	1.0415*	0.1791*	0.1746*	0.1034*	0.1516*	-13.2610*	-14.2000*	7.8770	-7.8114*
3. Bajra	15.4552*	-34.4065*	-108.7026*	-61.9968*	0.0251	0.0535*	0.1782*	0.0995*	4.4809	-3.1063	-13.8794*	-6.1772*
4. Jowar	4.9049	5.7394	10.2049	7.7387	-0.0032	0.0065	0.0063	0.0031	0.9739	0.2045	-1.2050	0.0682
5. Wheat	-3.4453*	-70.7103*	22.3843*	-31.0258*	0.0849*	0.1725*	0.0346*	0.0998*	2.8176	-11.4690*	0.4405	-2.4385
6. Sava	10.4532	16.8875*	3.2214	12.0695*	-0.0013	-0.0183*	0.0022	-0.0077*	-0.4731	4.0732*	0.3690	1.7430*
7. Varai	3.2949*	6.9606*	5.7121	6.2649*	0.0111*	-0.0040	-0.0009	-0.0012	0.0792	4.2919*	0.9715	2.5582*
8. Gram	12.2713*	8.1657	-3.5056*	4.8880*	0.0299*	0.0269*	0.0307*	0.0288*	-2.8569*	-1.3430	-1.4645	-1.7221*
9. Udid	10.7167	12.4822*	12.6580*	15.5124*	0.0033	-0.0065*	0.0169*	0.0032	-0.4811	5.1375*	-0.1154	1.8080*
10. Hulaga	2.4358*	12.8868	0.0779*	7.9670*	0.0088*	0.0026	0.0149*	0.0079*	-0.9327	0.7929	-0.1891*	-0.0636
11. Moog	-7.0450*	3.4246	-4.2093*	-1.9705*	0.0003	0.0011	0.0136*	0.0057*	1.4895*	-0.4785	-1.6616*	-0.4106
12. Val	3.7456	-0.3149*	4.1930*	3.0374*	0.0011	-0.0019	0.0242*	0.0082*	0.0444	2.8576*	-3.2618*	0.0012
13. Vatana	-3.0275*	0.2324	0.2494	-0.5689*	0.0050	-0.0003	0.0000	-0.0001	0.4742*	0.0861	-0.0385	0.1792*
14. Masoor	3.0932	0.0159*	0.0999	0.5340*	0.0035*	0.0010*	-0.0000	0.0014*	-0.8631	-0.1698	-0.0032	-0.2951*
15. Milk	7.8754*	-3.1615*	13.0979*	2.5949*	0.0792*	0.0524*	0.0760*	0.0671*	-2.2782	3.8504*	-5.7281*	-0.4374
16. Curds	-4.8293	-1.7602*	-4.7856*	-4.0238*	0.0064	0.0033*	0.0067*	0.0053*	0.3309	0.0735	-0.3988	0.0319
17. Buttermilk	-0.3561	-2.0303*	-3.1133*	-1.9952*	-0.0003	0.0026*	0.0041*	0.0025*	0.2219	0.0405	-0.1204	0.0079
18. Ghee	-14.8150	-7.8065*	-11.8794*	-11.1023*	0.0017	0.0062*	0.0149*	0.0107*	0.8514	0.7130	-0.5745	0.3471
19. Onion	3.9998*	1.7607*	-0.4351*	1.2901*	0.0018*	0.0050*	0.0045*	0.0043*	-0.1411	-0.7039*	-0.1117	-0.4105*
20. Potato	-1.4840*	-0.1901*	-1.4181*	-1.4378*	-0.0004	0.0063*	0.0104*	0.0062*	1.3644	-0.3654	-1.1571*	-0.1544
21. Other vegetables	-0.1906*	0.8238*	1.6924*	1.0219*	0.0009*	-0.0007	0.0021*	0.0005	0.1900*	0.7038*	-0.3452	0.2706*
22. Mutton	-0.1906*	0.8238*	1.6924*	1.0219*	-0.0020	0.0043	-0.0007	0.0002	0.5243	-0.4984	0.1671	0.1295
23. Fish	2.2015	4.9624	1.0741	3.2217	-0.0029*	0.0005	-0.0013	-0.0017	1.1220*	-0.0223	0.3756	0.5017
24. Dry fish	-1.0329*	6.4484	2.4373	3.7662	0.0095	0.0044	0.0418*	0.0198*	0.3292	0.8768	-5.9550*	-1.8595
25. Sweet oil	-5.6405	5.4305	11.6972*	6.2456*	0.0142*	0.0019	0.0162*	0.0119*	-0.4236	3.0793*	1.3279	1.2936*
26. Vanaspati oil	19.1767*	2.8787*	3.0079*	5.6628*	0.0020	0.0008	0.0002	0.0012*	1.9082	0.1945	-5.5053*	-1.3268
27. Groundnut shells	2.3232	-0.6324	0.7845	-0.0702*	0.0029*	0.0005	-0.0013	-0.0017	-0.2857	2.9025*	-0.0209	1.3105*
28. Groundnut	-3.2291*	7.5237	-14.5988*	-4.6717*	0.0021	-0.0021	0.0004	-0.0006	-0.1042	-0.3967	-0.8806*	-0.4273*
29. Coconut	6.5866	-7.0791*	-0.3815*	-2.1697*	0.0010	0.0003	0.0041	0.0028*	-0.7269	0.8348	-0.9726*	-0.1353
30. Copra	8.8693*	4.6552*	1.3483*	4.5167*	0.0072*	0.0053*	0.0130*	0.0084*	0.0318	-2.5381	0.4540	-0.7012
31. Condiments	3.2759*	17.1979	4.0082*	10.9579	0.0012*	0.0032*	0.0041	0.0028*	-0.3586	4.1346*	2.9000*	2.3256*
32. Chillies	22.7340*	6.3312*	5.3856*	10.2592*	0.0065*	-0.0018	0.0070*	0.0043*	-0.5148	0.7997	-2.5987	-1.2730
33. Firewood	27.8694*	1.9705*	20.2643*	11.7255*	0.0012*	0.0069*	0.0287*	0.0199*	0.0861*	-0.9036*	1.3602*	-0.0312
34. Cowdung	-0.2327	1.8017*	5.3523*	3.3495	-0.0000	0.0040*	-0.0045*	0.0001	0.1027*	0.0000	-0.0325	0.0206
35. Charcoal	-0.2052*	0.0000	0.4349	0.0701	-0.0002	0.0000	-0.0001	-0.0001	-0.1844	1.1693*	0.9773*	0.7511*
36. Kerosene	13.5234*	8.6539*	14.0771*	12.1378*	0.0042*	0.0034*	0.0004	0.0023*	0.0850	-1.0686	-0.4858	-0.2328
37. Tea	9.6363	6.2669*	0.0178*	5.3908*	0.0027	0.0203*	0.0094*	0.0102*	3.1109*	0.0049	0.7974	0.9780*
38. Sugar	0.7110*	-3.7979*	-2.5729*	-3.2503*	0.0009	0.0153*	0.0137*	0.0119*	-1.0242	1.4284*	-0.8825	-0.0296
39. Gur	23.2700*	8.8806*	1.3802*	7.2056*	0.0129*	0.0017	0.0170*	0.0114*	-0.6866	-0.0748	0.8825	-0.0296
40. Pan-supari	-8.9318*	-9.6040*	-9.2208*	-10.0821*	0.0186*	0.0117*	0.0137*	0.0145*	0.0885	-0.0309	-0.079	-0.0485
41. Tobacco	23.8424	16.3869*	10.0706*	15.1654*	0.0057	0.0375*	0.0156*	0.0199*	0.5371	-0.7160	-1.4908*	-1.3826
42. Bidi-cigarettes	-6.9059*	-0.3038*	4.5867	-1.5872*	0.0019	0.0017*	-0.0003	0.0011	2.3613*	-0.0237	-0.3748	0.6374
43. Miscellaneous	5.4515*	-3.5941*	-1.9638*	-2.3136*	0.0048	0.0257*	0.0248*	0.0204*	1.9402*	-1.4354*	-2.0384*	-0.6764
44. Education	-14.5499*	1.5378	-3.721	-4.0089*	0.0014	0.0009	0.0030	0.0016	2.4437*	-0.1244	0.5091	0.7714*
45. Clothing	-9.0696*	0.6533*	3.7273*	-0.1149*	0.1523*	0.1483*	0.1550*	0.1511*	-11.0718*	-11.1386*	-13.2037*	-11.7146*

$x = a + b_1y + b_2s$

x = individual item of expenditure

y = total expenditure

s = No. of persons in the family.

a, b₁, b₂ are constants.

This means that with an addition of one member to the family, the total family expenditure will go down by about Rs. 12/- per annum.

The positive MPC of rice and the negative MPC of clothing may together be interpreted to mean that rice being a staple food the consumption expenditure on clothing has to be reduced by as much as twelve rupees with an addition of one member to the family at the given level of income.

Among the cereal group, the coefficients of MPC of rice, ragi and bajra are statistically significant with respect to both the independent variables viz. total expenditure and family size. In the case of wheat, the MPC is not statistically significant with respect to family size excepting in the second region.

In the case of MPC for rice, a comment on the unusually high values of b_2 coefficient is made in the preceding paragraphs. The range of these values is between 15.40 and 46.74, and the average value is 24.29. The values of b_1 coefficients are in the range of 0.05 to 0.29, and the average value of b_1 is 0.17 for the entire region.

In the case of MPC for ragi, again, the values of b_2 coefficient are higher, and are in the range of -13.26 to -14.20. The average value of b_2 coefficient is -7.81 for the entire region. Also, it may be noted, as against

the positive value of b_2 coefficient for rice, the b_2 coefficient for ragi is negative, which means that with an additional member in the family, the consumer expenditure on ragi will be reduced by about one rupee. Also the positive constant in respect of ragi and the negative in respect of rice show that the consumption of the former is a necessity, and that of the latter a luxury. This is supplemented by the earlier finding in the fifth chapter wherein it is observed that during the monsoon the consumption of ragi substitutes to some extent the consumption of rice. The contradiction in the behaviour of consumption pattern, namely, the consumption of rice which costs more^{and}/the consumption of ragi which costs less, in relation to their market prices, may be explained by the hypothesis discussed in the second chapter. The lack of efficient market organization which integrates the economic space, may result into lesser marketing of rice and correspondingly larger consumption of rice out of the homegrown produce, though the market price is relatively higher as compared to other cereals. But during the scarcity months, that is, the monsoon period, the relatively more consumption of ragi in place of rice when it is met out of market purchases, suggests that ragi which costs less, is preferred to rice when it is, anyway, not available from the domestic stocks.

