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Lashkar Gah Survey

A

Demographic and Econometric Analysis

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LASHKAR GAH HOUSEHOLD SURVEY

A

DEMOGRAPHIC AND ECONOMETRIC ANALYSIS

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Preface

This paper was originally written for the Survey of Progress published annually by The Royal Government of Afghanistan, Ministry of Planning. A summary of the analysis appears in the 1968-1969 issue, both in Dari and in English.

This paper covers a more detailed analysis of the survey. The scope of the analysis is wider and the coverage is broader. It also includes a chapter on the methodology and procedures adopted. (see Chapter III)

My appreciation goes to the authorities of the Ministry of Planning by whom I was asked and permitted to work on this project. I am indebeted to Mr. Rafiq Mayel, Director of Census and Sampling for his close cooperation in the demographic analysis that appears in the first part of this paper, and to Mr. Donald H.Niewiaraski from the Robert R.Nathan Associates Inc. for his assistance in the econometric analysis that appears in the second part of this paper. My best gratitude to Professor Dr. Syed S.Sharaf, Dean of the Faculty of Economics, Kabul University from whom I received most help and guidance in redrafting this paper. My last but not least appreciation is for Mr. M. Ashraf from the Statistics Department of the Ministry of Planning who worked hard in the preparation of the charts and diagrams that appear in this paper.

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INTRODUCTION

For purposes of rapid and sound economic development, planning is a method usually adopted today, in various degrees, by most of the developing as well as the advanced countries. People and Government of Afghanistan, based on the environmental conditions and requirements of the time, have considered that planning could be an effective and, if designed and implemented properly, most suitable way for achieving higher standards of living.

However, drafting social and economic plans, its implementation and evaluation depend, to a large extent, on the availability and use of accurate and reliable data by helping the planning authorities and agencies in identifying the country's economic situation and the causes of backwardness, the restrains, and the shortages and bottlenecks. Use of such statistical information also facilitates the formulation and improvement of remedies for solution of the prevailing problems.

Obviously, investment and expenditure on statistical projects are not productive, in a sense, like in other infrastructure projects but, they can be utilized by the planning authorities or Government in avoiding great and costly mistakes which might occur when drafting social and economic plans without accurate and reliable statistics.

Inspite of planning being observed in our country, at the present, the situation of statistics is not satisfactory. Basic and reliable statistics are not available as yet in most fields. Those available are very limited in scope and coverage. However, efforts have already been undertaken, in the last few years, to collect, orga-

nize, and analyze basic and reliable data that could be used as the basis for government planning decisions.

Of course, much time, energy and money would be needed to conduct and make comprehensive studies and analyses of great masses of statistical data. Such efforts are far more difficult in a country like Afghanistan characterized, at the present, with limited available resources, severe shortage of skills, numerous institutional and technological problems. Therefore, it would seem reasonable to utilize sample and regional surveys like some other developing and low income countries. On the basis of these observations, the Department of Statistics in the Ministry of Planning began a number of sample survey projects through its Directorate General for Census and Sampling. This Office, after completing a sample survey of the Greater Kabul in Assad 1347, with the cooperation of the Ministry of Agriculture and Irrigation, undertook in Dalw 1347 another sample survey of population, manpower and living standard in Lashkar Gah (Bost) the center of Helmand Province.

The Lashkar Gah sample survey is analyzed and discussed in this paper from various view points and hopefully gives a series of useful and complete information. The analysis, first of its kind as yet in this country, could be used as a guide for further sample survey studies in the country, and serve as statistical basis for the drafting of regional plans in that area.

CHAPTER I

DEMOGRAPHIC ANALYSIS

1. Family, Household, and Population:

It is obvious that the role played by people in economic development of a country is important not only from the point of view of quantity but even the quality and composition. The formation of a family is considerably important as far as the composition and classification from the view point of age, sex, education, standard of literacy and specialization in various economic and social spheres concerned. This shall be first aspect reviewed.

Table 1: Number of Household and Population

	Number of Households	Number of Population	Percentage of Total
Urban	829	9844	17.7
Rural (including 19 villages of Lashkar Gah)	3622	22563	82.3
Total	4451	27407	100.0

Division of Lashkar Gah Residents as in Survey Areas:

A. Municipal Areas:	Households	Population
First Area	263	1537
Second Area	193	1128
Third Area:		
Karta Legan	13	76
Suburbs of Karta Legan	152	888
Tanak Area	208	1215
Total	829	4844

B. Villages included in sample survey:	Households	Population
Mohajerin	34	211
Shamozai Khoshk Aba	66	410
Karwanda Khoshk Aba	48	299
Kariz	132	821
Sarkar	72	448
Bolan	396	2463
Lashkari Bazar Gharbi	366	2277
Total	1114	6929

The table indicates that the total population of Lashkar Gah and its 19 villages was 27 407 persons consisting of 4451 families. At this rate an average of six persons form a family. By rural and urban distinction, there are 5.8 members in an urban family whereas the rural family consists of 6.2 members. The sample survey of the city of Lashkar Gah proper shows that 17.7 % of the residents are urban and the remaining 82.3 % are rural.

The distribution of rural population is shown in the latter part of the table, consisting of seven villages included in the survey out of 19 villages. These seven villages consist of 1114 families and 6929 individuals.

The table, on the whole, supports the case that in low income developing countries the large majority of population is engaged in agricultural and allied pursuits. Regarding this the importance of agricultural sector in providing for living and employment is obvious. Any social and development plan and program should take into account this structural disequilibrium in formulating the income, output, and employment objectives. Related to this is the social aspects of employment, education, and in-and-out-migration.

2. Size, Number, and Composition of Households:

A. Size and Number of Households:

The number and composition of households are significant in regard to national as well as regional planning; the purpose being to know the number of family members or the size of families and their standard of living. This is because the vertical formation of the family- i.e. the major sons living with parents even after marriage and sharing the income and/or expenses- bears, in most cases, an undesirable effect in the progress and development of the society. This situation on the one hand hinders seperation, transfer and mobility of individuals as well as restricts their inclinations for frugality and savings and reduces investment. On the other hand it hinders the acceptance of responsibility in regard to family and reduces work and activity which beget income.

Table 2 and 3 below give information on the composition of rural and urban families in the area covered by the survey.

Table 2: Composition of Family, Urban Area

Number of Persons	Number of Household	Percentage of Total
Single	78	9.41
2-3 persons	135	16.29
4-6 persons	288	34.74
7-9 persons	213	25.69
10 persons and over	115	13.87
Total	829	100.00

Table 3: Composition of Households, Rural Areas

Number of Persons	Number of Household	Percentage pf Total
Single	37	1.09
2-3 persons	557	15.38
4-6 persons	1787	49.34
7-9 persons	747	20.62
10 and over	494	13.64
	3622	100.00

A study of the above two tables show that the whole survey area contained 4451 families. The highest percentage in the urban and rural areas was those families the members of which were between 4 and 6 persons-- the percentage in the town being 34.7 and in villages 49.3. Families with one member formed the lowest percentage-- i.e. one per cent of the total families. The percentage of families consisting of 10 or more members was 13.9 in the town and 13.6 in the villages.

Generally, more than one families lived in one house in the rural areas. Collective earning of income and its expenditure were common. As a result, it could be claimed, the desire to earn more and the willing to save and invest were too low. In short, the collective gathering of the members of families, especially those of big families, and the tendency of a large number of sons to remain with their parents create hinderance in the path to mobility geographical transfer and vocational change. As a result of this the occupational movement, responses to change, and the search for better opportunities are very slow.

B. Age and Sex Composition of Population:

The composition of population from the view points of age plays an important role in the economic development of the societies. The greater gx number of old-age and children in a population represent a high percentage of persons who are economically inactive. Generally, it has been observed that the number of younger age children who are economically inactive is proportionately higher in developing countries. This ratio in developing countries is often around 45% as compared to 25% of population in advanced economies. The rate of infant mortality in poor countries is higher and those who survive from the clutches of death and reach the age of working do not last for more than a few years. In this way they can not compensate in their life-time the expenses incurred for their training.

The study made by United Nations in this field, often indicates that the average life of a man in Asian, African and Latin American Countries is less than 40 years where as the average life in America, France, England, and other developed countries is at the range of 65-67 years.

The data in Table 4 below indicate that children aged 0-9 years represent 38.7 % of the population of Lashkar Gah, another 11.4% lie in the group 10-14 years. In other words, out of the total population about half are below the age of 15 years, and, hence economically inactive. Of course, exception should be made, as is obvious in rural areas, for those who are helping the parents and

relatives in farms and other village works. The percentage of people at age group 15-64 years and who have, methodologically, acquired the age to work are 49.9%. This proportion in developed countries usually range around 65% of the total population. This situation supports another generalization that in developing countries the proportion of economically and productive population is too low and as a result their contribution to National income or national product is relatively small.

Table 4: Composition of Population by Age

Age Group	Number of Persons	Percentage of Total
0 - 4	5569	20.3
5 - 9	5034	18.4
10-14	3118	11.4
15 - 19	1985	7.2
25 - 29	1816	6.6
30-34	2881	7.6
35 - 39	1312	4.8
40 - 44	1286	4.7
45 - 49	783	2.8
50 - 54	827	3.0
55- 59	375	1.4
60 - 64	431	1.6
65 and over	817	3.0
Total	27407	100.0

Similarly, in study of the population from age point of view, the sex and age and sex combination should also be taken into account. Nearly half of the population in the area is consisted of females. The proportions and combinations are shown in the following two tables for the rural and urban areas separately.

A study of the urban area reveals that there is an imbalance

in the sex ratios- i.e. as against 1000 males there are 795 females. An accurate study would reveal that this imbalance is more visible in age groups above 15 years, especially between 35-44 years where as the balance amongst the children of 0-9 years of age appears to be quite natural. To explain the position in comparison to 1000 males of 0-9 years of age there are 956 females. There are several reasons for this great disparity between the male and female ratios in the three sections of Lashkar Gah population. Firstly the town attracts the males of its surrounding villages, especially those who have attained the age to work, i.e. above 15 years. This is so because work is available in the town, somehow, and men can be employed soon. That is why this great disparity comes to light although there is a balance in the children group between its males and females. Secondly, as was noticed while carrying out the survey of the three sections of Lashkar Gah, a large number of officials live singly in the camps away from their wives and children. This also has effect and has increased the number of males relatively in the town. A glance over the table showing the number of malees-females in the villages would show that comparatively there is a balance between the male and the female ratio. Generally, in the villages surrounding Lashkar Gah, there are 883 females as against 1000 males. If the whole town (including rural areas) be taken into consideration there are 869 females as against every 1000 males. The comparisons and ratios would become more clear from the data presented in the following two tables.

Table 5: Age and Sex Composition of Population, Urban Area

Age Groups	Number of Persons		Proportion between Male and Female	
	Male	Female	Male	Female
0 - 4	498	459	520	480
5 - 9	413	409	502	498
10 - 14	393	238	623	377
15 - 19	208	152	578	422
20 - 24	201	172	539	461
25 - 29	185	181	505	495
30 - 34	168	188	472	528
35 - 39	201	69	744	256
40 - 44	158	53	749	251
45 - 49	99	59	627	373
50 - 54	56	59	487	513
55 - 59	33	30	524	476
60 - 64	36	33	522	478
65 and over	50	43	538	462
Total	2699	2145	557	443

Total of male and female in columns 3 and 4 indicates the average ratios between the two sexes. As mentioned earlier, the average ratio between the male and the female population of the urban area is 443 females as against 557 males.

BOSTON POPULATION BY SEX

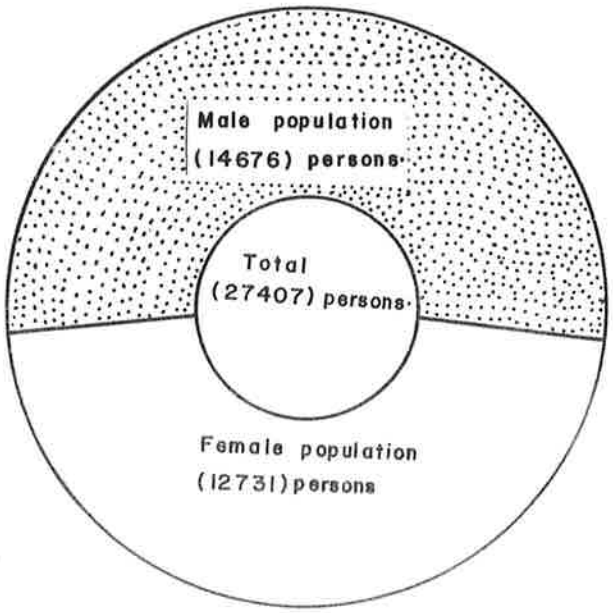


Table 6: Age and Sex Composition of Population
Lashkar Gah, Rural Areas

Age Groups	Number of Persons		Proportion between male & Female	
	Male	Female	Male	Female
o - 4 -	2512	2100	545	455
5 - 9	2337	1875	555	445
lo - 14	1375	1112	553	447
15 - 19	875	750	538	562
20 - 24	700	900	438	562
25 - 29	575	875	397	603
30 - 34	800	925	464	536
35 - 39	680	362	653	347
40 - 44	575	500	535	465
45 - 49	375	250	600	400
50 - 54	337	375	473	527
55 - 59	187	125	599	401
60 - 64	225	137	622	378
65 and over	424	300	586	414
Total	11977	10586	531	469

As the data in the above table indicate, there is an improvement in the sex ratio (average ratio) in rural areas as compared to that of the urban area.

3. Literacy Attainment of Population:

Undoubtedly the standard of literacy in a society is an important factor for its development. The larger the number of educated the easier is the job to achieve the development goal through making people aware of its importance.

Table 7: Literacy Attainment of Persons over 5 years of Age

	Total Number of Male Population	Of which Literates	Literates as % of Total
Males	11666	3819	32.7
Females	10172	588	5.7
Total	21838	4407	20.1

We can on the basis of the above table say that out of all male population of Lashkar Gah aged 5 years and more, about 32.7% are literate and amongst all the female population in the same age groups only 5.7% are literate. Thus, the literacy percentage for males is six times that for females. The percentages for the male and female population of the survey area as a whole were 42 and 19 respectively. This is also indicative of insufficient schools and education facilities for women and therefore it is necessary to pay more attention to this matter. Generally, amongst the total population, in the age groups 5 years and above, only 20.1% are literate.

Table 8: Literacy by Age and Sex

Age Groups	Total Population	Males	Females
0 - 9	678	500	178
10-14	1184	983	202
15-19	684	617	67
20-24	440	376	64
25-34	516	462	54
35-44	443	429	13
45-54	239	229	10
55-64	118	118	-
65 and over	105	105	-
Total	4407	3819	588

A careful study of this table indicates that the number of the literate declines as age increases. In other words, the higher the age group the lesser the literacy. For instance, the share of the literate in the age group 25-34 year is half the share of the literate in the age group 10-14 years. We can say that in the past the progress of education had not been fast enough in Lashkar Gah. Also the education programs did not provide for a balanced education between the different groups on one hand, and between the males and females on the other. This can be remedied by providing balanced education on the one hand and by establishing literacy classes on the other.