In the case of MPC of bajra, the values of b_1 and b_2 coefficients are statistically not significant in the first region. Here, again, the absolute value of b_2 coefficient in the third region is comparatively higher, i.e. -13.88, and the average value is -6.18 for all the three regions combined. It appears that though the value of b_2 coefficient is statistically significant only in the third region, the overall average value of the MPC in the three regions combined is reduced. The values of b_1 coefficient are in the range of 0.05 to 0.18 and the average value is 0.10 for the entire region.

In the case of MPC of wheat, the values of b_2 coefficient are statistically not significant excepting in the second region where the MPC is -11.47. The values of b_1 coefficient are in the range of 0.04 to 0.17 and the average MPC comes to 0.10 for the entire region. Thus in the case of the MPC with respect to family size for cereal group, namely b_2 coefficient, the absolute values are usually higher, though negative, excepting in the case of rice consumption which is a staple food. Comparatively the values of b_1 coefficient are lower and generally found to be less than 0.20, excepting the higher value of b_1 coefficient for rice in the first region. The values of b_2 coefficient are generally higher in the third region, indicating the higher propensity to consume cereals as

compared to the other two regions. In other words, the level of living is lower in the Mula valley. The MPCs of sava and varai with respect to family size are high as compared to those with respect to total expenditure.

In the case of pulses group, in the third region the number of statistically significant values of both coefficients, namely, b_1 and b_2 , is higher. For all the three regions combined, these values are statistically significant only in respect of gram.

In the case of MPC for gram, the b_2 coefficient is statistically significant only in the first region and all the three regions combined. These values are negative and for the first region, b_2 coefficient is as high as -2.86. The average for the three regions combined is -1.72. As in the case of MPC of bajra, in respect of family size, the value of corresponding MPC of gram also is reduced for the entire region. The values of b_1 coefficient are uniform for all the regions, viz. 0.03, though low as compared to the corresponding b_2 coefficient.

In the case of MPC for udid, the b_1 and b_2 coefficients are statistically significant only in the second region. The notable feature of consumption expenditure on udid is the negative value of b_1 coefficient, -0.01 and high positive b_2 coefficient, +5.14. This is consistent since the negative partial elasticity with respect

to family size, being more than unity, shows that more of this good will be consumed on account of increase in the size of family.

In the case of MPC for val also, in the second region, the value of b_2 coefficient which alone is statistically significant, is 2.86, and this coefficient is a positive one. In the case of MPCs of other pulses like hulaga and moog, the b_2 coefficient is generally higher with a negative value. The respective values of b_1 coefficient are lower, around 0.02. Still the average MPC for all the three regions combined has been statistically not significant.

In the case of consumption of pulses the third region, namely Mula valley, shows statistically significant coefficients when the linear functional form is fitted. Also this form gives higher b_2 significant coefficients for items like vatana and masoor in either of the three regions under study.

The b_1 coefficients of MPC for milk and milk-products are statistically significant for all the three regions combined. In the case of MPC for milk, the b_2 coefficient is statistically significant in the second and the third region. But the difference in them is that, in the second region, MPC in respect of family size is a high positive value, viz. 3.85, and the corresponding coefficient

in the third region is a high negative value viz. -5.83. It is to be noted that the values of b_1 coefficient in the three regions are placed in the range of 0.05 to 0.08, and the average value for all the three regions combined is 0.07. The MPCs for items like butter-milk and ghee show that the b_2 coefficients are statistically not significant, and even the statistically significant values of b_1 coefficient are low, hardly 0.01.

Thus in the milk commodity group, the values of b_1 coefficients with respect to milk are stable, and with respect to the other milk products quite low. The family size does not have a noticeable effect on the consumption expenditure on these items. For an item like curds, the linear functional form does not explain the variations in consumption expenditure in relation to variations in income (or total expenditure).

In the case of vegetables group, the coefficients of MPC for all the three regions combined, are statistically significant.

In respect of expenditure on onions, the values of b_2 coefficient are negative and somewhat higher as compared to the values of b_1 coefficient. Here, the b_1 values are less than 0.01. In the first region, the value of b_2 coefficient for other vegetables is 0.20. The corresponding coefficient is 0.28 for all the three regions combined.

The positions of constants in the multiple regression equations for onions and other vegetables show that these commodities are necessities in this region, whereas the consumption expenditure on potato is a luxury.

In the mutton and fish group, generally the linear functional form does not explain the variations in consumption expenditure, except in the case of consumption of dry fish in the third region. Here the value of b_1 coefficient is low, hardly 0.04, and that of b_2 coefficient is negative and high, i.e. -5.96. The position of the constants shows that dry fish is a necessity in the local diet. The observation in this respect is that the consumption of dry fish is a particular feature of low-income group and the prevalence of this consumption in the Mula valley does confirm the earlier conclusion that the level of living there is somewhat lower as compared to the other adjoining regions. The average b_2 coefficient for all the three regions combined is statistically not significant.

In the case of oil and oil products, the values of b_1 coefficient are statistically significant only in the third region as also in all the three regions combined. The values of b_1 coefficient for sweet oil are low, respectively 0.03 and 0.01, in the corresponding regions. As against this, the values of b_2 coefficient are higher

and with the positive constants in the regression equations. The b_2 coefficient is statistically significant in the second region as well as in all the three regions combined with the values 3.08 and 1.29 respectively. For groundnut and coconut, the values of b_2 coefficient in all the three regions combined are high. The values of b_1 coefficient are statistically significant in all the three regions, and low, around 0.01. Only in the third region, the value of b_2 coefficient is somewhat high, but less than one, viz., -0.97, with the positive constant in the regression equation. The values of b_1 coefficient for groundnut-shells are low, hardly 0.01, and the only statistically significant value of b_2 coefficient in the third region is high, -5.51, with a negative constant in the regression equation.

For the spices group, the linear form explains the variations in consumption expenditure only in respect of the consumption of chillies. Here again, the values of b_1 coefficient are low, hardly 0.01, and those of b_2 coefficient are high 4.14, 2.90 and 2.33, respectively, in the second, third and all the three regions combined. The corresponding constants are positive in the regression equations. In the second region, b_2 coefficient alone is statistically significant viz. 4.14, which means that an addition of one member to the family would lead to an additional family expenditure of Rs. 4.14 per annum on

the consumption of chillies, but an addition to the family income would not necessarily increase the consumption expenditure on chillies.

For the fuel and lighting group, the linear functional form is suitable only in respect of firewood and kerosene. The values of b_1 coefficient alone are statistically significant in all the three regions, viz. 0.01, 0.01 and 0.03 respectively, for the first, second and third regions, and is 0.02 for the three regions combined. As regards kerosene, the values of b_1 and b_2 coefficients for all the three regions, are statistically significant. Here, again, b_1 coefficient is low as compared to b_2 coefficient. The values of b_2 coefficient in the second, third and all the three regions combined are 1.17, 0.98 and 0.75 respectively. The constants being positive along with the positive b_2 coefficients show that the expenditure on kerosene is in the nature of necessity for the region under study. In respect of cowdung-cake, in the second and the third regions, b_1 and b_2 coefficients are statistically significant, and, particularly, b_2 coefficients are higher. In fact, in the third region, cowdung-cake is an inferior commodity. The positive constant shows that it is a necessity, but at a higher level of income cowdung-cake is substituted by, possibly, kerosene.

The group of items like tea, sugar, gur shows that generally variations in family size do not explain the

variations in consumption expenditures on these commodities. Particularly in respect of tea, b_2 coefficients are statistically not significant in any of the three regions. In respect of sugar, either of the two coefficients is statistically significant in all the three regions. In fact, in the first region b_1 coefficient is statistically not significant, but the value of b_2 coefficient is positive and high, namely, 3.11 with the positive constant. In the case of second and third regions, the values of b_2 coefficient are statistically not significant, but those of b_1 are significant with a low value, around 0.02. For all the three regions combined, both the coefficients are statistically significant, and are positive, viz. 0.01 and 0.98 respectively. Here the consumption expenditure on sugar is a matter of necessity.³⁵ In respect of MPC for gur, the values of b_1 and b_2 coefficients are statistically not significant, whereas the values of b_1 are 0.01, 0.02 and 0.01 respectively in the first, the third, and all the three regions combined. In the second region, however, the value of b_2 coefficient is high viz. 1.43, with a positive constant, which indicates that gur is a necessity in the local diet of the Pravara valley.

³⁵ This is contradicted by the negative constant in the regression equation which indicates that the expenditure on sugar is a luxury.

In the pan-supari group the values of MPC with respect to income alone are statistically significant. The values of b_1 coefficient in the three regions are around 0.01 to 0.02 with the negative constants. That shows the expenditure on pan-supari is a luxury. In respect of tobacco consumption, the linear relationship fits well for all the three regions excepting the first one. In the third region, both the independent variables, viz. total expenditure and family size, individually explain the variations in the consumption of tobacco. The value of b_1 coefficient, 0.02 is smaller as compared to that of b_2 coefficient -1.49. The negative sign indicates that the consumption expenditure on tobacco is a kind of luxury, and with an addition of one member to the family the total consumption expenditure on tobacco will go down by Rs. 1.49 per annum.

The miscellaneous expenditure category indicates that in the second and the third regions, the values of b_1 coefficient are stable around 0.03. As against this, the values of b_2 coefficient for these two regions are high, -1.44 and -2.04 respectively. The average value of b_1 coefficient for all the three regions combined, is 0.02, whereas the corresponding b_2 coefficient is statistically not significant.

As regards education, the values of b_2 coefficient

are statistically significant, and are relatively high in the first region and for all the three regions combined, the respective values being 2.44 and 0.77. These positive values of b_2 are accompanied by the negative constants in their respective regression equations.

In respect of the expenditure on clothing, both the independent variables, viz. total expenditure and family size, explain the variations in this expenditure. The values of b_1 coefficient are uniformly stable, 0.15, for all the three regions, separately and together as well. The values of b_2 coefficient are in the range of -11.07 to -13.20, and the average value of MPC with respect to the family size is -11.72. At the given level of living the additional expenditure on clothing is a luxury. The negative constants in the first region and for all the three regions combined, also confirm this inference.

Conclusions

From the foregoing description of the marginal propensities to consume, a few general conclusions emerge.

(1) Wherever the effect of family size is evident, the absolute values of b_2 coefficient are of a higher order, usually above 1.00 with a negative sign.