BOST : LITERATE POPULATION BY SEX (AGED 5 YEARS AND OVER)

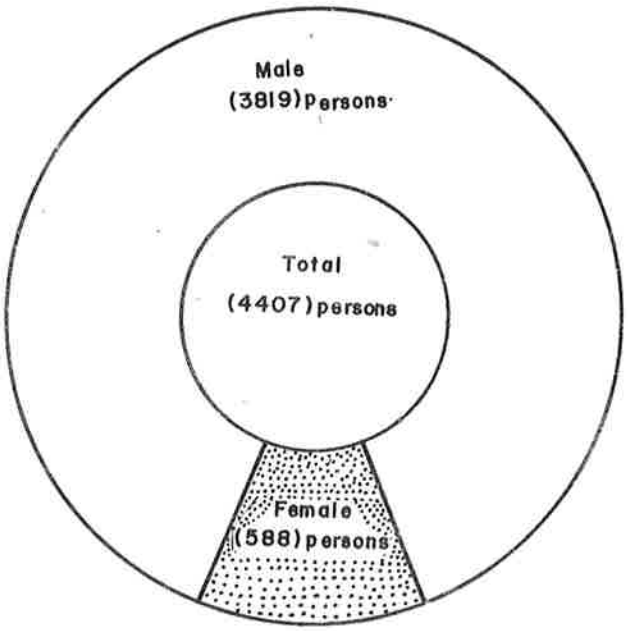
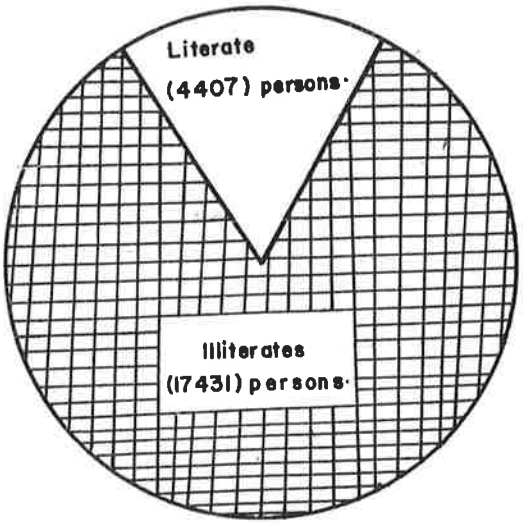


Table 9: Classification of Lashkar Gah's Literate Population by Education Standard

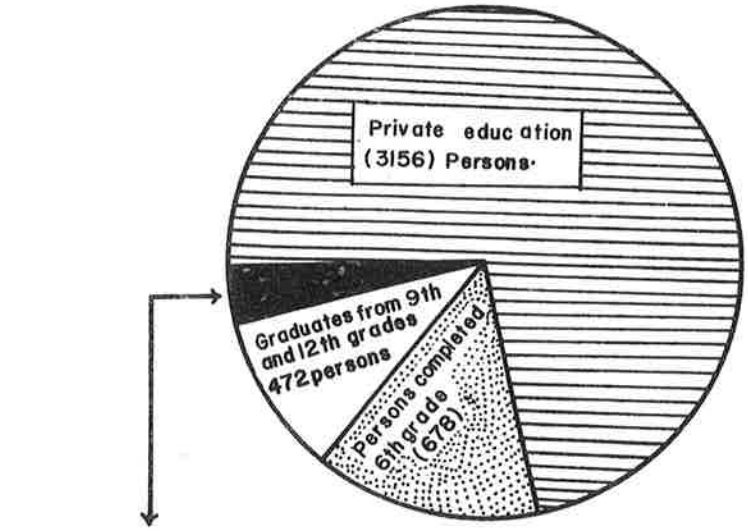
	Male	Female	Total
Persons privately educated	2729	427	3156
Persons completed primary level	587	91	678
Persons completed 9th grade	272	27	299
Persons completed secondary level	139	34	173
Persons holding a B.A.	64	7	71
Persons with M.A. or specialization	20	-	20
Persons with Ph.D.	7	3	10
Total	3818	589	4407

The table indicates that out of 4407 literate persons of Lashkar Gah, 575 or 13% have passed the middle standard (completed 9 th grade) and hold higher standard of education. As compared to this the position in Kabul is 14%. The share of the males is nearly six times those of the females. This great disparity is due to the orthodox customs in families not to educate the girls as well as the lack of schooling facilities for them. As is obvious in the process of development, not only the number, but also the female proportion of literated population has to be raised quite considerably if the attitudes and responsibilities of development activities has to be shared btween the two segment of the population.

BOST : PERSONS AGED 5 YEARS AND OVER BY LEVEL OF LITERACY.



BOST:CLASSIFICATION OF LITERATE POPULATION BY LEVEL OF EDUCATION



Persons holding B.A., Master degree,
and ph.D., (101)

4. Economically Active and Inactive Population:

The classification of people as to how many are economically active and how many are inactive, whether men or women, and how far do they participate in economic activities of the society is a significant but complicated matter. It involves conceptual and methodological problems that biase the measurement. Ignoring such difficulties, a comparative study of the following tables will throw light on the subject.

Table 10: Population of 10-59 years by sex

	Male	Female	Total
Urban population	1744	1230	2974
Rural population	6527	6224	12751
Total	8271	7454	15725

Table 11: Number of Workers 10-59 years, by Sex

	Male	Female	Total	% of Total
Urban	1220	44	1264	42.5
Rural	5242	50	5292	41.5
Total	6462	94	6556	41.7

A comparison of the above two tables would indicate that out of the 2974 persons living in the town, 1264 are working, or 42.5 %

of the total urban population can be classified as workers. Out of 12751 persons consisting the rural population, 5292 or 41.5% are working. On the average, 41.7% of the population, within the working age, are claimed to be working, and, somehow, economically active. The participation of the economically active females is only 1.2%. This would indicate that there that as against 78.1% participation rate for males, a 1.2% rate for female is very insignificant, and thus, great disparities between the employment of males and females. It is just possible that the absence of sufficient means and organizations for training women at different standards as well as the traditions and customs hindering women from work outside could be the factors contributing towards the low percentage of women participation in economic activities. This position obviously is a hinderance to economic growth and idleness of large portion of the population. Special attention should be paid for the training and employment of women in different fields of activities. Another important factor may be the lack of employment opportunities itself or the low level of payment making women participation unattractive.

Economically inactive population would mean persons who could not or would not participate in productive activities and have not contributed to the social output. Among them are children and old age persons including the defected ones, students, sick patients, and all those who are idle.

A common characteristic of the developing, especially over-populated countries, is the large proportion of their economically inactive population contributing to their poverty and backwardness.

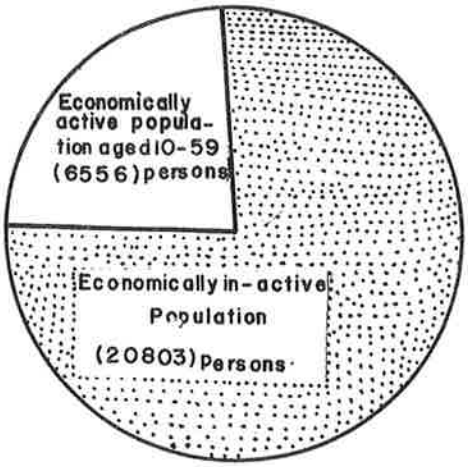
Although, there is a school of thaught that surplus labor can contribute to development with less costs by drawing them to capital construction projects or other rural and urban works. But this is a matter of value judgement. It may involve numerous social and administrative problems coupled with the provision of suplementary inputs. More people will also require more educational, social and health facilities, especially when transfer of labor involve migration from rural to urban areas.

Table 12: Classification of Economically Inactive Population by category and sex

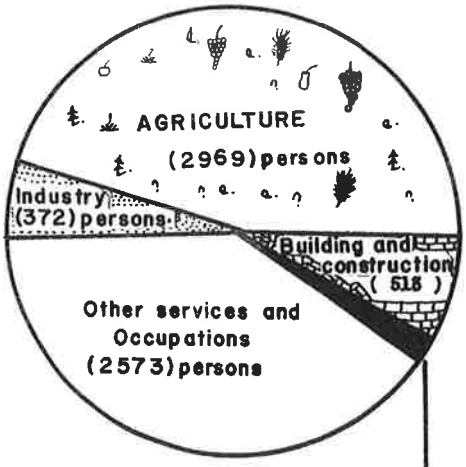
Groups	Males	Females	Total
Domestic Workers	236	7177	7413
Job seekers	208	-	208
Students	1985	409	2404
Children, old, sick and blemished	5451	5109	10560
Retired	10	13	23
Spongers	12	-	12
Sick patients	38	37	75
other unemployed persons	108	-	108
Total	8058	12745	20803

A study of the above table would show that 75.9 % of the total population of Lashkar Gah is economically inactive and only 24.1% is in a sense, active. This is little different from the statistics

BOST : ECONOMICALLY ACTIVE AND IN ACTIVE POPULATION.

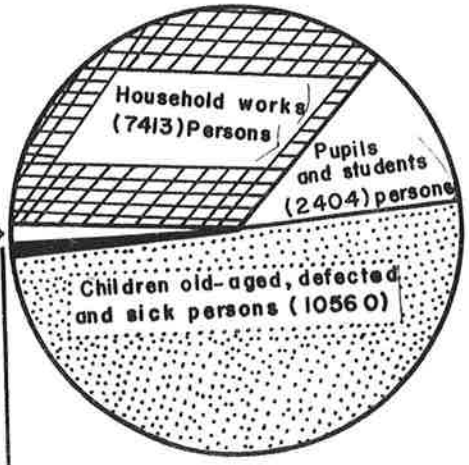


Classification of working population Aged (10-59) by Various Economic Sectors



Transport and communications (129) persons.

Classification of Economically in-Active population



Seeking work (208) persons

Patients, those supported by others, and persons not working (218)

for Greater Kabul where the number of economically inactive persons is 73% and those of active 27%. Moreover, more than half of the inactive are the children, the old and the sick. These are 38.5% of Lashkar Gah's total population and directly affect the areas economy.

The percentage of persons in search of job falling in the working age group of 10-59 years is 3.2% of the total working age. They are 208 in number. Jobs should be provided for them and they should be engaged in economic activities if problems of unemployment and waste of productive resources to be avoided.

The percentage of persons in or out of labor force and active or inactive are indicators of general economic activity in a country. Out of the total population of Lashkar Gah 27% are those who are busy in domestic work, women and some men. However, a study of the table shows that the greater percentage is that of the women. The rest of the population, i.e. 34.5% are generally students, job seekers, retired persons, spongers, the sick in hospitals and others unable to work.

Keeping in mind the percentage given above it would be seen that a larger number of persons have no job and hence no wages. The reason, among other, is the lack of employment opportunities. On the pther hand a large number of female population do not participate in economic activities. All these, and some other factors causing increases in social cost or social losses without contribution to social product. A sound policy would be to make efforts for creation of employment opportunities, on the both side public and private bodies and organizations, to generate income and output and to contribute for development.

Table 13: Classification of Workers by Sectors

	1	2	3	4	5	6
Urban	183	71	223	54	733	1264
Rural	189	2898	290	75	1840	5292
Total	372	2969	513	129	2573	6556

1- Industry
2- Agriculture
3- Construction and building
4- Transport and communications
5- other social services and
6- Total

According to the data presented in the above table, out of 6556 workers in Lashkar Gah, 2969 are working in the field of agriculture which form the highest percentage, i.e. 45% of all the workers. Some 513 are active in construction work, 8% , 372 or 6% in industries 129 or 2% in transport and communication, 2573 or 39% in other services. The above figures and percentages are satisfactory to some extent because nearly 60% of all the workers are busy in productive activities, and, ignoring the level of efficiency and productivity, they do contribute to output and production. The rest are busy in fields that may be classified not productive directly but essential from socio-economic point of view— i.e. education, health, government services etc. Since the majority of Lashkar Gah population is engaged in agricultural and animal husbandry and allied activities, agriculture as a main sector of the economy can be counted for the main source of income and employment. Hence, the development of

this sector should be the foremost objective, not only from the income and output view points that could be generated in this sector, but also from the contributions that it can make to employment, foreign exchange, raw material, and investment for other development projects. The need for increased agricultural output and productivity, as will be pointed out in the next chapter, add the possibilities to achieve such objectives, through use of better seeds, more intensive cultivation, use of fertilizers, and improved technical and organizational programs, are often the policy recommendations for developing countries. The urgent need to increase foodgrain supply, especially in countries where the rate of growth of population is high and the agricultural sector does not respond to demand increases, could create social and political problems as well as the transfer of resources from other development programs to agriculture. An important purpose of the following chapter is, among other analyses, to highlight the importance of agricultural sector in meeting the increased demand due to population growth, income and urbanization. As it will be observed from the analysis development of agriculture in general, and increased supply of goodgrains and raw materials in particular, should be given top priority in a planned program, which in turn, require far more social, technological, and organizational efforts than what have been made in the past.

CHAPTER II

ECONOMETRIC ANALYSIS

1. Size and Distribution of Income and Expenditure:

A. By Income-Expenditure Classes:

The results of the survey show that the total monthly expenditure of the urban population of 4844 persons within 829 households, was about Afs. 2,429,922.- with an an average per capita monthly expenditure of Afs. 502.-, and that of rural population of 22 563 persons within 3622 households was Afs. 8,170,372.- and Afs. 351.- respectively. The city as a whole with a population of 27401 persons within 4451 households represents a total monthly expenditure of Afs.10600294 the average per capita monthly expenditure being Afs. 386. Thus the average annual per capita expenditure, ignoring seasonal changes in the pattern of income, expenditure, prices and many other factors, may be around Afs. 4632.- or somewhat below US$ 62.- as against a per capita annual income of just over US$ 74.

Comparison of per capita income or expenditure figures, without taking into account the differences in the pattern of income or expenditure, income distribution, prices, and purchasing power, rates of exchange, etc., however, will be of very limited use, but in general, one can say that a per capita expenditure of below $ 62. or income of about $ 74. by being very low, lies at the very bottom of the United Nations scale. This, as we will see in more detail later, calls for further efforts to raise the income and standards of living of the

people.

Tables No. 14, 15, 16 and charts 5, 6, and 7, below, show the actual and percentage distribution of total monthly expenditure among various expenditure classes, in absolute and cumulative forms, for the urban and rural population separately and for the city as a whole.

As the tables would show, the relative shares of total expenditure by various expenditure classes increase as we move from low expenditure to higher classes. In general about 18 per cent of the population at the lower scale shares over 7 per cent of total expenditure while the top 5% account for about 15 %. The middle 50 per cent of population share less than 25 per cent of expenditure but the top 25% possess over 47%. In other words, over 83 per cent of the rural population and about 65% of the urban population have per capita expenditures of less than the urban average, and only about 5% of the rural population and 16.6% of the urban population spend over Afs. 700 a month. Since low expenditure classes will mean, though not necessarily, low income classes, one would expect the income (expenditure) pattern in a less developed country to follow such a distribution.

A rather more meaningful way of comparison between households as well as between rural and urban population would be to relate income and/ or expenditure level and distribution to each class according to age and sex composition of the individuals. Satisfactory information in this regard was not collected in the present survey. It would be more useful if these aspects are taken into account in the future surveys in the country.

Table 7: Absolute and Cumulative Distribution of Total Expenditure in Lashkar Gah, Rural Areas

Monthly Expenditure per person	Average Monthly Expenditure per person	PERSONS			EXPENDITURES			
		Number	%	Cumulative %	%	Cumulative %	Per Person	Total
0-100	50.	3	0.2	0.2	0.2	0.2	53.7	161.
101-200	150.5	452	25.0	25.2	11.3	11.5	159.2	71956.
201-300	250.5	521	28.9	54.1	22.0	33.5	268.2	139750.
301-500	400.5	535	29.6	83.7	32.0	65.5	379.1	202849.
501-700	600.5	189	10.5	94.2	17.4	82.9	585.3	110622.0
701-1100	900.5	60	3.3	97.5	7.6	90.5	808.1	48486.
1101-1500	1300.5	43	2.4	99.9	9.0	99.5	1324.0	56931.
1501-2000	1750.5	2	0.1	100.0	0.5	100.0	1614.5	3229.
2001-4000	-	-	-	-	-	-	-	-
	-	1805	100.0	-	100.0	-	351.3	634024.0

Table 8: Absolute and Cumulative Distribution of Total Expenditure in Lashkar Gah, Urban Area

Monthly Expenditure per person	Average Monthly Expenditure per person	Number	%	Cumulative %	%	Cumulative %	Per Person	Total
0-100	-	-	-	-	-	-	-	-
101-200	150.5	136	9.3	9.3	3.4	3.4	185.0	25166.
201-300	250.5	358	24.4	33.7	13.2	16.6	270.9	96974.
301-500	400.5	458	31.2	64.9	25.0	41.6	401.3	183797.
501-700	600.5	273	18.5	83.4	22.3	63.9	600.4	163927.
701-1100	900.5	152	10.3	93.7	18.4	82.3	892.0	135581.
1101-1500	1300.5	67	4.6	98.3	11.9	94.2	1308.5	87672.
1501-2000	1750.5	17	1.2	99.5	3.9	98.1	1728.8	29390.
2001-4000	3000.5	7	0.5	100.0	1.9	100.0	1976.0	13833.
4001-10000	7000.5	-	-	-	-	-	-	-
10000 +	-	-	-	-	-	-	-	-
Total & Average	-	1468	100.0	-	100.0	-	501.6	736340.

Table 9: Absolute and Cumulative Distribution of Total Expenditure in Lashkar Gah, Rural & Urban

Monthly Expenditure per Person	Average Monthly Expenditure per Person	Number	%	Cumulative %	%	Percent Cumulative	Per Person	Total
0-100	50.	3	0.1	0.1	0.01	0.01	53.7	161.
101-200	150.5	588	18.0	18.0	7.09	7.10	165.2	97122.0
201-300	250.5	879	26.8	44.9	17.27	24.37	269.3	236724.0
301-500	400.5	993	30.3	75.2	28.21	52.58	389.4	386646.0
501-700	600.5	462	14.1	89.3	20.04	72.62	594.3	275549.0
701-1100	900.5	212	6.5	95.8	13.44	86.06	868.2	184067.0
1101-1500	1300.5	110	3.4	99.2	10.55	96.61	1314.6	144603.0
1501-2000	1750.5	19	0.6	99.8	2.38	98.99	1716.8	32619.0
2001-4000	3000.5	7	0.2	100.0	1.01	100.00	1976.1	13833.0
4001-10000	7000.5	-	-	-	-	-	-	-
10000 +	-	-	-	-	-	-	-	-
Total & Average	-	3273	100.0	-	100.0	-	386.0 (1)	1370364.0

(1) Mean of population

CHART NO IA_1

PER CENT OF PEOPLE BY VARIOUS EXPENDITURE CLASSES, URBAN AREA OF HELMAND PROVINCE.

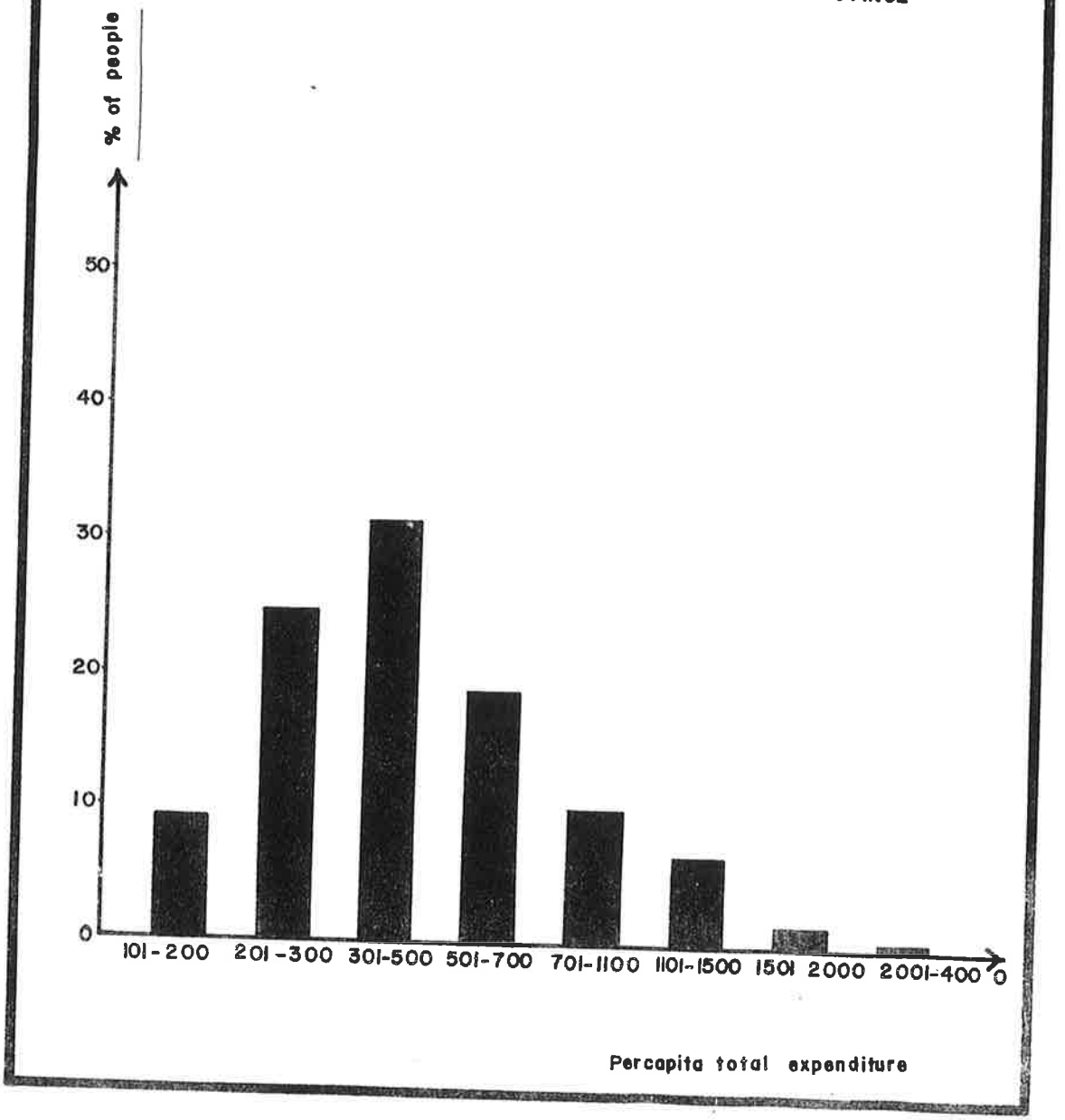


CHART NO IA_2

PERCENTAGE OF PEOPLE BY VARIOUS EXPENDITUR CLASSES, RURAL AREA OF HELMAND PROVINCE.

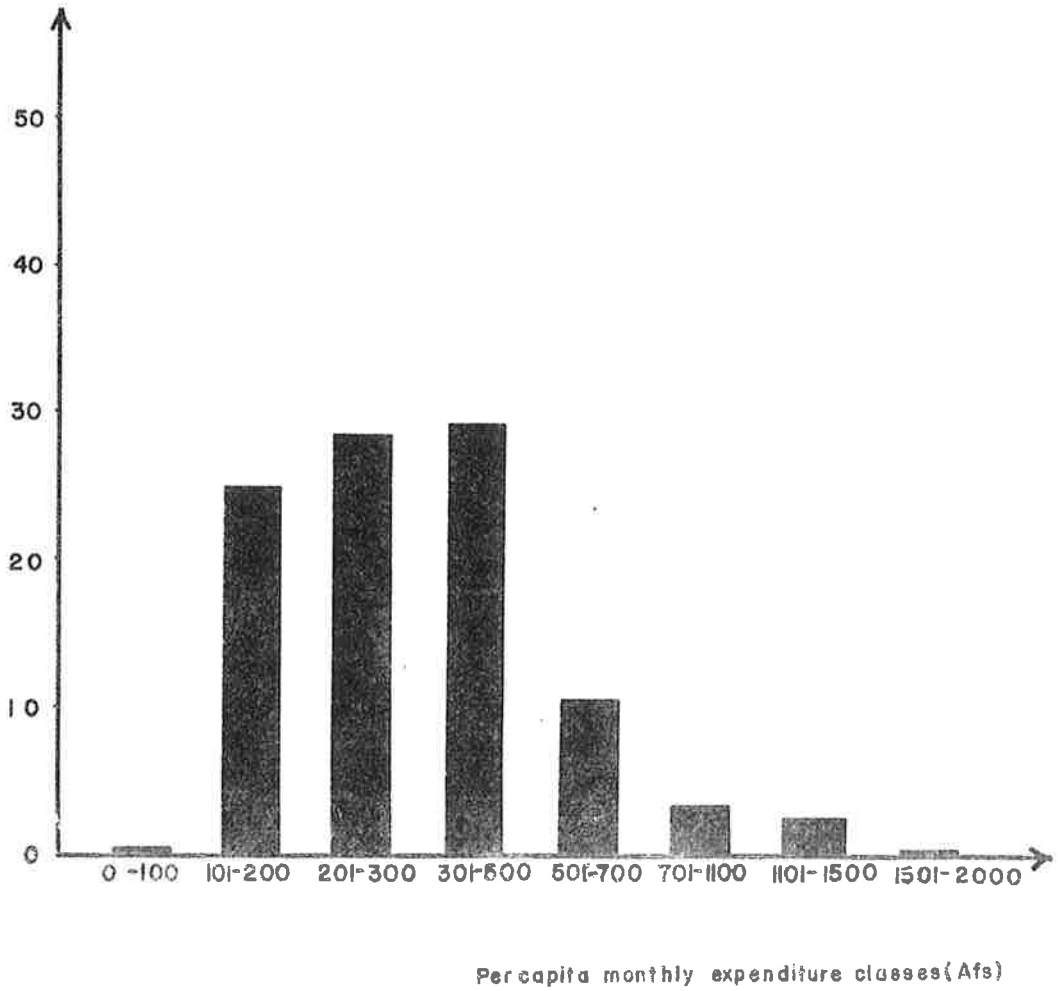


CHART NO IB1
CUMULATIVE % OF PEOPLE BY VARIOUS MONTHLY EXPENDITURE CLASSES URBAN AREA OF HELMAND PROVINCE.

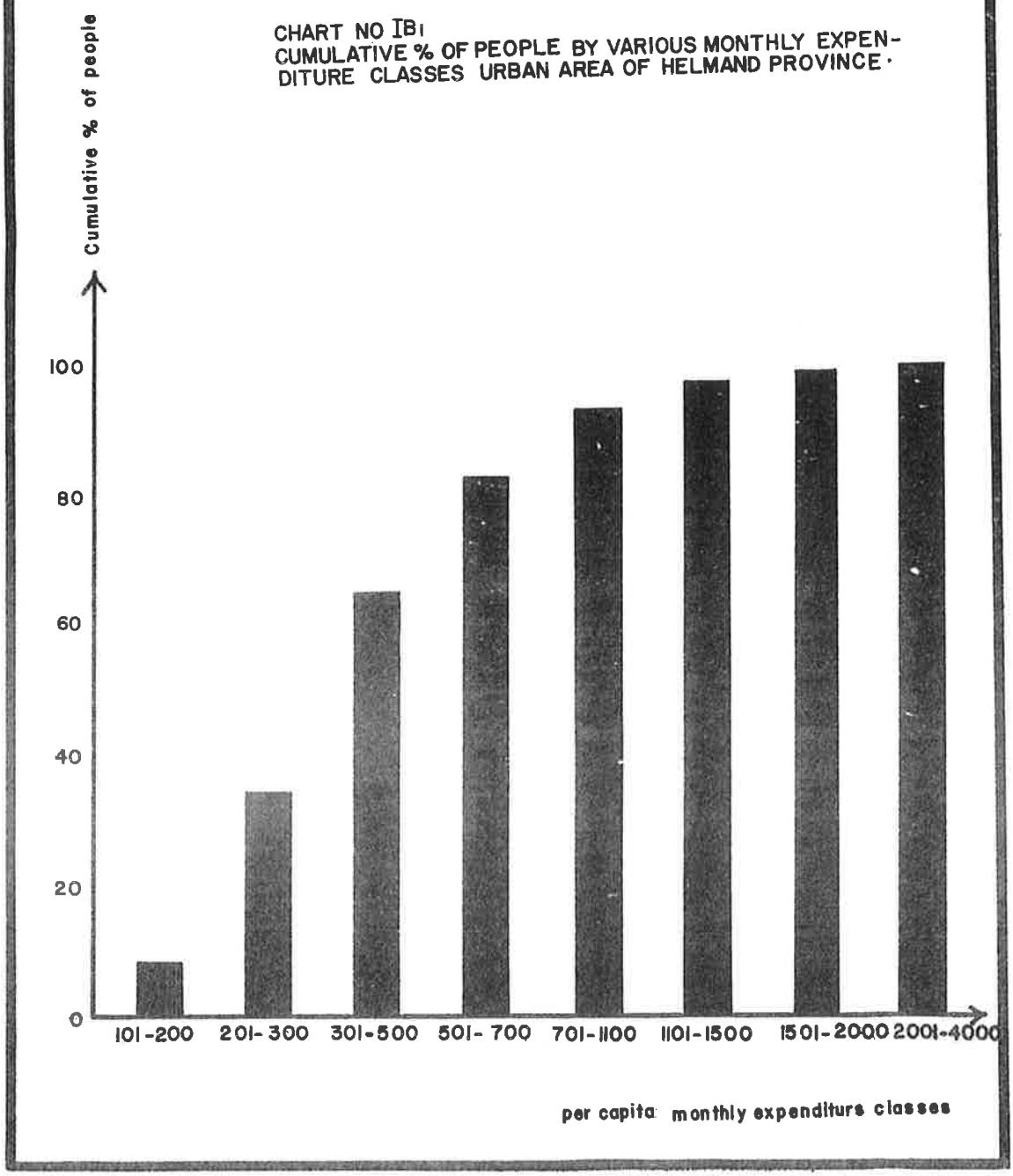


CHART NO IB2
CUMULATIVE % OF PEOPLE BY VARIOUS MONTHLY EXPENDITURE CLASSES, RURAL AREA OF HELMAND PROVINCE.