(2) (a) In the first region, viz. Pathar, rice, moog, vatana, potato, other vegetables, fish, cow-dung-cake and

charcoal, sugar, bidi, and cigarettes, miscellaneous, and education are the necessities of life.

(b) In the second region, viz. the Pravara valley, rice, sava, varai, udid, val, milk, other vegetables, sweet oil, groundnut, chillies, kerosene and gur are the necessities of life.

(c) In the third region, viz. the Mula valley, rice, chillies, cow-dung-cake and kerosene are the necessities of life.

For all the three regions combined, rice, sava, varai, udid, vatana, other vegetables, sweet oil, groundnut, chillies, kerosene, sugar, and education form the necessities of life.

The positive and the negative values of b_2 coefficients in the consumption functions are taken to be the criterion of classification of the consumption expenditures into necessities and luxuries respectively.

(3) The values of b_1 coefficient show that, for major commodity groups such as cereals and clothing, the MPC is comparatively higher, around or less than 0.20, and in respect of the remaining commodity groups, the MPC is generally less than 0.03. The exception of the expenditure on milk consumption may be noted here as the MPC is somewhat higher, 0.07.

(4) Sava is an 'inferior commodity' in all the

three regions combined, which means that, with an increase in family income the expenditure on sava would be reduced. In the first region, such an inferior commodity is fish, in the second region, it is sava and udid, while in the third it is cowdung-cake.

(5) The standard of living in the Mula valley is relatively lower than on Pathar and in Pravara valley.

7.7 Discussion of Elasticities of Detailed Commodities³⁶

A comparative view of various detailed elasticities for 45 commodities that enter the household budget has been presented in the following paragraphs. The multiple regression function with household expenditure and size of the household as independent variables has been fitted to all the 212 sampled households, irrespective of their regional origin. The constant elasticity form has been approximated since, as noted earlier, generally the double logarithmic form is found to be fitting the data well and also the choice of form has a negligible effect on an overall explanation of regression of consumption on income.

The cereals group shows a wide variation in elasticity

³⁶ Partial elasticities with respect to income and size of the household are referred to as η_{xy} and η_{xs} respectively.

Commodity	Constant 'A'	Constant ¹ 'B ₁ '	Standard Error	Remarks	Constant 'B ₂ ' ³	Standard Error	Remarks	Correlation Coefficient (R) ⁴
1. Rice	1.4471	0.4943	(+ 0.0538)	*	0.4578	(+0.0518)	*	0.8438*
2. Ragi	-1.6748	0.9289	(+ 0.1663)	*	-0.0580	(+0.1602)	**	0.4524*
3. Bajra	-23.6450	3.5364	(+ 0.7561)	*	-1.0005	(+ 0.7285)	**	0.3444*
4. Jowar	2.7841	-0.5827	(+ 0.7257)	**	0.4427	(+0.6991)	**	0.0559**
5. Wheat	-5.4012	1.3936	(+ 0.2003)	*	-0.2442	(+0.1930)	**	0.5046*
6. Sava	15.1358	-2.8345	(+ 0.6976)	*	2.1098	(+0.6721)	*	0.2717*
7. Varai	12.0056	-2.0972	(+ 0.6175)	*	2.3465	(+0.5949)	*	0.2695*
8. Gram	-5.0322	1.2150	(+ 0.1722)	*	-0.2163	(+0.1659)	**	0.5092*
9. Udid	3.9226	-0.2741	(+ 0.4080)	**	0.4896	(+0.3931)	**	0.0874**
10. Hulaga	-1.5685	0.4509	(+ 0.4018)	**	0.2654	(+3871)	**	0.1565**
11. Moog	-20.4250	2.8182	(+ 0.5315)	*	-1.7128	(+0.5120)	*	0.3445*
12. Val	-3.1188	0.6518	(+ 0.4429)	*	0.0563	(+0.4267)	**	0.1470**
13. Vatana	-4.5897	0.0221	(+ 0.2785)	**	0.1152	(+0.2683)	**	0.0462**
14. Masoor	-13.8113	1.6251	(+ 0.3634)	*	-1.0113	(+0.3501)	*	0.2953*
15. Milk	-4.5997	1.3216	(+ 0.0857)	*	-0.2965	(+0.8026)	*	0.7819*
16. Curds	-24.0839	3.1698	(+ 0.5086)	*	-0.9367	(+0.4900)	**	0.4366*
17. Buttermilk	-19.8829	2.4009	(+ 0.4337)	*	-0.4840	(+0.4179)	**	0.4157*
18. Ghee	-24.8910	3.5344	(+ 0.5245)	*	-0.5238	(+0.5053)	**	0.4559*
19. Onion	-21.5467	3.1754	(+ 0.4282)	*	-2.0103	(+0.4126)	*	0.4982*
20. Potato	-32.0178	4.9450	(+ 0.5201)	*	-2.2482	(+0.5011)	*	0.5646*
21. Other vegetables	-0.3523	-0.0267	(+ 0.1965)	**	0.7723	(+0.1894)	*	0.3540*
22. Mutton	5.3866	-1.4830	(+ 0.5692)	*	1.3678	(+0.5484)	*	0.1884*
23. Fish	10.1672	-2.0868	(+ 0.6172)	*	1.4654	(+0.5946)	*	0.2276*
24. Dry fish	0.6899	-0.3453	(+ 0.7299)	*	1.2507	(+0.7032)	**	0.1404**
25. Sweet oil	-1.6038	0.6514	(+ 0.0832)	*	0.1206	(+0.0802)	**	0.6465*
26. Vanaspati oil	-13.5958	1.5418	(+ 0.4664)	*	-0.4781	(+0.4493)	**	0.2473*
27. Groundnut shells	-27.5145	4.2709	(+ 0.6543)	*	-1.7455	(+0.6303)	*	0.4319*
28. Groundnut	-12.5572	1.5963	(+ 0.6075)	*	-0.5737	(+0.5863)	**	0.1937*
29. Coconut	-13.5554	2.1089	(+ 0.3675)	*	-0.6774	(+0.3543)	**	0.4030*
30. Copra	-4.5045	0.9454	(+ 0.2510)	*	0.0507	(+0.2418)	**	0.3483*
31. Condiments	-2.2927	0.6040	(+ 0.1990)	*	-0.0157	(+0.1917)	**	0.2722*
32. Chillies	0.5889	0.2765	(+ 0.1728)	**	0.3854	(+0.1664)	*	0.3240*
33. Firewood	-15.3289	2.7620	(+ 0.3689)	*	-1.0541	(+0.3554)	*	0.4862*
34. Cowdung	-8.3808	1.0720	(+ 0.1197)	**	-0.6408	(+0.5680)	**	0.1250**
35. Charcoal	-3.5389	0.1651	(+ 0.5896)	**	0.1068	(+0.1154)	**	0.0947**
36. Kerosene	1.1288	0.2043	(+ 0.5655)	*	0.2053	(+0.545)	*	0.5413*
37. Tea	-23.6883	3.6508	(+ 0.5094)	*	-0.8486	(+0.4907)	**	0.5018*
38. Sugar	-25.5944	4.0652	(+ 0.4392)	*	-1.0773	(+0.4231)	*	0.5918*
39. Gur	-6.1850	1.2244	(+ 0.3818)	*	-0.0326	(+0.3679)	**	0.2862*
40. Pan-supari	-24.5644	3.1256	(+ 0.6178)	*	-0.1406	(+0.5952)	**	0.4218*
41. Tobacco	-6.8712	1.5495	(+ 0.2725)	*	-0.6903	(+0.2626)	*	0.3798*
42. Bidi-cigarettes	-19.8545	2.7898	(+ 0.5335)	*	-1.3238	(+0.5140)	*	0.3499*
43. Miscellaneous	-9.0887	1.7713	(+ 0.2559)	*	-0.5843	(+0.2465)	*	0.4673*
44. Education	-7.7800	0.4919	(+ 0.4305)	**	0.2484	(+0.4147)	**	0.1514**
45. Clothing	-5.3705	1.5514	(+ 0.0378)	*	-0.5583	(+0.0365)	*	0.9512*

1 "B₁" coefficient itself is a partial income elasticity, η_{xy}

2 * Statistically significant

** Statistically not significant

3 "B₂" coefficient itself is a partial family size elasticity, η_{xs}

4 R values * Statistically significant

** Statistically not significant

coefficients. The inelasticity of consumer expenditure on rice is evident since both η_{xy} and η_{xs} values are less than 0.50. It is a notable feature that the values of both these coefficients are nearly equal, 0.49 and 0.46 respectively. As compared to the coefficient of rice elasticity the value of ragi elasticity is nearly double. This may be because of the fact that size of the household explains the variations in consumer expenditure on rice and it does not in the case of ragi. Sava and varai are 'inferior commodities', since the values of η_{xy} elasticity for both are negative, which means that with increasing income, consumer demand for sava and varai would decline. The values of η_{xs} elasticities for sava and varai are more than 2.0³⁷ and positive which is really complementary to the earlier comment on 'inferior commodities', since it indicates that at the given level of household expenditure if size of the household is increased by one percent more, then more than two percent would be spent on commodities such as sava and varai, which enter the diet as a matter of necessity.

The position of constant with positive values in the linear multiple regression function for sava and varai also indicate that these cereals are necessities of life in this region.³⁸

³⁷ The values of η_{xy} for sava and varai are -2.84 and -2.10 respectively and those of η_{xs} for the same are +2.11 and +2.35 respectively.

Thus among cereals group, the values of elasticity coefficient for rice alone are inelastic, followed by that for ragi. The case of sava and varai is already explained.

The pulses group shows that the values of income elasticity coefficients for commodities such as gram, moog, and masoor, are all greater than one and the values of size elasticity coefficients are negative. This means that these pulses are, relatively, less necessary items of consumption. The maximum range of difference in the values of income elasticities is from 1.22 to 2.62.

The milk and milk products group shows that these commodities are luxuries since the high values of total expenditure elasticities are accompanied by negative values of size elasticity as in the case of milk only. In this group income elasticity for milk, is low, 1.32 and the income elasticity for ghee is as high as 3.18. Excepting milk, for other milk products, size as an independent variable is statistically not significant.

The vegetables group shows that the values of income elasticity coefficients for potato and onion are above 3.5 accompanied by negative values of size elasticity which are above 2.00.

³⁸ The values of constant 'a' for sava and varai are 12.07 and 6.27 respectively.