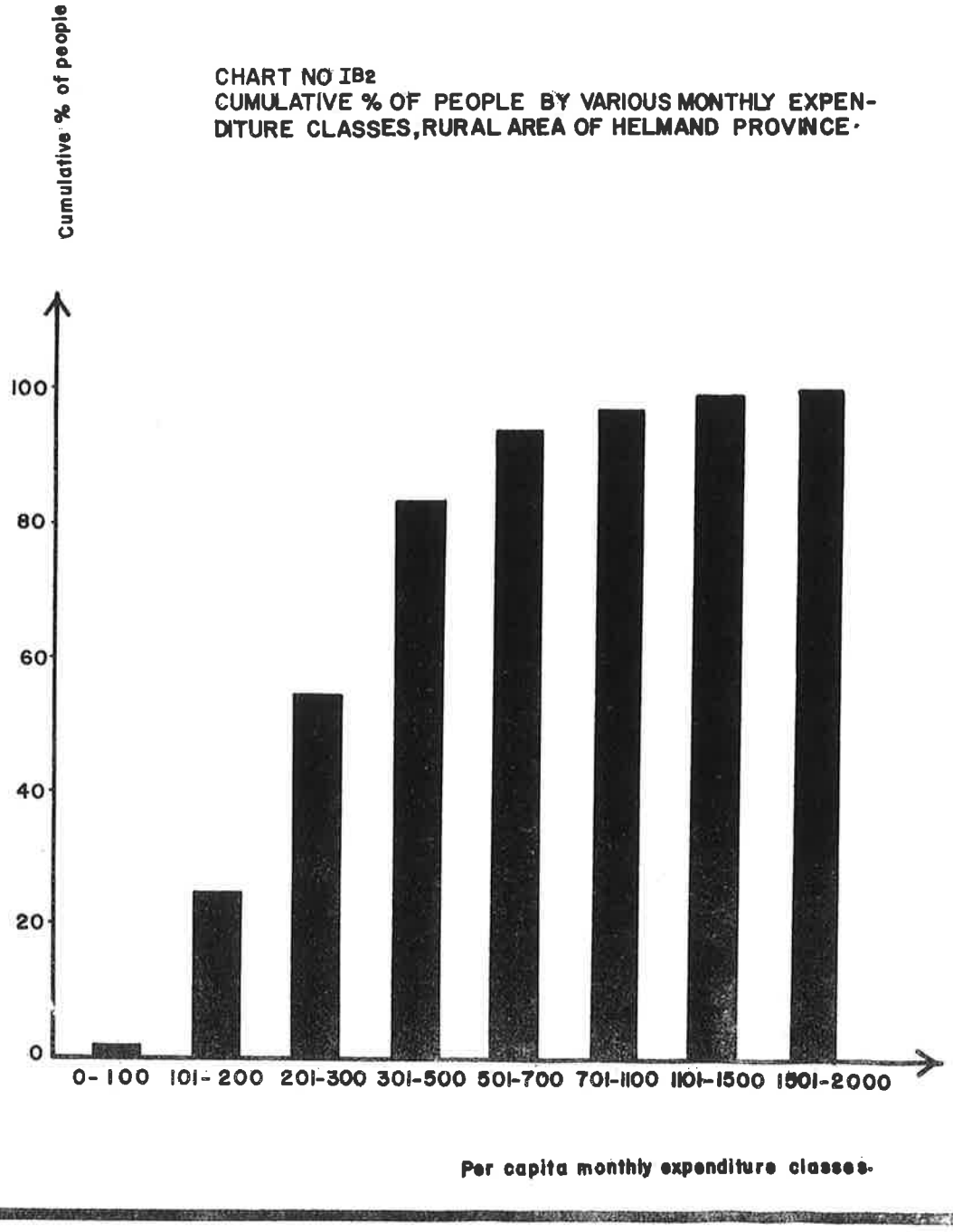
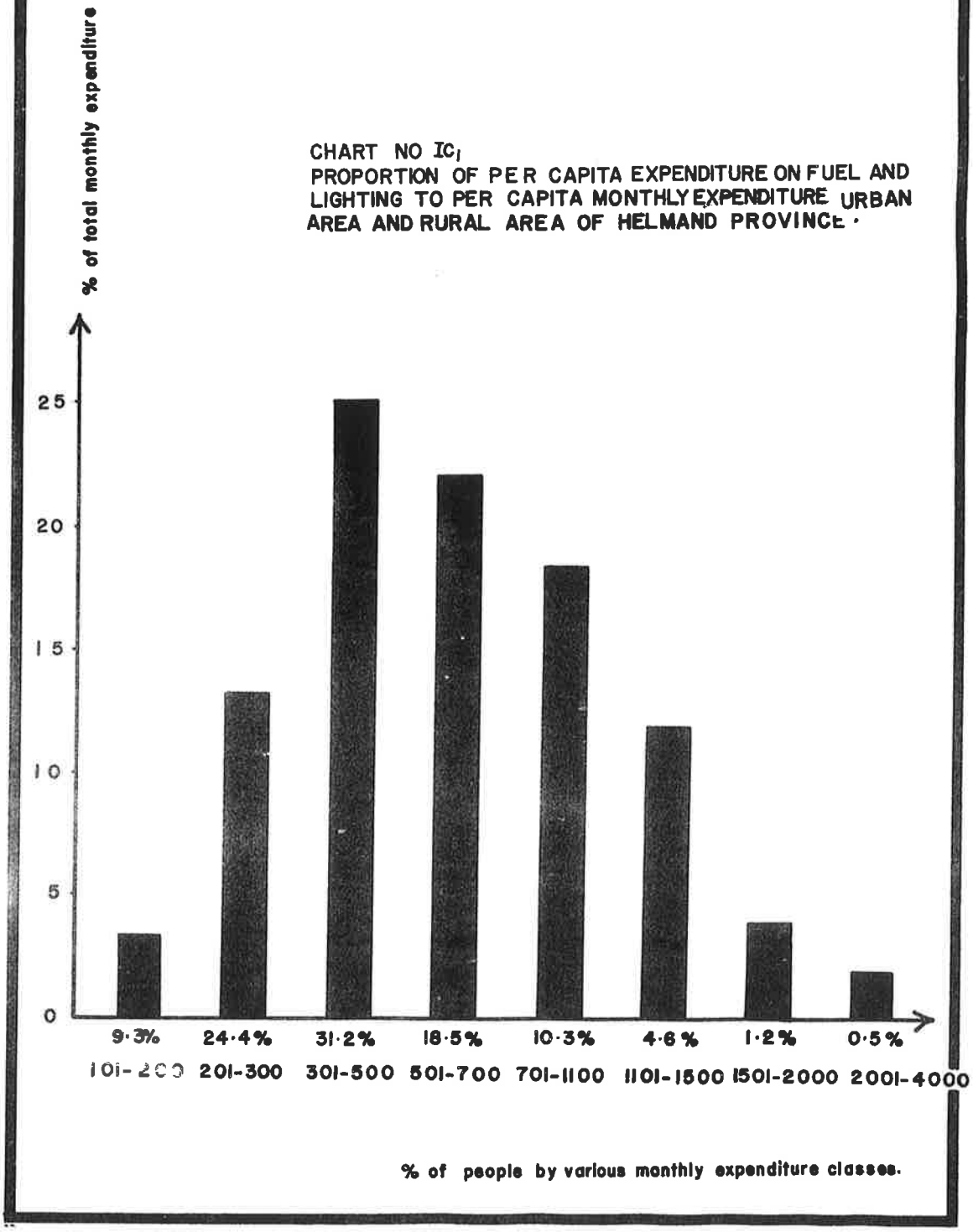


CHART NO Ic;
PROPORTION OF PER CAPITA EXPENDITURE ON FUEL AND LIGHTING TO PER CAPITA MONTHLY EXPENDITURE URBAN AREA AND RURAL AREA OF HELMAND PROVINCE.



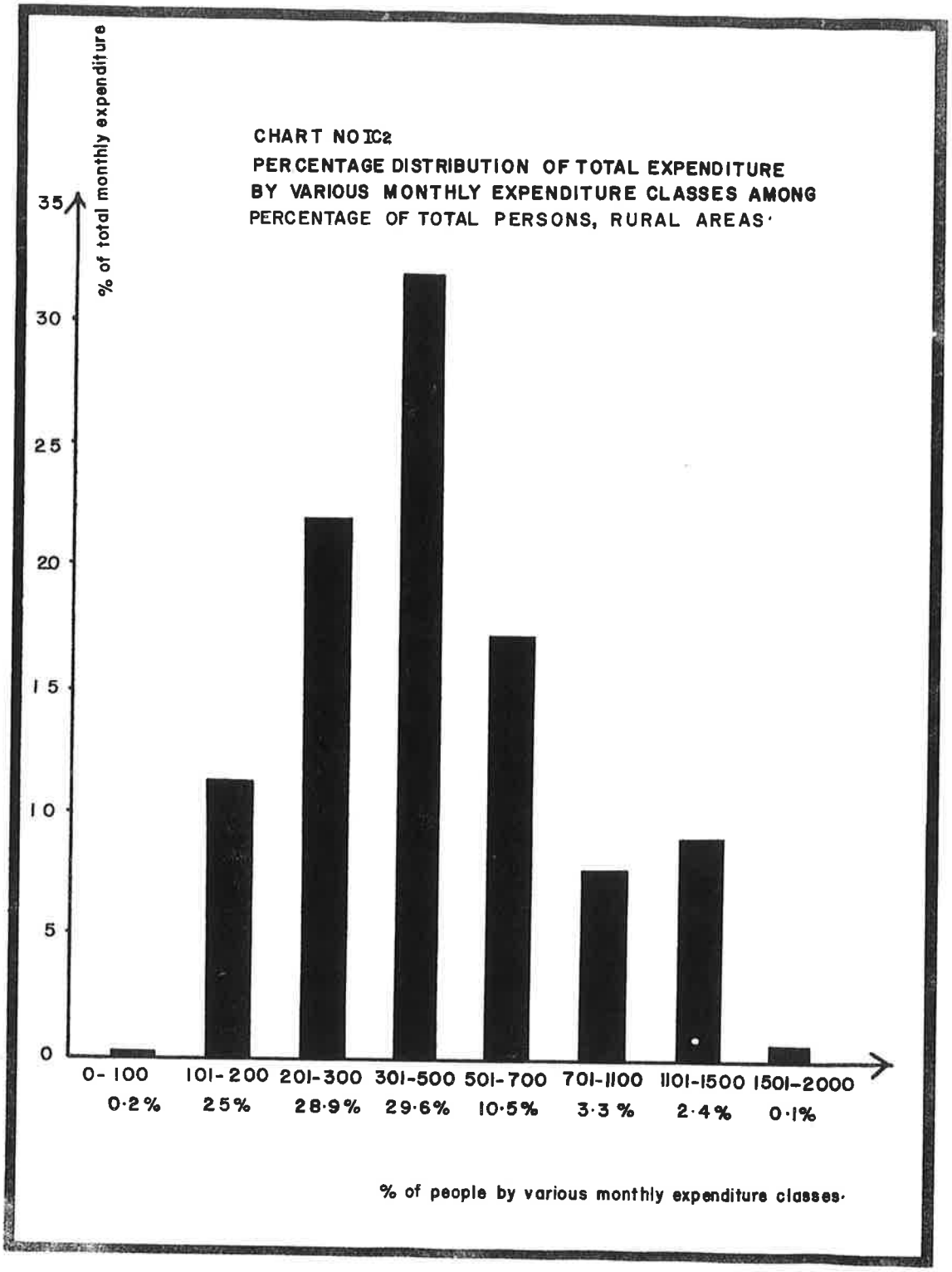
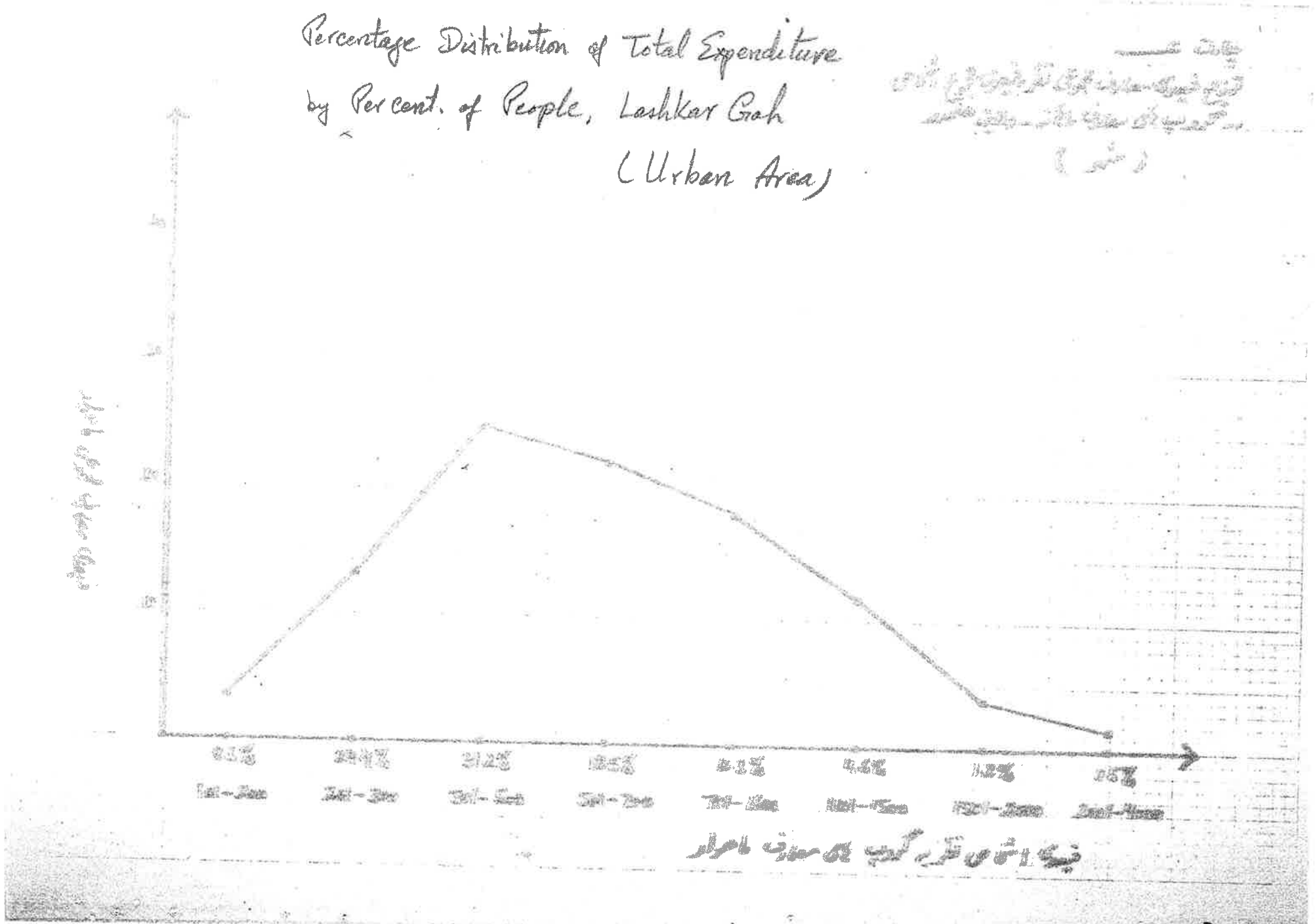
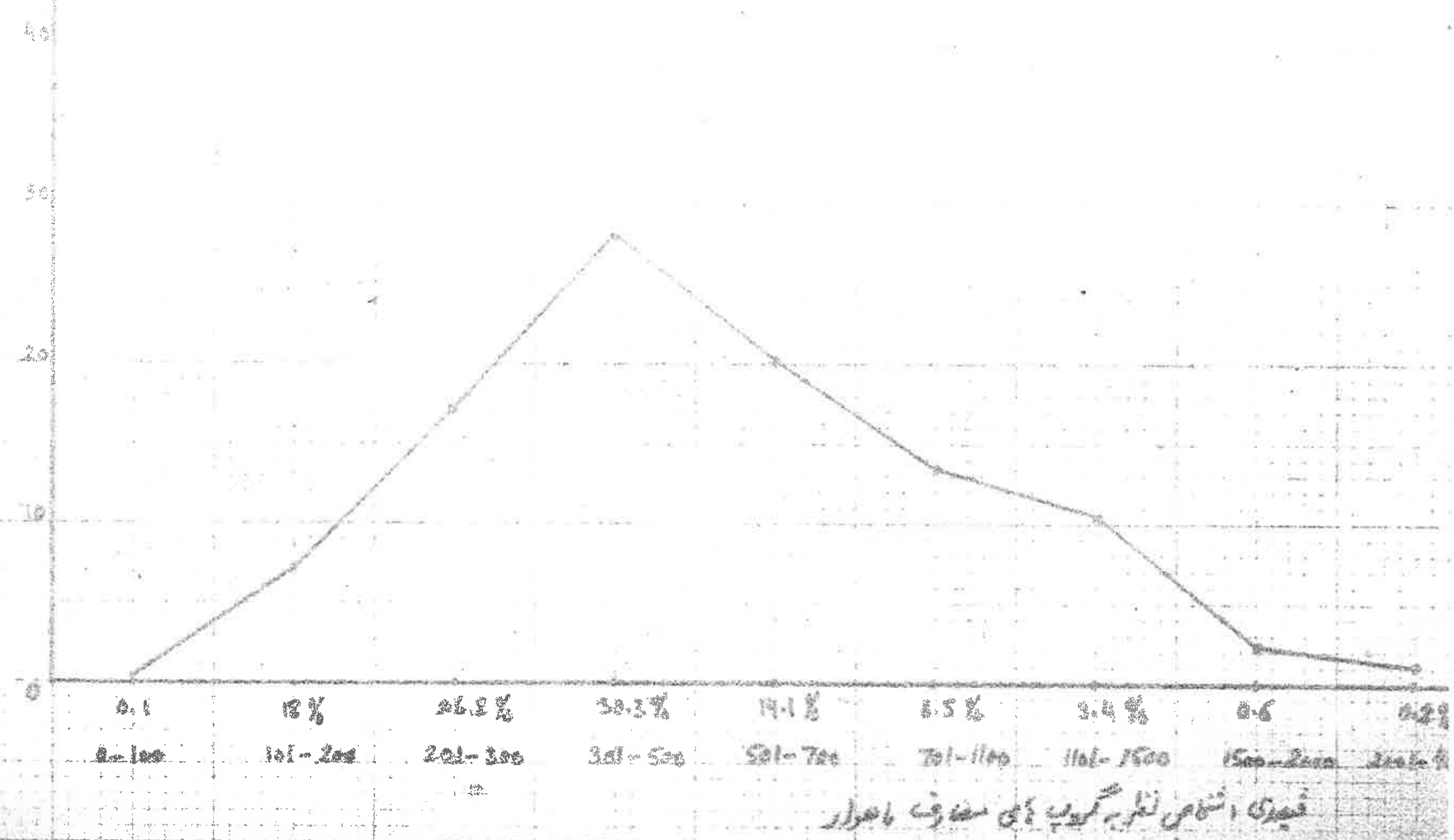


CHART NO IC2
PERCENTAGE DISTRIBUTION OF TOTAL EXPENDITURE
BY VARIOUS MONTHLY EXPENDITURE CLASSES AMONG
PERCENTAGE OF TOTAL PERSONS, RURAL AREAS·
% of total monthly expenditure
35
30
25
20
15
10
5
0
0-100
0·2%
101-200
25%
201-300
28·9%
301-500
29·6%
501-700
10·5%
701-1100
3·3%
1101-1500
2·4%
1501-2000
0·1%
% of people by various monthly expenditure classes·

Percentage Distribution of Total Expenditure
by Percent. of People, Lashkar Gah
(Urban Area)

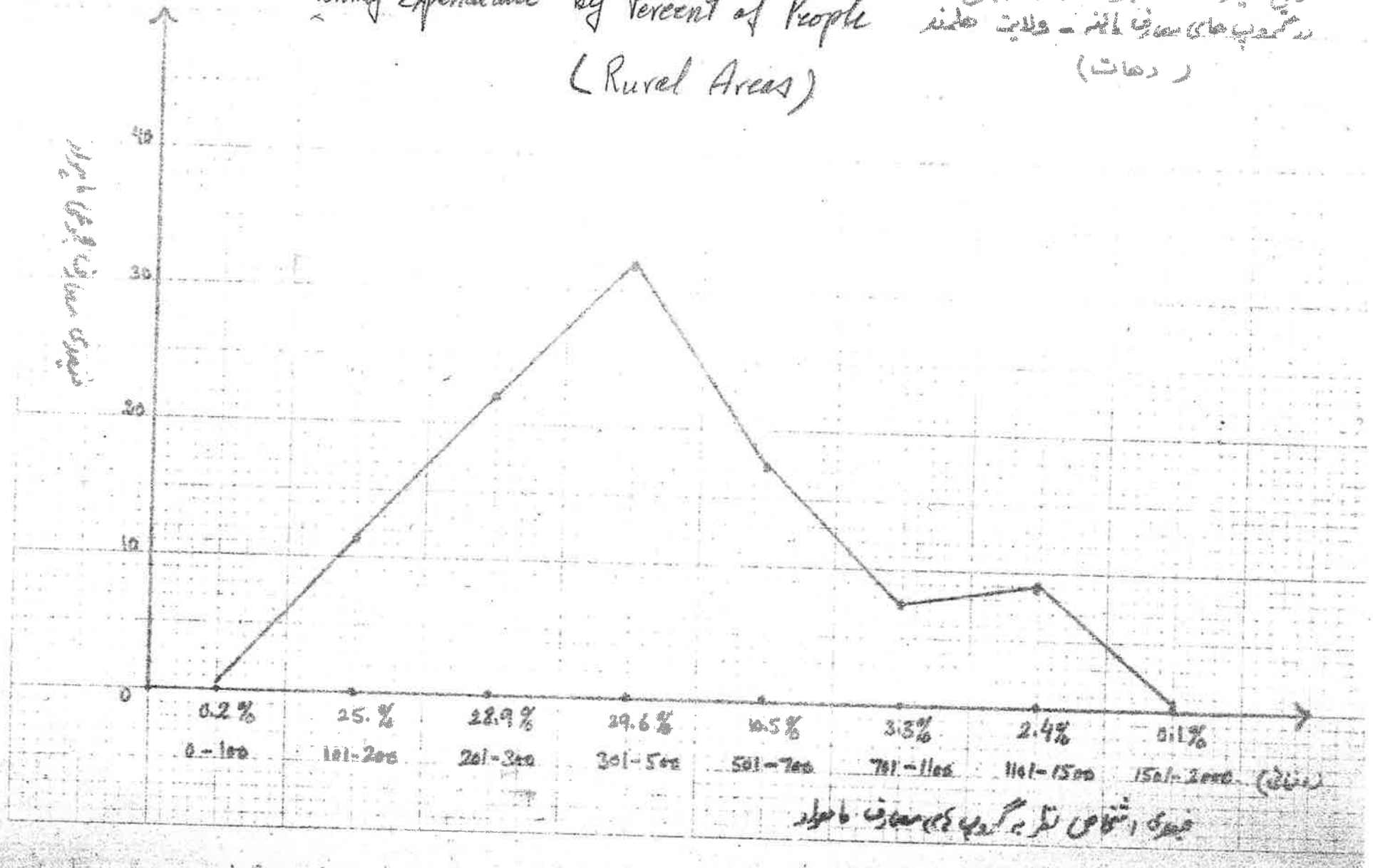


Percentage Distribution of Total Monthly Expenditure by Percent of People (Rural-Urban Areas)



Percentage Distribution of Total Monthly Expenditure by Percent of People (Rural Areas)

چارت ـــــ
توزیع فیصدی مصارف مجموعی ماہانہ۔ فیصدی مجموع اشخاص
در گروپ های مصارف ماہانہ ـ ولایت هلمند
(دهات)



Data in Table 17 and 31 and chart 17 below represent the cumulative percentage distribution among cumulative percentage distribution of total population.

As mentioned earlier, a larger proportion of total expenditure is combined with a smaller proportion of total population in the upper expenditure (income) classes. This is more evident in the rural than in the urban areas. It ma y be expected that in rural areas, especially when the land tenure system is not conducive to economic development, a few big landlords own substancial amount of land. However, one might claim that these landlords with higher rates of surplus and profit might save more and invest for development purposes. But, as generally observed in underdeveloped rural socities,(1) the propensity to save and invest, even among those who have considerable amount of surplus and revenue, is too low while the propensity to consume and expend non-productively is too high. Or it ma y be that there is no proper incentives to stimulate saving and investment.

The index of concentration, based on sample data, as compared with the available information for some other countries, however, does not suggest relatively considerable inequality as a whole, which might mean that in the area under consideration, there is not much income or expenditure disparities. But this is a matter of definition and value judgement and depends from which angle one wa nts to see the problem.

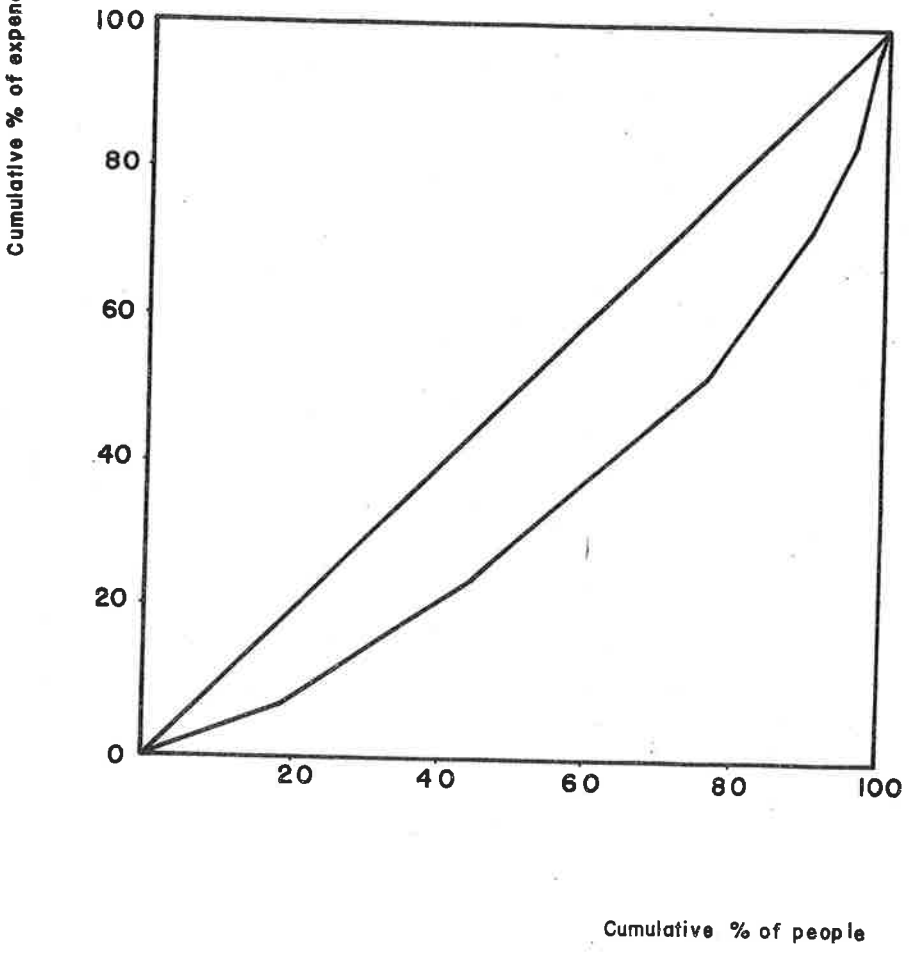
Table 17: Income Shares of Selected Ordinal Groups

Country and Year	Bottom 20%	Bottom 60%	Top 20%	Top 10%	Top 5%	Concentration ratios
Lashkar Gah,1968:						
Urban	9.8	38.6	43.5	28.1	15.0	.310
Rural	8.9	37.0	60.0	21.2	15.0	.288
Philippines, 1956	4.0					
Urban	4.0	24.8	54.9	39.0	19.4	.502
Rural	6.7	31.9	46.0	29.8	18.4	.397
Ceylon, 1963	4.5	27.5	52.0	37.0	....	.460
India:						
Urban, 1953-57	4.0	24.0	58.0	43.0	31.0	.400
Rural, 1962	5.88	30.9	48.1	32.8	22.2	.410
United Kingdom, 1951/52	5.4	33.3	44.5	30.2	20.9	....
United States, 1950	4.8	32.0	45.7	30.3	20.4	....
Urban, 1959	4.0	29.9	48.0	31.0	16.0	....

Sourees: i) For countries or areas other than Lashkar Gah, see Tables No. 1-1-14 and 1-1-15, in UN, ECAFE: Economic Survey of Asia and Far East, 1966. pp. 31-32; and
ii) Data for Lashkar Gah are computed from results of the Survey, see Chapter on Methodology later.

CHART

DISTRIBUTION OF MONTHLY EXPENDITURE BY VARIOUS EXPENDITURE CLASSES, LASHKAR GAH.