In the case of 'other vegetables', which are usually local leafy varieties, the positive value of size elasticity coefficient is inelastic, viz. 0.77, which shows that 'other vegetables' group is a necessity. In this case, income (or total expenditure) does not explain the variations in expenditure.

The mutton-fish group shows that these are inferior commodities since the values of income elasticities are high with negative sign, accompanied by the positive values of size elasticities.

The oil and oil products group shows that sweet oil and copra have income inelastic consumer demand, viz. 0.65 and 0.95 respectively, as compared to other commodities like coconut and groundnut shells whose income elasticities are as high as 2.11 and 4.27 respectively. Only in the case of groundnut shells, size of the household has any influence in explaining the regression function.

The spices group shows that both condiments and chillies are necessities of life since in the former case, the value of inelastic income coefficient is 0.60 and in the latter case, the value of inelastic size coefficient is 0.39.

The fuel and lighting group shows that the expenditure on firewood is a luxury, since the income and size elasticities are 2.76 and -1.05 respectively. It may be

remembered that the expenditure on firewood is arrived at through imputed valuation. It may be that on account of considerable forest reserves, this commodity is a free good for the local people. The only likely cost is exertion involved in collection of firewood from neighbouring forests. On account of valuation of this otherwise free good according to market prices - either actual or notional - a certain amount of free use of firewood has been indicated by these high values of elasticity coefficients.

As against this, the income and size elasticity coefficients for kerosene are quite low, viz. 0.20 and 0.21 respectively. This low inelasticity of demand for kerosene amongst these tribal people shows that their standard and way of life is comparable with other rural communities.

The other remaining groups, like tea, sugar and gur, tobacco and tobacco products, clothing show that the income elasticity coefficients for these commodities are quite high, generally above 2.00, indicating that these are luxuries. The values of size elasticity coefficients for tobacco, miscellaneous items and clothing are relatively low, less than -0.70.

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Conclusions

The commodities like rice, ragi, other vegetables, sweet oil, condiments, chillies, kerosene together constitute the minimum necessities of life for the tribal people under study. The commodities like sava, varai, mutton-fish are 'inferior goods'. Most of other commodities are less necessary goods at the given level of living. In the case of items like other vegetables and chillies, size of the household alone explains the regression of consumption on income.

7.8 Economies of Scale in Expenditure on account of Family Size

In the background discussion of 45 detailed items of consumption expenditure, 9 commodity groups are conveniently made to assess the economies of scale in the consumption pattern of sampled families. The multiple regression function with total expenditure and family size as the explanatory variables, is fitted to the consumption expenditure on 9 commodity groups at the per capita level. The double logarithmic form given below is fitted.

$$\text{Log } \frac{x}{s} = a^* + b_1 \log \frac{x}{s} + b_2^* \log s$$

The effects of an increase in the family size on

consumption may be considered when income (or total expenditure) is held constant. The increase in family size would lead to an increase in expenditure on certain commodities, which is offset by a decrease in expenditure on certain other commodities. This is technically expressed by the condition that the weighted sum of elasticities with respect to family size is equal to zero.³⁹ Thus, at a constant level of income an increase in family size may be expected to lead to the lowering of standard of living, and in such circumstances, it is easy to see that an increase in expenditure on necessities will be accompanied by decrease in expenditure on luxuries. The positive and the negative values of elasticity may thus be taken as indicative of a certain priority in the family budgets under study.⁴⁰

The sum of partial elasticities, i.e. $\eta_{xy} + \eta_{xs}$ should equal unity in the multiple regression function with income and family size as the explanatory variables if there are no economies of scale. But contrary to this expectation, sometimes, this sum is either less than or more than unity in respect of some of the commodity groups. This is interpreted as the economies of scale in expendi-

³⁹ Prais, S.J. and Houthakker, H.S., "The Analysis of Family Budgets", Cambridge University Press, 1955, pp. 88-93 and Chapters 9 and 10.

ture arising out of the assumption of the per capita approach.

The coefficient of family size (b_2^*) in the per capita model, mentioned in the beginning, indicates the economies of scale.⁴¹ If $b_2^* < 1$, there are economies of scale in the consumption expenditure.*

In the first region, cereals, oil and condiments, tea-sugar, fuel and lighting are the groups where the b_2^* coefficients are statistically significant. Of these, the positive value of cereals group indicates that there are no economies of scale in the cereal consumption.

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The per capita approach in its simple form i.e. when family size is neglected states according to Liviatan, that "expenditure per person (i.e. x/p) is a function of income per person (i.e. y/p). It then follows that $\eta_{xp} = 1 - \eta_{xy}$. Thus, the per capita approach implies that η_{xp} is positive for necessities ($\eta_{xy} < 1$) and negative for luxuries ($\eta_{xy} > 1$), and η_{xp} and η_{xy} are negatively correlated."

Liviatan, Nissan, "Consumption Patterns in Israel", Falk Project for Economic Research in Israel, Jerusalem, April 1964, p. 15.

⁴¹ Model 1 :- $\log x = a + b_1 \log y + b_2 \log s -$

There are economies of scale if $b_1 + b_2$ is less than unity.

Model 2 :- $\log x/p = a^* + b_1^* \log y/p + b_2^* \log p.$

In this model, $b_1 = b_1$, and $b_2^* = b_1 + b_2 - 1$.

Hence, to test whether $b_1 + b_2$ equals unity in the first model, is equivalent to testing whether b_2^* is statistically significant.

Liviatan says, "Note that equation ($\log x = b_0 + b_1 \log c + b_2 \log s$) can be written as $\log x/s = b_0 + b_1 \log c/s + (b_1 + b_2 - 1) \log s$.

Thus the figures in column 3 (i.e. $b_1 + b_2 - 1$) can be interpreted as the elasticity of x/s with respect to s , when c/s is constant." Here, c is income and s , family size.

Liviatan, Nissan, *ibid.*, p. 16.

* Please see the table on next page.

ECONOMIES OF SCALE IN HOUSEHOLD CONSUMPTION EXPENDITURE
ON NINE SPECIFIED COMMODITY GROUPS

(Only statistically significant b_2^* coefficients are noted).

Commodity Groups	First Region	Second Region	Third Region	All the 3 Regions combined
1. Cereals	0.1101	n.s.	n.s.	n.s.
2. Pulses	n.s.*	-0.3685	n.s.	-0.1735
3. Milk	n.s.	n.s.	n.s.	0.1495
4. Vegetables, etc.	n.s.	n.s.	n.s.	n.s.
5. Oil and condiments	-0.4747	-0.2106	n.s.	-0.1477
6. Tea-Sugar	-0.3539	n.s.	1.1596	0.6531
7. Fuel	-0.5076	-0.2632	-0.3416	-0.2923
8. Miscellaneous	n.s.	n.s.	n.s.	n.s.
9. Clothing	n.s.	n.s.	n.s.	n.s.

* n.s. means statistically not significant.

In the second region, pulses, oil and condiments, fuel and lighting are the groups where the b_2^* coefficients are statistically significant and since they are negative, it may be inferred that there are economies of scale.

In the third region, fuel and lighting and tea-sugar are the only groups where the b_2^* coefficients are statistically significant. The coefficient is negative in the former case indicating the economies of scale.

For all the three regions combined, pulses, milk and milk products, oil and condiments, tea-sugar, fuel and lighting are the groups where b_2^* coefficients are statistically significant. Of these, milk and milk products, and tea-sugar groups enter the family budget as a matter of necessities of life.

The values of slopes b_1^* are themselves partial-income elasticity coefficients since the double-logarithmic form is fitted to the multiple regression function referred to in the beginning. *

(1) Cereals :- The range of difference in the elasticity coefficients is 0.34 and the average elasticity is 0.82.

(2) Pulses :- In the second region, the income elasticity is relatively inelastic, 0.42, and in the other two regions, it is more than one. It is maximum, 1.45, in the third region.

* Please see the table on next page.

COMPARISON OF INCOME ELASTICITIES BASED ON THE DOUBLE
LOGARITHMIC FORM

Commodity Group	First Region	Second Region	Third Region	All the three Regions com- bined
1. Cereals	0.9741	0.8986	0.6323	0.8178
2. Pulses	1.2412	0.4209	1.4465	0.8596
3. Milk and Milk Products	1.3714	1.3387	1.5766	1.4483
4. Vegetables	0.3400*	0.7089	1.7016	0.9554
5. Oil and Condim ments	0.6281	0.5029	1.1831	0.8263
6. Tea-sugar etc.	0.5263	1.4382	2.6575	1.9270
7. Fuel and Lighting	0.5048	0.8512	0.6587	0.8412
8. Miscellaneous	0.9553	1.8038	1.5717	1.5781
9. Clothing	1.5249	1.5727	1.5509	1.5514

* The coefficient is statistically not significant.

(3) Milk and Milk-products :- The difference in the elasticity coefficients is 0.25 and the average value is 1.45.

(4) Vegetables :- The elasticity coefficient for the first region is statistically not significant. For the second region, the coefficient is inelastic, 0.71, whereas for the third region it is greater than unity. The average income elasticity is 0.96.

(5) Oil and Condiments :- The value of elasticity coefficient is minimum in the second region, 0.50, and is 1.18 in the third region. The average value is 0.83.

(6) Tea-Sugar :- The elasticity coefficient in the first region alone is inelastic 0.52. The average value of elasticity coefficient for the entire region is high, 1.93 which indicates the influence of high values of elasticity coefficients from the other two regions. In the third region it is the highest, 2.66.

(7) Fuel and Lighting :- The value of income elasticity are less than unity and the order of difference is 0.19. The average value of elasticity coefficient is 0.84.

(8) Miscellaneous :- This group has a higher value of income elasticity, 1.55, for the entire region. It is minimum, 0.96, in the first region.

(9) Clothing :- The elasticity coefficients are stable in the three regions and the average value is 1.55.

The general conclusion is that, excepting for the cereals and fuel groups, the values of elasticity coefficients are generally higher in the third region, viz., the Mula valley, as compared to the other two regions.

For cereals and fuel groups, the values of income elasticity coefficients are uniformly less than unity, indicating their inelasticity of demand.

Among nine commodity groups, the income elasticity coefficient for clothing is stable in all the three regions.

In all the three regions, the vegetables commodity group alone shows that its expenditure is independent of the level of income and as a proportion of total expenditure, it is less than two per cent, the minimum in the nine commodity groups under consideration.

7.9 Comparison with Other Studies⁴²

The following section attempts to compare the coefficients of expenditure elasticities in the region under

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(1) Amalendu Ganguly, J. Roy, etc. edited "Studies on Consumer Behaviour", Indian Statistical Series No. 6, Indian Statistical Institute, Calcutta.