2. Size and Distribution of Total Expenditure By Items:

Tables No. 18-23, below, show the distribution of total expenditure(including per capita, absolute and percentage) among various expenditure items included in this survey, such as, food, clothing, rent and lighting, and miscellaneous expenditures. In general, out of the total monthly expenditure of Afs. 1370364.- (sa mple data) for the city as a whole, about Afs. 863015 (63%) is spent on food, Afs. 111575 (8.2%) on clothing, Afs. 46152.- (3.4%) on rent, Afs. 117593 (8.5%) on fuel a nd lighting, and Afs. 232022 (16.9%) on miscellaneous expenditures — i.e., health, education, transportation, etc.

The picture for rural and urban areas, separately, is somewhat different. The percentage distribution of total expenditures among various expenditure items in each area is as follow:

	Food	Clothing	Rent	Fuel	Misc.
Urban	60.7	8.6	5.3	9.6	15.8
Rural	65.6	7.6	1.2	7.3	18.3

The data indicate that a large part of income is spent on food, especially in the lower income classes. The share of food in per capita total expenditure ranges from 54.7% to 78.2% in rural areas and from 50% to 71.5% in urban areas(see tables 20 and 23). On average, the share of food in total percapita expenditure is about 60.7% in urban and 65.6% in rural areas. Expenditure data on food is analyzed further in a later section. Here, as the above data indicate, it can be argued that any change in income(expenditure)

assuming constant prices for food items, will have significant effect on quantity demanded, especially for the lower income classes, and, any upward movement of food prices, given a rather stagnant per capita income, will have further undesirable effects. This situation will be more harmful for those with fixed income earning. The side effect and responses for such tendencies will be discussed in more detail in the next section where food and non-food expenditure items are analyzed further from planning policy view points.

With regards to other expenditure items these shares, however, do not show a pattern, but, naturally, as we move to higher expenditure classes, with increases in per capita expenditure outlays on other items also increase.

Data on rent, fuel and l ighting are rather misleading. This is due, partly, to the fact that most of the rural population is not paying rent, in the ordinary sense, and, except for lighting, they pay very little for fuels. Some of the urban population, too, are accomodated in houses with subsidized rent by the Government or other employing bodies. Nevertheless, the data indicate that urban population, on the whole, bear more expenses for these two items than the rural. With regard to rent, except in two classes (6 and 8) the minimum per capita expenditure on rent in the urban areas exceed the maximum rent paid by a person in the rural areas. On avera ge, a person with an average per capita monthly expenditure of Afs. 351 in rural areas is paying Afs. 4.1 (1.2%) for rent and Afs. 25.8 (7.3 %) for fuel and lighting, while in the urban areas

a person with an average per capita monthly expenditure of Afs.501 will have to pay Afs. 26.4 (5.3%) for rent and Afs. 48.4 (9.6%) for fuel and lighting.

Although per capita expenditures on fuel, rent and lighting increase uniformally across per capita total expenditure levels, the distribution does not exhibit a pattern. (See Chapter on Methodology).

Data on miscellaneous expenditures, presenting purchases of education, health, transportation, etc., except in two cases in rural areas, show uniform pattern indicating increases in the absolute amount and percentage share by income (expenditure) classes. The range is from 3.2% of expenditure class Afs. 0-100 to 37.7% of Afs. 2001-4000. Data, however, are analyzed further in the following section, it is worth mentioning here that as income (per capita) increases, people usually shift from necessity and inferior goods and expenses to less necessities and luxuries. However, in the present paper, due to problems of hand tabulation and la ck of more advanced equipment and machineries, the pattern of expenditure and changes in various items within each categories associated with changes in expenditure levels has not been worked out, it will be more meaningful if in the future surveys emphasis is to be given for analysis of various items within each category— e.g. major food items, different types of expenditure included, here, as miscellaneous, etc.

Table 18: Distribution of Total Monthly Expenditure on Expenditure Items by Various Expenditure Classes
Lashkar Gah, Rural Areas.

Monthly Expenditure per Person	Number	Total Expenditure	EXPENDITURE ON				
			Food	Clothing	Rent	Fuel & Lighting	Other Expenditures
1	2	3	4	5	6	7	8
0-100	3	161	126	20	-	10	5
101-200	452	71956	53138	6327	450	6309	5772
20;-300	521	139750	97607	11320	674	11244	18905
301-500	535	202849	137577	14997	2882	14755	32638
501-700	189	110622	65376	7539	1480	7735	28492
701-1100	60	48486	28893	4193	1226	3525	10649
1101-1500	43	56931	31154	3400	450	2760	19167
1501-2000	2	3229	2062	250	167	250	500
Total	1805	634024	415933	48046	7329	46588	116128

Table 19: Distribution of Per Capita Total Expenditure On Expenditure Items by Various Expenditure Classes, Lashkar Gah, Rural Areas.

1	2	3	4	5	6	7	8
0-100	3	53.7	42.0	6.7	-	3.3	1.7
101-200	452	159.2	117.5	14.0	1.0	14.0	12.7
201-300	521	268.2	187.3	21.7	1.3	21.7	36.3
301-500	535	379.1	257.1	28.0	5.4	27.6	61.0
501-700	189	585.3	345.9	39.9	7.8	40.9	150.8
701-1100	60	808.1	481.5	69.9	20.4	58.8	177.5
1101-1500	43	1324.0	724.5	79.1	10.5	64.2	445.7
1501-2000	2	1614.5	1031.0	125.0	83.5	125.0	250.0
2001-4000	-	-	-	-	-	-	-
Total per person	1805	351.26	230.43	26.62	4.1	25.8	64.32

Table 20: Percentage Distribution of Per Capita Monthly Expenditure On Expenditure Items by Various Expenditure Classes in Rural Areas, Lashkar Gah

1	2	3	4	5	6	7	8
0-100	3	100	78.2	12.5	-	6.1	3.2
101-200	452	100	73.8	8.8	0.6	8.8	8.0
201-300	521	100	69.8	8.1	0.5	8.1	13.5
301-500	535	100	67.8	7.4	1.4	7.3	16.1
501-700	189	100	59.1	6.8	1.3	7.0	25.8
701-1100	60	100	59.6	8.6	2.5	7.3	22.0
1101-1500	43	100	54.7	6.0	0.8	4.8	33.7
1501-2000	2	100	63.9	7.7	5.2	7.7	15.5
2001-4000	-	-	-	-	-	-	-
Total & Averages	1805	100	65.6	7.6	1.2	7.3	18.3

Table 21: Distribution of Total Monthly Expenditure On Expenditure Items By Various Expenditure Classes, Urban Areas, Lashkar Gah

1	2	3	4	5	6	7	8
0-100	-	-	-	-	-	-	-
101-200	136	25166	18003	2024	1810	1930	1399
201-300	358	96974	66469	9550	5422	7979	7554
301-500	458	183797	121623	17145	6103	19357	19569
501-700	273	163927	99713	14095	10105	15800	24214
701-1100	152	135581	72854	10576	11187	14341	26623
1101-1500	67	87672	45726	7421	3121	9886	21518
1501-2000	17	29390	15776	1848	762	1200	9804
2001-4000	7	13833	6918	870	313	512	5220
4001-10000	-	-	-	-	-	-	-
Total	1468	736340	447082	63529	38823	71005	115901

Table 22: Distribution of Per Capita Expenditure On Expenditure Items By Various Expenditure Classes, Urban Areas, Lashkar Gah

1	2	3	4	5	6	7	8
0-100	-	-	-	-	-	-	-
101-200	136	185.0	132.0	14.9	13.3	14.2	10.3
201-300	358	270.9	185.7	26.7	15.1	22.3	21.1
301-500	458	401.3	265.6	37.4	13.3	42.3	42.7
501-700	273	600.4	365.2	51.6	37.0	57.9	88.7
701-1100	152	892.0	479.3	69.6	73.6	94.3	175.2
1101-1500	67	1308.5	682.5	110.8	46.6	147.6	321.0
1501-2000	17	1728.8	928.0	108.7	44.8	70.6	576.7
2001-4000	7	1976.1	988.3	124.3	44.7	73.1	745.7
4001-10000	-	-	-	-	-	-	-
Total & Average	1468	501.6	304.5	43.3	26.4	48.4	79.0

Table 23: Distribution of Per Capita Monthly Expenditure On Expenditure Items By Various Expenditure Classes, Urban Areas, Lashkar Gah, 1347
(%)

1	2	3	4	5	6	7	8
0-100	-	-	-	-	-	-	-
101-200	136	100	71.5	8.1	7.2	7.7	5.5
201-300	358	100	68.5	9.9	5.6	8.2	7.8
301-500	458	100	66.3	9.3	3.3	10.5	10.6
501-700	273	100	60.8	8.6	6.2	9.6	14.8
701-1100	152	100	53.7	7.8	8.3	10.6	19.6
1101-1500	67	100	52.2	8.5	3.6	11.2	24.5
1501-2000	17	100	53.7	6.3	2.6	4.1	33.3
2001-4000	7	100	50.0	6.3	2.3	3.7	37.7
4001-10000	-	-	-	-	-	-	-
Total & Averages	1468	100	60.7	8.6	5.3	9.6	15.8

2. Food and Miscellaneous Expenditures:

Out of five categories of expenditure items included in this survey, two -- food and miscellaneous expenditure data-- are chosen here for further econometric analysis. The reasons for such a choice are:

i) Since food and miscellaneous expenditures, as indicated above and summarized below, cover, on average, almost 80% of total expenditure for the area as a whole, over

Table 24: Share of Food and Miscellaneous Items in Total Expenditure, Lashkar Gah.

	Food	Misc.	Food & Misc.	Total
Urban:				
Total (Afs.)	447082.	115901.	562983.	736340.
Per Capita	305.	79.	384.	502.
Per cent.	60.7	15.8	100.	76.5
Rural:				
Total(Afs.)	415933.	116128.	532061.	634024.
Per Capita	230.	64.	295.	351.
Per cent.	65.6	18.3	100.	84.9
Rural & Urban:				
Total (Afs.)	863015.	232029.	1095044.	1370364.
Per Capita	264.	71.	335.	386.
Per cent.	63.	17.	100.	80.

76% for the urban, and above 84% for the rural areas. These high figures by themselves call for further analysis for purposes of planning and policy recommendations;

ii) Food as a necessity, the main expenditure item, and miscellaneous expenditures, by including expenditures on

education, transportation, health and personal care, etc., are items that become more important as development proceeds. The former being crucial in the earlier stages of development and the latter becomes increasingly important all along the development process; and

iii) There are mathematical reasons that the data on food and miscellaneous expenditures in this survey, by providing better statistical fit, are more suitable for analysis than data for the remaining three items.(See Methodology Appendix)

The main purpose of the analysis is to observe the statistical relationships between changes in total expenditure and changes in food and miscellaneous expenditures. Next, measure these relationships mathematically, that is, how consumer behaves in spending their income, how do they behave and respond to changes in income and expenditure, and what will be the implication of these findings.

In both cases, food and miscellaneous expenditures, since it appeared that the Average Expenditure schedule is not linear, and in order to obtain a matching Marginal Expenditure schedule for the curving Average Expenditure, it was necessary to fit a polynomial of the second degree Least Square's method. (See Appendix on Methodology and Computation).

The results of the regression equations are shown in Table 25 and 26 below. The actual and calculated per capita expenditure curves are shown in charts 18 to 25. The actual and calculated average expenditure curves as well as the calculated marginal expenditure curves, are also shown in these charts.

Table 25: The Results of the Regression Equations on Lashkar Gah Survey

Items	Area	Regression Function	R^2	R	Regression Functions Standard Error		Average Elasticity
					Amount	Coefficient of Variation	
Food (Y):							
	Urban:	$Y= 40.6+ 0.53X-0.00002X^2$	.97	.98	17.51	3.5	.844
	Rural:	$Y= 21.7+ 0.61X-0.00006X^2$	.96	.98	8.69	2.82	.815
Miscellaneous Expenditure(Y):							
	Urban:	$Y= 3.5+0.024X +.0002X^2$	.96	.98	8.29	3.35	1.826
	Rural:	$Y= -7.06+.128X+.00016X^2$	.97	.985	14.05	1.06	1.674

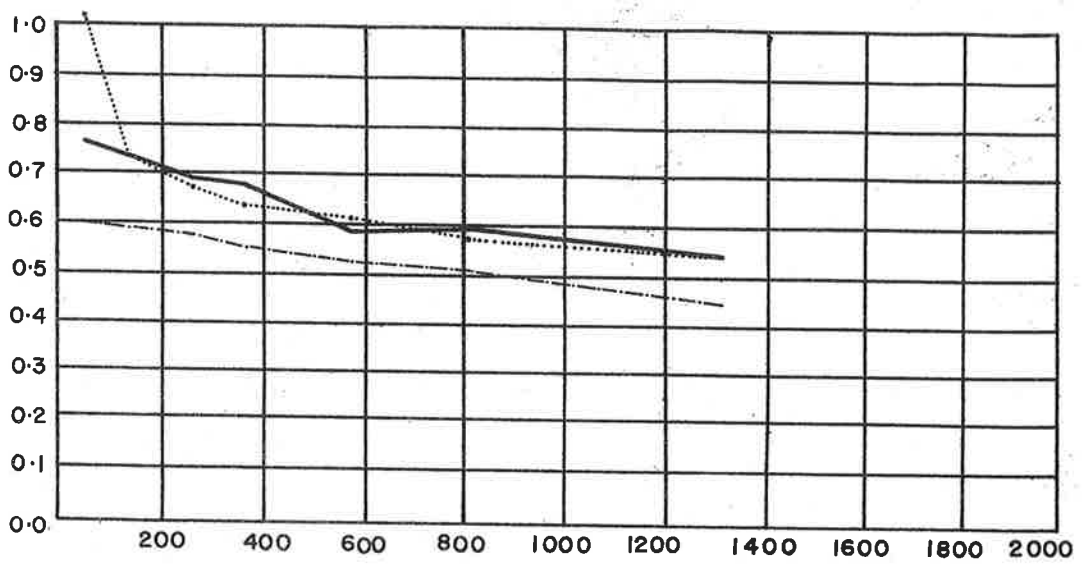
Table 26: Marginal Expenditures, Average Expenditures, and Elasticities.

Areas and Expenditure Items	Average Elasti-cities	Elasticity At Per Capita Expenditure Levels (Afs.)							
		185	271	401	600	892	1308	1729	1976
URBAN:									
Food:									
Elasticity	.844	.701	.773	.825	.865	.886	.993	.888	.883
Marginal Expenditure		.523	.519	.514	.506	.494	.478	.461	.451
Average Expenditure		.746	.672	.623	.585	.558	.512	.519	.511
Miscellaneous:									
Elasticity	1.826	1.1813	1.4119	1.979	1.7368	1.8255	1.886	1.9152	1.9264
Marginal Expenditure	x0896	.0896	.1201	.1661	.2366	.3401	.4875	.6366	.7241
Average Expenditure		.0758	.0851	.0839	.1362	.1860	.2585	.3324	.3759
RURAL:(Per Capita Expenditures)		53	159	268	379	585	808	1324	
Food:									
Elasticity	.815	.592	.803	.856	.877	.882	.872	.825	
Marginal Expenditure		.604	.591	.578	.565	.540	.513	.451	
Average Expenditure		1.019	.736	.675	.644	.612	.588	.547	
Miscellaneous:									
Elasticity	1.674	-	1.641	1.480	1.467	1.505	1.556	1.649	
Marginal Expenditure		.145	.179	.214	.249	.315	.387	.552	
Average Expenditure		.003	.109	.145	.170	.209	.249	.335	

CHART: 4a

Percapita food expediture :

Average and marginal curves.



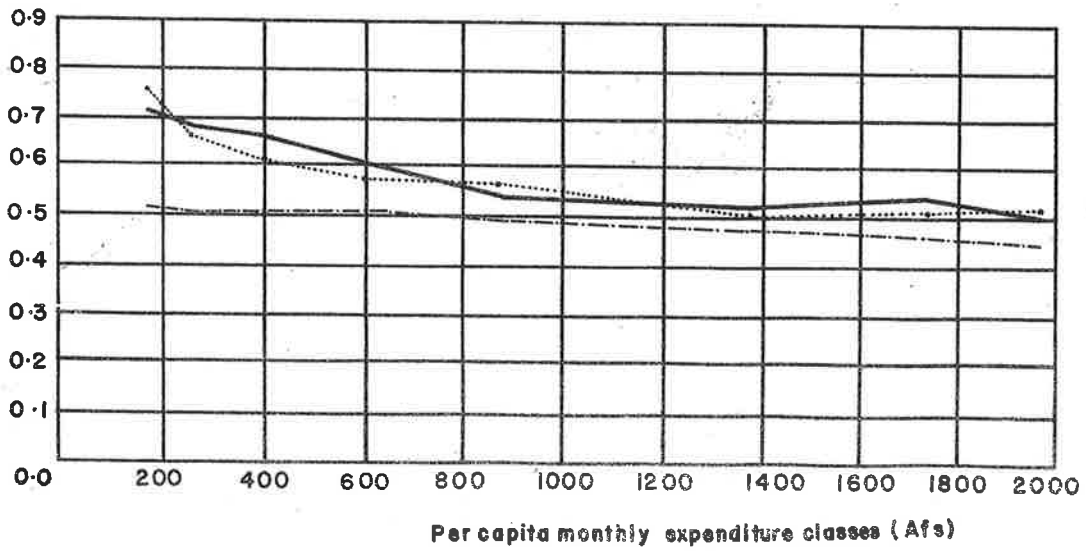
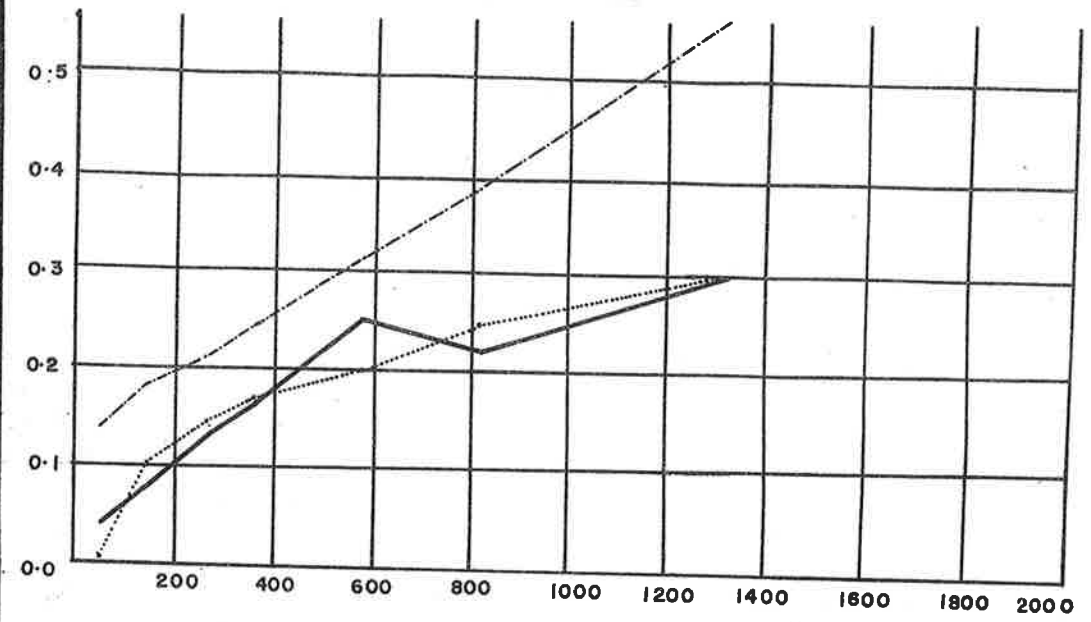
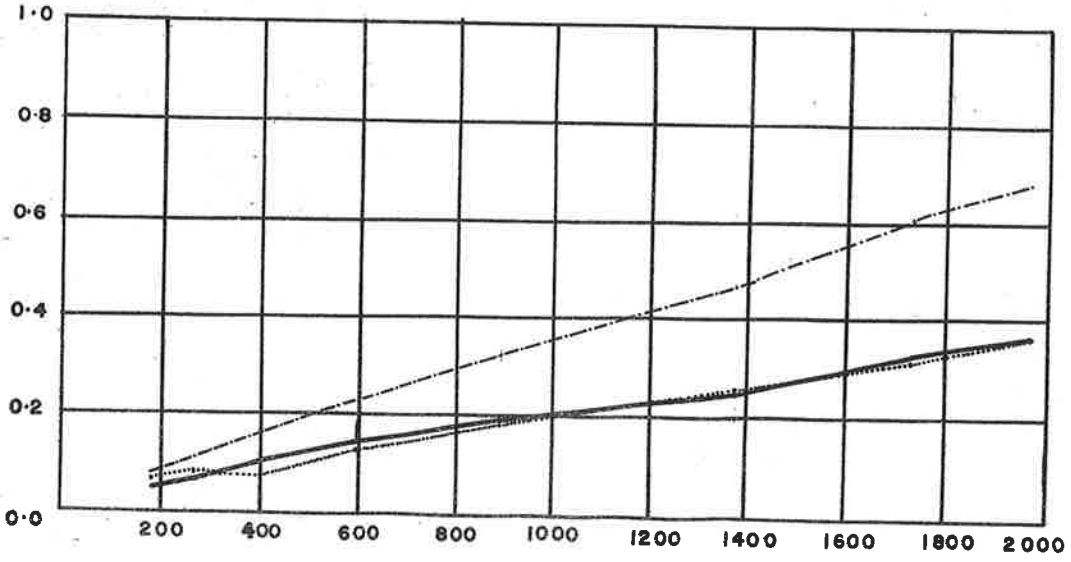


CHART: 4b

Per capita miscellaneous Expenditures Average and Marginal curves, Lashkar Gah.



: Actual Average Expenditure :
Calculated Averge " :
" Marginal " :



Per capita total expenditure

The calculated per capita expenditure curves, in most cases, fall below the actual curve. It rises rapidly at the lower ranges, begins to tapper off towards the middle expenditure ranges, and rises again rapidly towards the upper classes, except for the highest actual expenditure range in the urban area.

The actual and calculated per capita miscellaneous expenditure charts also indicate steady increases except in one case in rural area. On the whole, the actual and calculated curves follow each other(except one case in rural area), and represent a mathematically good fit.

The charts showing the actual and calculated average expenditure and calculated marginal expenditure on food indicate that, in both areas the proportion of total expenditure spent on food declines rapidly at the very low expenditure ranges, begins to tapper off towards the middle and upper ranges, except one case in the urban area where it is increasing and then declining again. In the rural area, in one instance the calculated proportion of tota l expenditure spent on food is well over 100% untill about 159 units of expenditure. This may be an indication of dissaving or living on debt at the very low expenditure (income) levels. The marginal expenditure schedules, in both cases, lie below and follow along with the average expenditure schedules. Except for the low ranges of expenditure, the fitted margianal expenditure schedules, in both areas, appear to be a good match for the fitted average expenditure curves, the function having both R and R^2 above 0.95, [1/] and co-

---

1/ The values of R^2 (coefficient of correlation) varying between -1 and +1 indicates mathematical relationship between two variables (one being dependent and the other independent variable). The higher is the value of this coefficient-i.e. closer to unity- the closer is the relationship between the two variables.

efficient of variations 3.5%. This, therefore, indicates that, except, for very low expenditures, the average and point elasticities, shown in Table 26, are statistically accurate and provide reliable results.

The related charts show the actual and calculated average expenditure as well as the calculated marginal expenditure and miscellaneous items. Except one case in the urban area, the charts show increasing marginal and average expenditure schedules all along the expenditure ranges. Contrary to food, in these cases, with increasing average expenditure schedules marginal expenditures are a lso increasing and lie above the avera ge expenditure schedules, except the very low expenditure ranges in rural area. The proportion of total expenditure devoted to miscellaneous items is low and remains so even at the high expenditures, compared to food. Marginal expenditure, while increasing from very low levels, reaches the level of marginal expenditure for food at the higher expenditure classes, and even exceeds at very high ranges. This suggests that miscellaneous expenditure at low incomes is a luxury, begining to approach a necessity as expenditure (income) rises. Accordingly, the average elasticities for both, rural and urban areas, are much higher than unity, which is another indication of the assertion just made.

A comparison of average expenditure (AE) and marginal expenditure (ME) schedules for food and miscellaneous expenditures reveal that expenditure on both items, however, is increasing as tota l expenditure(income) rises, but elasticities for food are below unity 1/

1/ Elasticity is usually defined as the percentage change in the dependent variable for a one per cent change in the independent variable, or, as is used in this paper, the calculated marginal expenditure divided by claculated average expenditure.

which indicate that the decline in ME will continue until some very high income (expenditure) levels- i.e. total expenditure on food increases but not as rapidly as income- hence a decline in both AE (except one case in urban area) and ME. In contrast to food, elasticities for miscellaneous expenditure are well above unity, indicating increases in both AE and ME all along the expenditure ranges. This means that as income increases total expenditure on miscellaneous items also increases but at a rate faster than the increase in total expenditure.

On the whole, AE and ME for food are, however, declining but at a very slow rate. Thus, although the importance of food in a household's budget continues to decline as income rises, the average elasticities above 0.8 show that food is still of major importance in budgets of the households covered by this survey. This situation coupled with the fact that miscellaneous expenditure (education, health transportation, etc.) becomes increasingly importat, suggests the direction or main thrust of consumer demand as Afghanistan's per capita income grows.

In what follows here, attempt has been made to examine further the data on food and miscellaneous expenditures, and, based on the statistical findings and with some plausible assumptions about income and growth of population, what would likely be consumer's behavior with regards to their expenditure on food and miscellaneous items, and what will likely be the demand pattern and food requirement in e.g. 1972/73.

Urban Areas:

The results of the survey based on a sample of 2453 households in the urban area indicate that out of an urban sample population of 1468, each person spends, on average, 60.7% of his total expenditure on food as compared to 15.8% on miscellaneous items. Compared to available data for other countries, shown in Table 27, it seems that an individual in urban areas of Lashkar Gah spends a larger part of his total expenditure on food than an individual in urban areas of other five countries listed in the table (except India). On the other hand, expenditure on miscellaneous items, ignoring some conceptual differences that are insignificant, is the smallest figure for Lashkar Gah urban population. This may be due, partly, to differences in per capita income levels. In high income countries such as USA, U.K., and others, while food expenditure counts for less than 33% of total per capita expenditure,the share of miscellaneous expenditure is above 32%. This indicates that as per capita income increases, the proportion of income spent on food declines. But for low income countries, especially for very low income ranges, as is the case in Lashkar Gah with regard to the majority of population, food in the whole community counts for over 50% of total expenditure ranges. Accordingly, very little discretionary income remains to be spent on miscellaneous items. The share of this item in total per capita expenditure in these low income countries is usually below 18% while for Lashkar Gah it ranges from 5.5% to 37.7% with an average of 15.8%. Approximately 90 per cent of the urban population in Lashkar Gah is at or below this average.

Table 27: Distribution (%) of Total Expenditure on Different Expenditure Items

Country and Reference Period	Distribution (%) of Consumption Expenditure				
	Food and drink	Rent etc.	Fuel and Light	Clothing	Misc.
Lashkar Gah,1968:					
Urban:	60.7	5.3	9.6	8.6	15.8
Rural:	65.6	1.2	7.3	7.6	18.3
United States:					
Urban 1960/61	26.3	22.0	3.9	9.5	38.3
Rural "	22.9	17.7	5.9	10.8	42.7
U . K . 1964:	33.0	19.2	6.3	9.2	32.3
Ghana,1961/62					
Urban:	53.6	12.3	4.3	12.0	17.8
Rural:	60.0	4.1	9.1	14.8	12.0
Jamaica, 1958					
Urban:	49.5	21.6	2.6	9.9	16.4
Rural:	59.0	11.4	2.0	14.5	13.1
India 1957/58					
Urban:	62.1	4.9	6.3	7.9	18.8
Rural:	69.8	2.0	6.0	10.1	12.1
Iran 1959:					
Urban:	48.7	17.8	4.1	10.4	19.0
Pakistan(Karachi):					
Urban 1955/56:	54.1	11.0	6.1	6.2	18.5
Rural 1961:	65.2	8.4	7.1	6.2	13.1
Philippines 1961:	57.7	13.0	4.0	7.4	17.9

Source:

(1) Data for areas other than Lashkar Gah are based and computed from UN: Year Book of Labor Statistics,1966, Table 28.

(ii) Data for Lashkar Gah are computed from Survey results.

Further examination of data on food and miscellaneous expenditures in this survey revealed the fact that while total expenditure on food is increasing with increased in total expenditure, the proportion of total expenditure spent on food is declining. With declining AE schedule, naturally, ME is also a declining curve and lies below AE. But the decline in AE is not rapid and thus with a declining ME the resulted point elasticities are very high and thus with a declining ME they range from 0.701 to 0.993 even until 1308 per capita expenditure units. After this level the point elasticities are diminishing up to 0.883 in the 1976 per capita expenditure units. In general, the average elasticity for food in the urban areas of Lashkar Gah is about 0.844 which lies within the range of elasticities for other four countries in Table 27 above.

With regard to miscellaneous expenditure for urban area, total expenditure as well as average expenditure, and, therefore, the ME on miscellaneous items is increasing as income rises. In all cases ME exceeds the AEs and the resultant elasticities are all well above unity. With an average elasticity of 1.826 it ranges from 1.18 in lower expenditure ranges to about 1.8 at the middle and above 1.9 in the higher ranges, which means that miscellaneous expenditure items can be treated as luxuries for the expenditure classes covered by this survey.

Rural Areas:

In case of rural areas of Lashkar Gah, the result of this survey show that a person, on average, is spending about 65.6% of his total expenditure on food and about 18.3% on miscellaneous items. These figures, compared with the urban area within Lashkar Gah and with

Table 28: Coefficient of Income Elasticity of the Demand by Major Food Groups, Expressed.