(2) "Demand Projections for Foodgrains, Tobacco, Vegetable Oils and Cotton Textiles in India, 1960-1976", National Council of Applied Economic Research, New Delhi, 1960.

Contd./

study with those in other parts of the country. This comparison is confined to broad commodity groups for the simple reason that coefficients of elasticities for detailed commodities are usually not available. Also, in

(3) "All India Consumer Expenditure Survey", Volume II, National Council of Applied Economic Research, New Delhi, 1967.

(4) Sinha, R.P., "An Analysis of Food Expenditure in India", Journal of Farm Economics, Vol. 48, No. 1, February 1966, pp. 113-23.

(5) Iyengar, N.S., "Some Estimates of Engel Elasticities Based on National Sample Survey Data", Journal of the Royal Statistical Society, Series A (General), Vol. 130, Part 1, 1967, pp. 84-101.

(6) Verma, Ravi, "Income Elasticity of Demand for Foodgrains", Artha Vijnana. Issue No. 4, Vol. 1, 1959, pp. 271-80.

(7) Chatterji, M.K., "A Study of the Consumption Expenditure on Food in India", Artha Vijnana, Issue No. 4, Vol. 4, 1962, pp. 353-368.

(8) Mathur, P.N., "Short-term and Long-term Effects on Foodgrain Consumption Due to Changes in Total Expenditure", Artha Vijnana, Issue No. 4, Vol. 3, 1961, pp. 356-365.

(9) Guha Thakurta, B.K., "A Note on Changing Family Expenditure in Calcutta during 1939-56", Artha Vijnana, Issue No. 3, Vol. 5, 1963, pp. 189-194.

(10) Baldota, S.N., "Bias in Income Elasticity Estimates Derived from Expenditure Per Family Data - A Note", Artha Vijnana, Issue No. 1, Vol. 6, 1964, pp. 37-43.

(11) Brahma, Sulabha, "Consumer Expenditure on Fuel and Lighting in Some Rural Areas", Artha Vijnana, Issue No. 1, Vol. 3, 1961, pp. 11-18.

a vast country like India where significant regional variations in cropping and consumption pattern are to be expected, a detailed comparison is of limited relevance. Another important limitation of other studies is that they have analysed the consumer expenditure data published by the National Sample Survey (NSS) which are presented in terms of per capita units and thus in most of the studies, family size is not explicitly considered as an independent variable. The consumption function fitted is usually the simple linear relationship between per capita consumer expenditure on a particular commodity and per capita total expenditure. Regression analysis based on the least-squares method is employed. In some studies, other graphical techniques such as concentration curves are developed.⁴³ This has led Iyengar⁴⁴ to admit that "Since cross-tabulations of the National Sample Survey data by family income (total expenditure) and family size are not

⁴³ Iyengar, N.S. (1960), "On A Method of Computing Engel Elasticities from Concentration Curves", *Econometrica*, 28, 882-891.

Roy, J., Chakravarti, I.M. and Laha, R.G. (1960), "A Study of Concentration Curves as description of consumption pattern", In "Studies on Consumer Behaviour", Indian Statistical Institute, Asia Publishing House, Calcutta, pp. 73-82.

⁴⁴ Iyengar, N. Sreenivasa, "Some Estimates of Engel Elasticities Based on National Sample Survey Data", *Journal of the Royal Statistical Society, Series A (General)*, Vol. 130, Part 1, 1967, p. 84.

readily available, we have ignored the possibility of economies of scale in consumption in large families and have made no adjustment for family age-sex composition."

As noted earlier, the econometric analysis of family budgets in the present study is based on the multiple-regression model in which total expenditure and size of the family are explicitly considered as explanatory variables. This has necessitated to fit the simple regression model to per capita expenditure on a commodity and per capita total expenditure.* As a matter of common reference, the coefficients of elasticity based on the fourth round of NSS data on consumption are discussed. The constant elasticity form (double logarithmic) is employed as it is widely used.

Foodgrains

The accompanying table indicates that most of the authors have considered the foodgrains group as such and not cereals and pulses independently. In the region under study, the coefficients of expenditure elasticity are as high as 0.81 for cereals and 0.96 for pulses, whereas it is normally around 0.6 to 0.7 for foodgrains in other regions. Chatterji's estimate is very much low and has been criticized on methodological grounds.⁴⁵

⁴⁵ Verma, Pavi, "Notes and Memoranda", Artha Vijnana, Issue No. 2, Vol. 5, 1963, pp. 165-66. Also in the same issue, "A rejoinder" by M.K.Chatterji, pp. 166-68.

* Please see the table on next page.

COMPARISON OF EXPENDITURE ELASTICITIES BASED ON THE DOUBLE LOG-FORM

Commodity groups	Region under study	Iyengar ² (NSS, 1955-56)	Roy and Laha ³ (NSS, 4th round)	Rudra and Roy ⁴ (NSS, 4th round)	Sinha ⁵	NCAER ⁶ (NSS, 4th round)	Ravi Verma ⁷ (NSS, 4th round)	Chatterji ⁸ (NSS, 4th round)
1. Cereals	0.8065	0.63	0.750	0.73	0.48	0.71	0.67	0.38
2. Pulses	0.9567		0.757					
3. Milk and Milk Products	1.3647		1.368	1.73	1.72			1.11
4. Vegetables	1.1123		0.897					
5. Mutton-fish etc.	-0.7409 ¹		0.897	1.30				
6. Oil and Oil Products	1.1158	0.91	0.904			0.97		
7. Spices	0.5626		0.669					
8. Fuel and Lighting	1.0047	0.66	0.669	0.80 (NSS, 6th round)				
9. Tea	2.2194	1.25						
10. Sugar-gur	1.4436	1.30	1.081	1.32				
11. Pan-supari	1.4159		0.890					
12. Tobacco	1.4707		0.882			0.83		
13. Miscellaneous	1.6047	1.13						
14. Education	0.0984 ¹							
15. Clothing	1.5553	1.61	0.801	1.12				

¹ Statistically not significant.

² Iyengar, N.S., "Some Estimates of Engel Elasticities Based on National Sample Survey Data", Journal of the Royal Statistical Society, Series A (General), Vol. 130, Part I, 1967, p.92.

³ Foy, J. and Laha, R.G., "Preliminary Estimates of Relative Increase in Consumer Demand in Rural and Urban India", Studies on Consumer Behaviour, ed. Amalendu Ganguly, J. Roy etc. Indian Statistical Series No. 6, Indian Statistical Institute, Calcutta, 1960, p. 13.

⁴ Rudra, Ashok, and Roy, Bina, "Some Results in Consumption Studies", Studies on Consumer Behaviour, ed. Amalendu Ganguly, J. Roy etc., Indian Statistical Series No. 6, Indian Statistical Institute, Calcutta, 1960, p. 33; for 6th and 7th rounds of NSS, please see Appendix 1.

⁵ Sinha, R.P., "An Analysis of Food Expenditure in India", Journal of Farm Economics, Vol. 48, No. 1, February, 1966, p. 114. Sinha, without mentioning the reference period of NSS data, says in footnote, "In the case of India, we find that the expenditure elasticity for foodgrains for rural areas ranges between 0.27 (hyperbolic) to 0.48 (double log); for milk products, it ranges from 0.65 (hyperbolic) to 1.72 (double log)."

⁶ "Demand Projections for Foodgrains, Tobacco, Vegetable Oils and Cotton Textiles for India 1960-1976", National Council of Applied Economic Research, New Delhi, 1960, p. 44. For other rounds of NS, please see appendix 3.

⁷ Verma, Ravi, "Income Elasticity of Demand for Foodgrains - A Regional Approach", Artha Vijnana, Fourth Issue, Vol. 1, 1959, p. 275. Ravi Verma has computed detailed expenditure elasticities from 2nd to 6th rounds of N.S.S. These results are reproduced in Appendix 4.

⁸ Chatterji, M.K., "A Study of the Consumption Expenditure on Food in India", Artha Vijnana, Issue 4, Volume 4, 1962, p. 359.

APPENDIX 1

VALUES OF THE COEFFICIENT OF THE MODEL $Y = ax^b$ FITTED TO SOME OF THE DEMAND CURVES ACCOMPANIED WITH COMMENTS AS TO THE GOODNESS OF THE FITS.*

Commodity	N.S.S. Rounds	Rural (value elasticities)
Foodgrains	6	0.62 (very good)
Cereals	4	0.73 (good)
	7	0.55 (good)
Milk	4	1.73 (good)
	7	1.77 (very good)
Clothing	4	1.12 (good)
	7	1.45 (good)
Sugar	4	1.32 (good)
	7	1.11 (good)
Meat and fish	4	1.30 (fairly good)
	7	1.25 (fairly good)
Fuel and light	6	0.80 (good)

* Rudra, Ashok and Roy, Bina, "Some Results in Consumption Studies", in Studies on Consumer Behaviour, ed. Amalendu Ganguly, J. Roy, etc., Indian Statistical Series No. 6, Indian Statistical Institute, Calcutta, 1960, p. 33.

APPENDIX 2CONSTANT ELASTICITIES FOR RURAL INDIA[☆]

Item	N.S.S. Rounds					Average
	4th	5th	7th	9th	10th	
1. Cereals	0.71	0.59	0.52	0.56	0.61	0.60
2. Milk and Milk Products	1.79	1.89	1.99	1.64	1.86	1.83
3. Edible oil	0.97	0.19	2.02	0.95	0.92	1.01
4. Meat, egg and fish	1.02	1.16	1.14	1.32	0.88	1.10
5. Sugar	1.30	1.29	1.55	1.42	1.38	1.39
6. Total food	0.85	0.84	0.88	0.81	0.84	0.85
7. Clothing	0.88	0.92	1.66	1.56	1.68	1.34
8. Fuel and Light	0.77	0.67	0.69	0.56	0.66	0.67

NOTE: - N.S.S. Rounds	Period covered	Reference period
4th	April '52 - September '52	month
5th	December '52-March '53	"
7th	November '53-March '54	"
9th	May '55 - November '55	"
10th	December '55 - May '56	"

☆ Biswas, A.K., and Bose, D.K., "Consumption Projections of Selected Items over the period of ~~the~~ Third Five Year Plan", "Papers on National Income and Allied Topics", Indian Conference on Research in National Income, Volume II, ed. V.K.R.V. Rao, A.K.Ghosh, M.V.Divatia and Uma Datt, Asia Publishing House, Bombay, 1962, p. 40.

APPENDIX 3

EXPENDITURE ELASTICITIES OF FOODGRAINS^{*} a/ (Demand model b/ : $\log y = a + b \log x$)

Particulars	Second round	Third round	Fourth round	Fifth round	Sixth round	Seventh round	Tenth round
<---- (Rural All - India) ---->							
(i) Expenditure Elasticity	0.61	0.67	0.71	0.59	0.65	0.51	0.58
(ii) Standard Error of Expenditure Elasticity	0.056	0.042	0.050	0.065	0.039	0.54	-

a/ These elasticities are derived from 2nd to 7th rounds - Report No. 19

b/ x and y given in the demand modal stand for the total expenditure and expenditure on the commodity, respectively.

★ "Demand Projections for Foodgrains, Tobacco, Vegetable Oils and Cotton Textiles in India 1960-1976", National Council of Applied Economic Research, New Delhi, 1960, p. 44.

APPENDIX 4

ESTIMATES OF ELASTICITIES FOR FOODGRAINS (RURAL SECTOR)^{*}

N.S.S. Rounds	Period	South India	West India	East India	Central India	North India	North-west India	All India
2	April - June '51	0.7128	0.4759	0.7566	0.6017	0.6810	0.6372	0.6421
3	August - November '51	0.7428	0.6198	0.7180	0.5664	0.6094	0.6407	0.6565
4	April - September '52	0.7246	0.7230	0.7389	0.5023	0.6429	0.5187	0.6645
5	December '52 - March '53	0.6224	0.6957	0.6563	0.5398	0.6090	0.3765	0.6017
6	May - September '53	0.7213	0.5157	0.6200	0.5685	0.5795	0.4281	0.5929

* Verma, Ravi, "Income Elasticity of Demand for Foodgrains - A Regional Approach",
Artha Vijnana, Fourth Issue, Vol. 1, 1959, p. 275.

According to Ravi Verma's estimate, the coefficient of elasticity for foodgrains is 0.72 in Western India which includes Maharashtra and Gujarat States. It may be noted that I.S.I.'s estimate of 0.73 for cereals is fairly close to the one obtained in the present study. The high inelasticity for foodgrains in the present study indicates that as compared to the other parts, the region under study is placed on a lower level of subsistence.

Milk and Milk Products

It seems that according to I.S.I.'s and Sinha's estimates for all India rural sector, the coefficients of elasticity are higher as compared to those of the present study. As noted in the discussion of calorific content of diet, the region under study enjoys a comparatively higher level of milk consumption as compared to the all-India average level. Roy and Laha's estimate of 1.37 is the same as in this study.

Vegetables.

Roy and Laha's estimate shows high inelasticity, namely 0.90 whereas it is 1.11 in the present study.

Oil and Oil Products

NCAER's estimate is comparable with that in the present study. Iyengar's estimate based on the NSS data for

1955-56 is nearly the same as the one given by Foy and Laha. All these estimates of elasticities are less than unity.

S p i c e s

Roy and Laha's estimate is comparable to the one in the present study, though the former is somewhat higher by .10 points.

Fuel and Lighting

The coefficient of elasticity is unity in the region under study, whereas it is 0.80 according to Rudra and Roy and 0.67 according to Roy and Laha, and Iyengar.

T e a

Iyengar's estimate of the coefficient of elasticity is nearly half of that in the present study though both the coefficients are above unity indicating high elasticity of expenditure on tea.

Sugar-gur

The estimates given by Iyengar, Rudra and Roy, Roy and Laha are in agreement with the coefficient of elasticity in the region under study, though of course the latter is somewhat higher. Among these estimates, Roy and Laha's

estimated elasticity is lower.

Tobacco and tobacco products

The estimate of coefficient of elasticity in the present study is comparable with that presented by Iyengar though the latter is lower. The other estimates given by NCAER and Roy and Laha are in the range of 0.8 to 0.9. Even according to NCAER⁴⁶ the coefficient of elasticity, though highly inelastic is around 0.90 when it is based on the linear form.

Miscellaneous

Iyengar's estimate is comparable with that in the present study.

Clothing

Iyengar's estimate is higher than the one in the present study by less than 0.05 points. Roy and Laha's estimate indicates high inelasticity, whereas according to Rudra and Roy, it is higher than unity.

⁴⁶
NCAER, *ibid.*, p. 47.

TABLE 7.1 : FIRST REGION : PARTIAL ELASTICITY COEFFICIENTS FOR 15 COMMODITY GROUPS BASED ON THE LINEAR FORM

Commodity Group	Constant 'A'	Constant ¹ 'B ₁ '	Standard Error	Re- mark ²	Constant ³ 'B ₂ '	Standard Error	Re- mark ²	Correlation coefficient ⁴ (R)	Partial Elasticity with reference to	
									η_{xy} ⁵	η_{xs} ⁶
1. Cereals	-135.2610	0.5873	(±0.0289)	*	3.4803	(±6.3422)	**	0.9751	1.1289	0.0256**
2. Pulses	22.1900	0.0475	(±0.0076)	*	-3.1257	(±1.6654)	**	0.7450	0.9752	-0.2459**
3. Milk and Milk Products	-12.1249	0.0970	(±0.0174)	*	-0.8740	(±3.8228)	**	0.7554	1.2222	-0.0388**
4. Vegetables	2.3252	0.0023	(±0.0025)	*	1.4134	(±0.5435)	*	0.5730	0.2565	0.5924
5. Mutton, fish etc.	-4.4719	0.0046	(±0.0070)	**	1.9756	(±1.5279)	**	0.3567**	0.4861**	0.7918**
6. Oil and Oil Products	36.8548	0.0364	(±0.0104)	*	0.2794	(±2.2792)	**	0.6063	0.6131	0.0180**
7. Spices	26.0098	0.0077	(±0.0026)	*	-0.3269	(±0.5799)	**	0.4836	0.3524	-0.0571**
8. Fuel and Lighting	40.8949	0.0160	(±0.0035)	*	-0.5104	(±0.7729)	**	0.6608	0.4168	-0.0511**
9. Tea	9.6363	0.0027	(±0.0017)	**	0.0850	(±0.3751)	**	0.3471**	0.3093**	0.0372**
10. Sugar and gur	23.9810	0.0138	(±0.0036)	*	2.0867	(±0.7804)	*	0.7852	0.3828	0.2219
11. Pan-supari	- 8.9318	0.0186	(±0.0049)	*	-0.6866	(±1.0711)	**	0.5895	1.7453	-0.2471**
12. Tobacco and tobacco Products	16.9366	0.0076	(±0.0065)	**	2.8984	(±1.4368)	*	0.5250	0.2639**	0.3862
13. Miscellaneous	5.4515	0.0048	(±0.0036)	**	1.9402	(±0.7951)	*	0.5899	0.3086**	0.4816
14. Education	-14.5499	0.0014	(±0.0031)	**	2.4437	(±0.6769)	*	0.6405	0.6668**	4.3332
15. Clothing	-9.0696	0.1523	(±0.0098)	*	-11.0718	(±2.1459)	*	0.9392	1.4580	-0.4064

1 Marginal propensity to consume with respect to total expenditure.

2 * Statistically significant. Degrees of freedom 37, student's value 1.96

** Statistically not significant. Degrees of freedom 37, student's value 1.96.

3. Marginal propensity to consume with respect to family size.

4. F value 3.26 at 5% level of significance. Statistically not significant values are noted with **

5 Partial income elasticity η_{xy}

6 Partial size elasticity η_{xs} Statistically not significant values are noted with **

TABLE 7.2: FIRST REGION : PARTIAL ELASTICITY COEFFICIENTS FOR 15 COMMODITY GROUPS BASED ON THE SEMI-LOG FORM

Commodity Group	Constant 'A'	Constant 'B ₁ '	Standard Error	Re- mark ¹	Constant 'B ₂ '	Standard Error	Re- mark	Correlation Coefficient	Partial Elasticity with reference to	
									η_{xy}^3	η_{xs}^4
1. Cereals	-7631.7350	1153.0448	(± 114.6545)	*	16.9715	(± 86.3485)	**	0.9125	1.3173*	0.0194**
2. Pulses	- 683.9248	111.6644	(± 14.7792)	*	-31.6420	(± 11.1305)	*	0.7969	1.3618*	-0.3859*
3. Milk & Milk Products	-1463.6599	224.7083	(± 35.6726)	*	24.7555	(± 26.8657)	*	0.7815	1.5457*	-0.1703**
4. Vegetables	- 60.9270	8.9287	(± 5.5287)	*	6.1307	(± 4.4638)	*	0.5257	0.5802*	0.3984**
5. Mutton, fish etc.	- 41.0786	4.6050	(± 15.3441)	*	13.3959	(± 11.5559)	**	0.2889**	0.2862**	0.8324**
6. Oil & Oil Products	-549.3186	93.2082	(± 22.3895)	*	-20.7211	(± 16.8619)	**	0.6038	0.9329*	-0.2074**
7. Spices	- 75.6603	15.5841	(± 5.6508)	*	- 1.1555	(± 4.2557)	**	0.4923	0.4222*	-0.0313**
8. Fuel & Lighting	-186.3306	34.8422	(± 7.2129)	*	- 3.0829	(± 5.4322)	**	0.6993	0.5404*	-0.0478**
9. Tea	- 43.0170	8.1678	(± 3.5968)	*	-1.3154	(± 2.7088)	**	0.3973	0.5539*	-0.0892**
10. Sugar-Gur	-213.9213	34.9368	(± 7.4090)	*	10.1815	(± 5.5799)	**	0.8001	0.5759*	0.1678 **
11. Pan-supari	-301.1673	46.6845	(± 10.1729)	*	-13.8734	(± 7.6614)	**	0.6222	2.6043*	-0.7739**
12. Tobacco & Tobacco Products	-168.1487	26.5880	(± 14.1396)	*	12.1076	(± 10.6488)	**	0.5192	0.5493*	0.2501**
13. Miscellaneous	-114.7540	16.9856	(± 7.6847)	*	9.1095	(± 5.7875)	**	0.6048	0.6537*	0.3506**
14. Education	- 76.4811	8.8386	(± 7.6103)	*	8.6959	(± 5.7314)	**	0.4731**	2.4299**	2.3906**
15. Clothing	-1956.4863	311.0703	(± 28.4785)	*	-88.9869	(± 21.4477)	*	0.8853	1.7702*	-0.5064*

- 1 * Statistically significant
 ** Statistically not significant) Student's 't' test 1.96
 2 F value 3.26 at 5% level of significance. Statistically not significant values are noted with **
 3 Partial income elasticity, η_{xy}) Significant values *
 4 Partial size elasticity η_{xs}) Not significant values **

TABLE 7.3 : FIRST REGION : PARTIAL ELASTICITY COEFFICIENTS FOR 15 COMMODITY GROUPS BASED ON THE DOUBLE LOG-FORM

Commodity Group	Constant 'A'	Constant ¹ 'B ₁ '	Standard Error	Re- marks ²	Constant ³ 'B ₂ '	Standard Error	Remarks ²	Correlation coefficient ⁴
1. Cereals	- 0.7232	0.9741	(± 0.0675)	*	0.1360	(± 0.0508)	*	0.9631
2. Pulses	- 4.3911	1.2412	(± 0.1879)	*	-0.2575	(± 0.1415)	**	0.7720
3. Milk & Milk Products	- 5.0127	1.3714	(± 0.1951)	*	-0.1511	(± 0.1469)	**	0.8133
4. Vegetables	- 1.9498	0.5373	(± 0.3471)	**	0.2954	(± 0.2614)	**	0.4733
5. Mutton, fish etc.	- 1.0504	-0.9990	(± 2.0909)	**	3.9634	(± 1.5747)	*	0.4378
6. Oil & Oil Products	- 0.3304	0.6892	(± 0.2056)	*	-0.1275	(± 0.1549)	**	0.5313
7. Spices	1.0346	0.3513	(± 0.2391)	**	-0.0414	(± 0.1801)	**	0.2788**
8. Fuel & Lighting	0.4429	0.5048	(± 0.1118)	*	-0.0124	(± 0.0842)	**	0.6953
9. Tea	- 6.6766	1.3066	(± 0.6719)	**	-0.2473	(± 0.5060)	**	0.3393**
10. Sugar-Gur	- 0.0322	0.5124	(± 0.1183)	*	0.1820	(± 0.0891)	*	0.7908
11. Pan-supari	-49.0803	2.1252	(± 2.1244)	*	-2.4185	(± 1.5999)	**	0.4937
12. Tobacco & Tobacco Products	- 0.6064	0.5243	(± 0.2700)	*	0.2781	(± 0.2033)	**	0.5533
13. Miscellaneous	- 7.3449	1.2137	(± 0.6848)	**	0.7599	(± 0.5157)	**	0.5450
14. Education	-11.7312	0.9265	(± 1.4836)	**	0.7925	(± 1.1174)	**	0.2580**
15. Clothing	- 5.2576	1.5249	(± 0.1288)	*	-0.5232	(± 0.0970)	*	0.8945

1 B₁ coefficient itself is a partial income elasticity, η_{xy} ; statistically not significant values are noted with **

2 * statistically significant
** statistically not significant

3 B₂ coefficient itself is a partial size elasticity, η_{xs} . Statistically not significant values are noted with **

4 F value 3.26 at 5% level of significance

Statistically not significant values are noted with **

TABLE 7.4 : SECOND REGION: PARTIAL ELASTICITY COEFFICIENTS FOR 15 COMMODITY GROUPS BASED ON THE LINEAR FORM

Commodity Group	Constant 'A'	Constant ¹ 'B ₁ '	Standard Error	Re- mark ²	Constant ³ 'B ₂ '	Standard Error	Re- mark ²	Correlation Coefficient ⁴ (R)	Partial Elasticity with reference to	
									η_{xy} ⁵	η_{xs} ⁶
1. Cereals	104.8568	0.5909	(+0.0309)	*	-4.8063	(+7.6775)	**	0.9343	1.2027	- 0.0424**
2. Pulses	36.8927	0.0229	(+0.0078)	*	6.8828	(+1.9350)	*	0.6389	0.2845	0.3707
3. Milk & Milk Products	- 14.7585	0.0644	(+0.0084)	*	4.6774	(+2.0950)	*	0.7925	0.8755	0.2752
4. Vegetables	2.3944	0.0106	(+0.0021)	*	-0.3655	(+0.5249)	**	0.5421	0.9801	-0.1458**
5. Mutton, fish etc.	16.8414	0.0092	(+0.0078)	**	0.3561	(+1.9430)	**	0.1797**	0.3930**	0.0659**
6. Oil & Oil Products	10.3249	0.0139	(+0.0069)	*	6.5835	(+1.7214)	*	0.6010	0.2767	0.5685
7. Spices	23.5291	0.0114	(+0.0041)	*	1.5966	(+1.7241)	**	0.3144	0.3171	0.1920**
8. Fuel & Lighting	12.4262	0.0144	(+0.0092)	*	1.0654	(+1.20254)**	**	0.5109	0.5073	0.1629**
9. Tea	6.2669	0.0203	(+0.0033)	*	-1.0686	(+2.2891)	**	0.2607	0.9960	-0.2269**
10. Sugar-Gur	4.8827	0.0170	(+0.0022)	*	1.4334	(+0.8078)	**	0.6758	0.6326	0.2309**
12. Pan-supari	-9.6040	0.0117	(+0.0076)	*	-0.0748	(+0.5554)	**	0.5858	2.8000	-0.0773**
12. Tobacco and Tobacco Products	16.0831	0.0392	(+0.0022)	*	-3.7397	(+1.8871)	*	0.5000	1.1172	-0.4617
13. Miscellaneous	- 3.5941	0.0257	(+0.0022)	*	-1.4354	(+0.5411)	*	0.8207	1.5299	-0.3694
14. Education	1.5378	0.0009	(+0.0017)	**	-0.1244	(+0.4130)	**	0.0570**	0.5925**	-0.3562**
15. Clothing	0.6533	0.1483	(+0.0056)	*	-11.1386	(+1.3841)	*	0.9516	1.4750	-0.4790

1 Marginal propensity to consume with respect to total expenditure.

2 * Statistically significant)Degrees of freedom 90,
** Statistically not significant)Student's "t" value 1.96

3 Marginal propensity to consume with respect to family size

4 F value 3.10 at 5% level of significance. Statistically not significant values noted with **

5 Partial income elasticity) Statistically not significant values are noted with **

6 Partial size elasticity)

TABLE 7.5 : SECOND REGION : PARTIAL ELASTICITY COEFFICIENTS FOR 15 COMMODITY GROUPS BASED ON THE SEMI-LOG FORM

Commodity Group	Constant 'A'	Constant 'B ₁ '	Standard Error	Re- mark ¹	Constant 'B ₂ '	Standard Error	Re- mark ¹	Correlation Coefficient ²	Partial Elasticity with reference to	
									η_{xy} ³	η_{xs} ⁴
1. Cereals	-4729.8880	757.3898	(<u>+76.2021</u>)	*	14.7051	(<u>+70.1513</u>)	**	0.8193	1.1584	0.0225**
2. Pulses	- 291.4023	51.0439	(<u>+11.9085</u>)	*	22.8698	(<u>+10.9629</u>)	*	0.6412	0.4770	0.2137*
3. Milk & Milk Products	- 652.7863	102.8580	(<u>+13.7652</u>)	*	14.0502	(<u>+12.6722</u>)	**	0.7603	1.0501	0.1434**
4. Vegetables	- 105.7163	17.5918	(<u>+ 3.1373</u>)	*	-2.6590	(<u>+ 2.8882</u>)	**	0.5808	1.2172	-0.1840**
5. Mutton, fish etc.	- 78.7339	15.6955	(<u>+11.9951</u>)	**	-0.7451	(<u>+11.0426</u>)	**	0.1763**	0.5042**	-0.0239**
6. Oil & Oil Products	- 225.8153	35.8606	(<u>+10.5914</u>)	*	23.8260	(<u>+ 9.7504</u>)	*	0.6039	0.5374	0.3570*
7. Spices	- 128.7226	23.5936	(<u>+10.4598</u>)	*	5.9587	(<u>+ 9.6293</u>)	**	0.3587	0.4923	0.1243**
8. Fuel & Lighting	- 164.7054	28.4273	(<u>+ 6.1062</u>)	*	0.7504	(<u>+ 5.6213</u>)	**	0.5581	0.7543	0.0199**
9. Tea	- 260.2761	43.1986	(<u>+13.7034</u>)	*	-11.2428	(<u>+12.6153</u>)	**	0.3500	1.5913	-0.4141**
10. Sugar-Gur	- 188.1834	31.0055	(<u>+ 4.8660</u>)	*	2.7958	(<u>+ 4.4796</u>)	**	0.6943	0.8666	0.0781**
11. Pan-supari	- 88.5331	13.1636	(<u>+3.7626</u>)	*	0.5863	(<u>+ 3.4638</u>)	**	0.4559	2.3612	0.1052**
12. Tobacco & Tobacco Products	- 404.0587	70.0910	(<u>+10.9989</u>)	*	-27.8416	(<u>+10.1256</u>)	*	0.5750	1.5013	-0.5963*
13. Miscellaneous	- 230.1266	37.8101	(<u>+3.6977</u>)	*	-9.2560	(<u>+3.4041</u>)	*	0.7743	1.6883	-0.4133*
14. Education	- 11.8249	2.0514	(<u>+2.5398</u>)	**	-0.4176	(<u>+2.3381</u>)	**	0.0987**	1.0189**	-0.2074**
15. Clothing	-1253.3533	209.7892	(<u>+13.1361</u>)	*	-59.9663	(<u>+12.0930</u>)	*	0.8812	1.5684	-0.4483*

1 * Statistically significant) Student's 't' test 1.96
 ** Statistically not significant)

2 F value 3.10 at 5% level of significance

Statistically not significant values are noted with **

3 Partial income elasticity η_{xy}) significant values *

4 Partial size elasticity η_{xs}) not significant values **

TABLE 7.6 : SECOND REGION : PARTIAL ELASTICITY COEFFICIENTS FOR 15 COMMODITY GROUPS BASED ON THE DOUBLE LOG-FORM

Commodity Group	Constant 'A'	Constant 'B ₁ ' ¹	Standard Error	Re- marks ²	Constant 'B ₂ ' ³	Standard Error	Re- marks ²	Correlation Coefficient ⁴
1. Cereals	-0.1959	0.8986	(±0.621)	*	0.1051	(±0.572)	**	0.9128
2. Pulses	1.2567	0.4209	(±0.946)	*	0.2107	(±0.0871)	*	0.6680
3. Milk & Milk Products	4.8753	1.3387	(±0.1788)	*	-0.1682	(±0.1646)	**	0.6960
4. Vegetables	-7.1435	1.2897	(±0.4044)	*	0.0914	(±0.3723)	**	0.4299
5. Mutton, fish etc.	18.6263	-2.8925	(±1.1109)	*	1.6691	(±1.0226)	**	0.2638
6. Oil & Oil Products	-0.6158	0.5873	(±0.1137)	*	0.3069	(±0.1047)	*	0.7265
7. Spices	0.8400	0.3347	(±0.1823)	*	0.2756	(±0.1678)	**	0.4112
8. Fuel & Lighting	-2.3579	0.8512	(±0.1121)	*	-0.1145	(±0.1032)	**	0.6988
9. Tea	-21.4664	3.2605	(±0.8695)	*	-0.4509	(±0.8005)	**	0.4337
10. Sugar-Gur	-4.6433	1.1449	(±0.3717)	*	-0.1416	(±0.3422)	**	0.3709
11. Pan-supari	-16.2669	1.6078	(±0.8594)	*	1.1630	(±0.7912)	**	0.3978
12. Tobacco & Tobacco Products	-9.2538	2.0017	(±0.2939)	*	-0.9619	(±0.2705)	*	0.5903
13. Miscellaneous	-13.3960	2.5271	(±0.3782)	*	-1.1860	(±0.3482)	*	0.5828
14. Education	-6.9313	0.3705	(±0.6118)	**	0.2007	(±0.5632)	**	0.1245*
15. Clothing	-5.5158	1.5727	(±0.0642)	*	-0.5628	(±0.0591)	*	0.9398

1 B₁ coefficient itself is a partial income elasticity, η_{xy}

2 * Statistically significant
** Statistically not significant

3 B₂ coefficient itself is a partial size elasticity, η_{xs}

4 F value 3.10 at 5% level of significance.

TABLE 7.7: THIRD REGION : PARTIAL ELASTICITY COEFFICIENTS FOR 15 COMMODITY GROUPS BASED ON THE LINEAR FORM

Commodity Group	Constant 'A'	Constant ¹ 'B ₁ '	Standard Error	Re- ² marks	Constant ³ 'B ₂ '	Standard Error	Re- marks	Correlation Coefficient ⁴	Partial Elasticity with reference to	
									η_{xy} ⁵	η_{xs} ⁶
1. Cereals	-62.4723	0.3753	(+0.0235)	*	41.3128	(+6.8962)	*	0.9528	0.7628	0.3254
2. Pulses	9.5634	0.1003	(+0.0080)	*	-6.7340	(+2.3424)	*	0.8573	1.2408	-0.3230
3. Milk & Milk Products	- 6.6805	0.1016	(+0.0052)	*	-6.8218	(+1.5334)	*	0.9324	1.4404	-0.3747
4. Vegetables	-0.1608	0.0170	(+0.0017)	*	-1.6140	(+0.4998)	*	0.7824	1.5984	-0.5879
5. Mutton, fish etc.	15.2086	0.0398	(+0.0067)	*	-5.4123	(+1.9714)	*	0.5746	1.3541	-0.7130
6. Oil & Oil Products	- 7.2764	0.0809	(+0.0073)	*	-6.1364	(+2.1555)	*	0.8203	1.5544	-0.4573
7. Spices	9.3937	0.0085	(+0.0024)	*	-3.3540	(+0.7047)	*	0.7589	0.3037	0.4637
8. Fuel & Lighting	40.1286	0.0244	(+0.0047)	*	-0.2877	(+1.3949)	**	0.6091	0.4775	-0.0218**
9. Tea	0.0178	0.0094	(+0.0019)	*	-0.4858	(+0.5715)	**	0.5525	1.2475	-0.2491**
10. Sugar-Gur	- 1.1927	0.0308	(+0.0032)	*	-0.0852	(+0.9546)	**	0.8219	1.0391	-0.0111**
11. Pan-supari	- 9.2208	0.0137	(+0.0027)	*	-0.4908	(+0.7831)	**	0.5873	2.5455	-0.3540**
12. Tobacco & Tobacco Products	-14.6573	0.0153	(+0.0032)	*	-1.8656	(+0.9278)	*	0.5050	0.8389	-0.3954
13. Miscellaneous	-1.9638	0.0248	(+0.0026)	*	-2.0384	(+0.7664)	*	0.7744	1.5954	-0.5078
14. Education	-3.7217	0.0030	(+0.0028)	**	0.5091	(+0.8318)	**	0.2294**	1.2556**	0.8253**
15. Clothing	3.7273	0.1550	(+0.0043)	*	13.2037	(+1.2721)	*	0.9770	1.4565	-0.4808

1 Marginal propensity to consume with respect to total expenditure

2 * Statistically significant) Degrees of freedom 76

** Statistically not significant) Student's 't' test 1.96

3 Marginal propensity to consume with respect to family size

4 F value 3.12 at 5% level of significance. Statistically not significant values are noted with **

5 Partial income elasticity) Statistically not significant

6 Partial size elasticity) Values are noted with **

TABLE 7.8 : THIRD REGION : PARTIAL ELASTICITY COEFFICIENTS FOR 15 COMMODITY GROUPS BASED ON THE SEMI-LOG FORM

Commodity Group	Constant 'A'	Constant 'B ₁ '	Standard Error	Re- marks ¹	Constant 'B ₂ '	Standard Error	Re- marks	Correlation ² Coefficient	Partial Elasticity with reference to	
									η_{xy} ³	η_{xs} ⁴
1. Cereals	-3025.4055	482.4197	(+58.5762)	*	180.9128	(+61.8240)	*	0.8647	0.6807	0.2553
2. Pulses	- 878.6031	150.2514	(+12.2416)	*	-48.3227	(+12.9203)	*	0.8516	1.2908	-0.4151
3. Milk & Milk Products	- 849.5709	144.1738	(+10.7815)	*	-48.5760	(+11.3793)	*	0.8688	1.4185	-0.4779**
4. Vegetables	- 127.3526	21.7335	(± 3.0047)	*	- 7.7669	(± 3.1713)	*	0.6841	1.4182	-0.5068**
5. Mutton, fish etc.	- 351.4819	61.9412	(± 9.8132)	*	-30.0952	(+10.3573)	*	0.6083	1.4617	-0.7102
6. Oil & Oil Products	- 695.6714	118.1422	(+12.0994)	*	-45.3349	(+12.7703)	*	0.7802	1.5770	-0.6051
7. Spices	- 83.0232	14.3573	(± 3.8062)	*	13.0282	(± 4.0172)	*	0.7283	0.3556	0.3227
8. Fuel & Lighting	- 211.1263	40.9614	(± 6.5682)	*	- 4.7069	(± 6.9324)	**	0.6860	0.5556	-0.0638**
9. Tea	- 89.1470	15.1714	(± 2.9044)	*	- 5.1506	(± 3.0654)	**	0.5647	1.3936	-0.4731**
10. Sugar-Gur	- 284.4088	47.4689	(± 5.0129)	*	- 7.3388	(± 5.2909)	**	0.8126	1.1125	-0.1720**
11. Pan-supari	- 105.5791	16.7074	(± 4.3729)	*	- 3.7052	(± 4.6153)	**	0.4740	2.1589	-0.4788**
12. Tobacco & Tobacco Products	- 135.7913	25.3107	(± 4.5540)	*	-11.5582	(± 4.8065)	*	0.5646	0.9611	-0.4389
13. Miscellaneous	- 200.5069	34.0022	(± 4.3981)	*	-12.3395	(± 4.6420)	*	0.7068	1.5173	-0.5506
14. Education	- 31.4086	4.7436	(± 4.3041)	**	- 0.6167	(± 4.5428)	**	0.1930**	1.3777**	-0.1791 **
15. Clothing	-1278.1101	219.1514	(+12.1505)	*	-82.8630	(+12.8241)	*	0.9178	1.4296	-0.5406

1 * Statistically significant

** Statistically not significant

2 F value 3.12 at 5% level of significance. Statistically not significant values are noted with **

3 Partial income elasticity, η_{xy}) Significant values *4 Partial size elasticity η_{xs}) Not significant values **

TABLE 7.9 : THIRD REGION : PARTIAL ELASTICITY COEFFICIENTS FOR 15 COMMODITY GROUPS BASED ON THE DOUBLE LOG-FORM

Commodity Group	Constant 'A'	Constant 'B ₁ ' ¹	Standard Error	Re- marks ²	Constant 'B ₂ ' ³	Standard Error	Re- marks ²	Correlation ⁴ Coefficient
1. Cereals	1.3057	0.6323	(+ 0.0424)	*	0.3829	(+0.0448)	*	0.9630
2. Pulses	-5.2621	1.4465	(+ 0.929)	*	-0.3388	(+0.0981)	*	0.9086
3. Milk & Milk Products	-5.9876	1.5766	(+0.0692)	*	-0.5521	(+0.0836)	*	0.9329
4. Vegetables	-5.8791	1.2309	(+0.1055)	*	-0.2569	(+0.0113)	*	0.8563
5. Mutton, fish etc.	-5.7584	0.9667	(+0.8008)	*	-0.8068	(+0.8451)	**	0.3114
6. Oil & Oil Products	-7.0017	1.6810	(+0.1144)	*	-0.6222	(+0.1207)	*	0.8841
7. Spices	0.2668	0.3837	(+0.0817)	*	0.3709	(+0.0862)	*	0.8062
8. Fuel & Lighting	-0.5026	0.6527	(+0.1043)	*	-0.0002	(+0.1101)	**	0.7180
9. Tea	-28.2373	4.3665	(+0.8120)	*	-1.5218	(+0.8570)	**	0.5739
10. Sugar-Gur	-15.7803	2.7799	(+0.5191)	*	-0.6145	(+0.5479)	**	0.6023
11. Pan-Supari	-23.8558	3.1267	(+0.9461)	*	-0.6857	(+0.9985)	**	0.4226
12. Tobacco & Tobacco Products	- 5.9240	1.3804	(+0.3879)	*	-0.6501	(+0.4094)	**	0.3989
13. Miscellaneous	- 6.2573	1.3744	(+0.4151)	*	-0.6236	(+0.4381)	**	0.3778
14. Education	- 7.3766	0.4936	(+0.6891)	**	-0.0064	(+0.7273)	**	0.1153**
15. Clothing	- 5.3301	1.5509	(+0.0473)	*	-0.5729	(+0.0499)	*	0.9731

1 B₁ coefficient itself is a partial income elasticity, η_{xy}

2 * Statistically significant
** Statistically not significant

3 B₂ coefficient itself is a partial size elasticity, η_{xs}

4 F value 3.12 at 5% level of significance. Statistically not significant values are noted with **

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