	Cereal	Starchy roots	Pulses nuts	Sugar	Veg.& Fruit	Fats	Milk etc.	Meat	Animal Protein	Farm Value
North America	-.5	-.7	-.3	0	.3	0	.08	.4	.23	.16
Denmark	-.4	-.4	0	0	.5	-.05	.06	.4	.27	.19
U . K .	-.4	-.3	0	0	.5	.02	.09	.4	.28	.24
Japan	-.17	-.15	.3	.8	.5	1.1	2.0	1.7	.94	.58
Latin America	.14	0	.2	.4	.55	.8	.85	.75	.6	.47
NE & Africa	.2	.1	.2	1.2	.7	.8	1.1	1.3	1.16	.68
~~Ceylon~~ India	.50	.2	.3	1.2	1.0	1.2	1.7	1.4	1.57	.89
Ceylon	.35	.1	.25	.7	.9	1.2	2.6	1.4	1.46	.78
Pakistan	.5	.2	.3	1.3	.9	1.4	1.7	1.6	1.62	.96
Lashkar Gah										.82

Source:

(1) For data other than Lashkar Gah, see FAO: Commodity Review 1962, Agricultural Commodities Projection for 1970, Table M-4.

(ii) Data for Lashkar Gah represented from Table 26 above.

figures for other rural population of a number of countries, reveal: that the per cent of total per capita expenditure spent on food by a rural person in Lashkar Gah is higher than the urban, and is the highest among the related figures for rural areas of some other countries listed in Table 27 above, except tha t for India. It should be noted that these calculations are based on expenditure figures rather than income, hence the high figures for Lashkar Gah may be overstated, if it had to be calculated on basis of income data the results would have been lower than.

In contrast to urban, the per cent of total expenditure spent on miscellaneous items is higher than the urban figure and the highest among the figures for rural areas of some other low income countries. On the other hand, the elasticity figure for food ranges from 0.59 to 0.825 with an average elasticity of 0.814 which is smaller than the related figures for urban areas. The average elasticity for miscellaneous (1.674) is also smaller than that for urban areas.

In short, we can say that, according to the finding of the survey, annual per capita income and per capita expenditure in Lashkar Gah is around $74 and $62, respectively which ranks at the bottom of the UN ladder. A large proportion of this low level of income, naturally, is spent on food-i.e. from 50 to 75%. The average elasticities for food are also high ranging from 0.815 in case of rural to 0.844 in urban areas. These findings indicate that expenditure on food still is a very important, though declining, item in household budget. Therefore, in process of economic development, if increases in per capita real income and better standards of living are the main objectives of development planning, then increases in food production (or availability) are of

major policy consideration. In other words, the factor on which the pace of development may depend in a much more basic way than any other factor, especially in the early stages of economic development, is the performance of agricultural sector with regards to production of real surpluses in the shape of food and raw materials to match the increases in effective demand and growth of population. In a country like Afghanistan this relationship of food to development becomes more important not only because it is the single largest sector with regard to income and expenditure, but it also has to provide employment opportunities[1/] for the time being, for a large proportion of the population, and to facilitate for the development of other sectors of the economy.

A simple numerical projection, based on the results of this sample survey, may indicate the crucial role of agriculture, in general, and the importance of food supply in particular.

PROJECTION

To formulate such a projection, first of all, we need information about the rate of growth of population and per capita income. Unfortunately, reliable information for population and income growth are not available. Neither adequate data were collected for this purpose in the present survey which should be taken into account in future surveys. Therefore, we have to make some plausible assumptions for the purpose.

1. Growth of Population: Estimates of national population growth ranges from 1.5 to 2.5 per cent per year. Data from Lashkar Gah Household survey roughly indicate a natural rate of increase of 1.7% p.a. But neither of these figures can be made reliable basis for projection and policy purposes, and, surely, there is urgent need for accurate in-

formation in this field.

The available figure for other Asian countries show rates of growth ranging from 1% in case of Japan to 3.5% for China (Taiwan). Judging from these figures, (see Table 29), a 2% rate of growth of population, however, on the lower side, may seem reasonable to assume, and work out for the projection. Different rates of population growth can also be assumed which is a matter of simple manipulation.

2. Growth of Per Capita Income: Similar to population, there is no reliable data on per capita income growth. The results of Lashkar Gah survey indicate an average per capita income of $74, but this is again a matter of definition and interpretation. It is necessary that in future surveys the level and changes in per capita income should be taken into account. The per capita income growth rates for other Asian countries used for FAO projection for 1970, based on 1952-54 to 1961-63, ranges from 1.1% for Ceylon to 9% for Japan. Excluding Japan, a range of 1% to 3% rate of annual growth is likely to cover most of those Asian countries listed in Table 29. We will also calculate alternative rates with a range of 1-3% p.a., but for our final analysis for Lashkar Gah, we would use a 2% annual per capita rate of growth of income.

3. It is desirable, from dynamic points of views, to take into consideration all other factors that might affect the supply-demand conditions and the consumer responses to change, such as prices, consumption, quantity and pattern, marketing margins, government policies, etc. but neither we have adequate information for these purposes, nor we like to make the problem to sophisticated. Therefore, for purposes of simplicity we assume that prices and all other factors remain constant.

4. The average elasticity is 0.82, and it is a weighted average of the elasticities for urban and rural areas of Lashkar Gah.

On the basis of these assumptions and the results of Lashkar Gah survey, we have calculated the combined effect of growth of income add population in years 1348-50 (1969/70-1971/72). The results are shown in Table 30 below, and one of the alternatives, based on a 2% rate of growth of population and a 2% rate of growth of income, appears also in Table 29 for purposes of comparisons.

The data in Table 30 below indicate that for a 2% increase in population and per capita real income growth rates of 1-3% per year, the projected rates of growth in food demand ranges from 2.8 to 4.7 per cent per year. The accumulated compound ra tes of growth for three years of 1348-50 (1969/70-1971/72) ranges from 8.6 to 13.7 per cent. We will talk a little more about a 3% rate of growth of population and urbanization later, but here, as an example, let us take the third alternative and on the basis of a 2% rates of growth of income and population, examine the projected or required increases in food supply.

In a stagnant economy, if a current level of consumption is maintained, even without any growth in per capita real income, the increase in food supply should match the growth of population. For instance for a 2% population growth, food supply should also increase at this rate. This is so crucial where the standard of living and consumption is relatively low and as a result, with poor diet, the nutrition level is also low. Any drop at this low level may mean worsening of health conditions.

Now, given a certain rate of population growth, for any increase

Table 29: Income Elasticity of Demand For Food and Assumptions Made on Population and Income Growth.

		Asia & FE	NE & Africa	Latin America	Japan	Medit. Europe	EEC	Other WE	North America	Lashkar Gah
GNP per caput 1957/9 ($)		165	260	291	910	575	1285	1440	2190	-
Income Elasticity of demand for all food expressed in terms of:										
Calories		.6	.4	.3	.2	.2	.1	.01	-.03	
Animal Protein		1.5	1.2	.8	.9	.9	.6	.3	.23	
Farm Value		.9	.7	.6	.6	.55	.5	.2	.16	.82
Basic Assumptions:					(per cent per year compound)					
Population:		2.3	2.5	2.7	.7	1.0	.7	.4	1.8	2.0
GNP	low	1.3	1.5	2.0	5.3	3.9	3.9	2.3	1.3	2.0
	high	2.5	2.8	2.8	6.3	5.2	4.7	3.3	2.5	3.0
GNP	low	3.6	4.0	4.7	6.0	4.9	4.7	2.7	3.1	3.64
	high	4.9	5.3	5.6	7.0	6.2	5.5	3.7	4.4	4.46

Source:

(i) For data other than Lashkar Gah, see FAO Commodity Review 1962, Table 12.

(ii) For Lashkar Gah, see Table 30, below, computed from data obtained from the present Survey.

Table 30: Projected Growth Rates For Food, Lashkar Gah, 1348-50(1969/70-71/72)

	G rowth of Population (p)	Growth of Per Capita Income (g)	Average Elasticity (n)	1348 (1969/70)	1349 (1970/71)	1350 (1971/72)
Alternative 1:	2	1	0.82	2.82	2.885 5.705	2.938 8.643
Alternative 2:	2	1.5	0.82	3.23 6.518	3.288 6.518	3.348 9.866
Alternative 3:	2	2.0	0.82	3.64	3.713 7.353	3.787 11.140
Alternative 4:	2	3.0	0.82	4.46	4.574 9.034	4.691 13.725
Alternative 5:	3	2.0	0.82	4.64	4.763 9.403	4.799 14.202

Note: The Equation adopted is $Y = p + gn$
where,
Y= the combined affect on the growth of food supply due to
p= rate of growth of population; and
n = elasticity of demand associated with
g= growth of per capita real income.

increase in per capita income, the food supply should increase at a rate to match the combined effects of population and income. In Table 30, a 2% increase in population and per capita real income for Lashkar Gah the minimum required rates of increase in food supply for that area would be about 3.6% for 1348, 3.7% for 1349, and 3.8 for 1350. In other words, within a period of three years (1348-50) food supply for the area should increase by 11.1%. The food problem becomes crucial in areas where population is growing relatively fast, along with gains in per capita income and high income-elasticity of demand for food, and the per capita level of income and consumption level are low. If food supply, especially marketed supply, does not keep pace with increases in population and income, the terms of trade will turn against the urban consumer and in favor of food producer and dealers. This may contribute to inflation and, in the absence of appropriate policies, curtail the rate of economic development for the whole country.

Added to these two factors- population and income- are other elements that may have considerable effects on the food situation, e.g. nutrition level, degree of urbanization, etc. Food requirement from physical points of view, are estimated to be high, especially in low income areas with poor diet. In this respect, it is argued, that improvement in the quality and quantity of food has important implications for raising labor productivity and efficiency. Data on food requirement, from physical requirement point of view, for Lashkar Gah have not been collected in this survey. One, however, could argue that if it is aimed to improve the present diet and consumption level, then on the one hand, food supply should increase more than the rates listed above, and

listed above, and, on the other hand, the quality of food should be improved. This has another important implication: as population and income rise, there is need, not only to raise food supply, but also market more food and service as for those items that, as a consequence of development, the pattern of consumption for them is changing- i.e. a shift from lower quality to higher quality items.

Related to above, is the process and degree of urbanization that might affect food situation considerably. However, various factors in this regard should be taken into account, such as net-migration pattern of settlement, occupational structure, income and consumption pattern, transportation and marketing, barriers to mobility, etc., We do not have enough information with regard to these factors, at this stage, and it will be very useful to measure them in future surveys. But, if we assume that further development in Lashkar Gah might attract through income disparities etc., people to move in to this area from the neighboring and other parts of the country, this may increase the population of Lashkar Gah by, e.g. another 1 per cent. Therefore, if we assume a 3% rate of growth of population than the projected increase in food supply is around 4.64 to 4.8 per cent per year.(See the last alternative in Table 30). Thus, a 14.2% increase in food supply over a period of three years is required. This is, on average, a 5% annual rate of growth which is likely to require considerable efforts, institutionally and technologically.

One of the important policy implications of the finding from the Lashkar Gah survey is that agriculture in general, and with regards to food supply in the early stages of economic development, in parti-

cular, has a crucial role to play. Food supply, especially marketed surpluses of food, must keep pace, at least, with the growth of population and per capita real income. This, in turn, calls for multiple objective policies to:

Firstly, raise agricultural output above and beyond the need of that sector itself so to create surpluses for other sectors; and

Secondly, siphon-off the surpluses so created to other sectors of the economy by means and ways that are conducive to further development; and

Thirdly, diversify output to provide for the expected demand for other commodities such as fruits, vegetables and higher protein foods.

If food supply does not keep pace with growth of income and population, the terms of trade may turn in favor of food producers. This, even assuming no technological barriers, in case of producers irresponsiveness and due to other institutional factors, may cause further price rises. This problem of food might be solved, in short-run, by import of food, through export surpluses or foreign aid. But, due to lagging exports and increasing need for import of capital goods, the failure to increase agricultural output, in general, and food supply in particular, may curtail development progress. Such experiences has been gained during the last few years, especially the last years of the second Plan, resulting in price rises, lower exports, higher import of food, lack of sufficient demand for domestic industrial products, and consequently, with other factors, resulted in economic stagnation.

CHAPTER III- METHODOLOGY APPENDIX

For
The Econometric Analysis of Lashkar Gah Survey

The econometric analysis, in chapter II, in most cases, is based on sample data. The sample size and its related coefficients differ in urban and in rura l areas. Because, the sample size consist of 29.5% of all households in urban areas, while it is only 8% of all households in the rural areas. Therefore, to cover the whole population, sample data should be multiplied by a coefficient of 3.39 for urban, and 12.5 in the rural case. This, however, will leave the magnitude of the relationships found by the analysis unchanged.

Another important point to be made clear, here, is that due to inconsistency of income data and the large differences between income and expenditure, especially in the very low income classes, as usually one expects to be so in poor societies, made it difficult to arrive at statistical generalization. To av oid such problems, it was found convenient to base the analysis, where ever required, on expenditure data. This approach may not affect the results seriously. Because, on the whole, it is found that income and expenditure, in this particular area covered by the survey, followed almost the same pattern.

Keeping the above two points in mind, in what follows here, is a brief highlight of the method and procedures used in the analysis.

On the distribution of income (expenditures) the concentration ratios are computed by the method of " Gini Index of Concentration". The Gini Index of Concentration (GIC) is a measure of income concentration derived from the Lorenz Curve.

The Lorenz Curve in Chart is obtained by plotting the cumulative percentage of persons on the horezontal axis (X), against the cumulative percentage of total expenditures accounted for by these persons, in the vertical axis (Y). If all units had exactly the same incomes, the Lorenz curve would be presented by the diagonal(the equality line) shown in the diagram. Curves drawn to actual data invariably fall below this line and the greater the inequality in the distribution of income(expenditure) the greater the area between the equality line and the Lorenz curve.

The GIC is defined as the proportion of the total area under the equality line that is between the equality line and the Lorenz curve.(1) This relationship can be expressed as follows:

$$L = \frac{\text{Area Between Curve and Diagonal}}{\text{Area under Diagonal}}$$

Since the area in the entire square is 1, the cumulative percents on each axis add to 100, and the area under the diagonal is $\frac{1}{2}$, the expression above, therefore, can be rewritten as follow:

$$L = \frac{\frac{1}{2} - \text{Area Under Curve}}{\frac{1}{2}} = 1 - 2(\text{Area Under Curve})$$

If we assume that the curve between any two points is approximated by a straight line, the area for any segment of the curve can be expressed as follows:

$$(X_{i+1} - X_i)\left(\frac{Y_i + Y_{i+1}}{2} \right)$$

---

(1) see James Morgan: " The Anatomy of Income Distribution", The Review Of Economics And Statistics, August 1962, p.281.

When summed over all intervals, and substituted in the expression for L above, the formula that was used in computing the Gini Index is:

$$L = 1 - \sum (X_{i+1} - X_i) (Y_i + Y_{i+1})$$

where, X_i are the number of persons in each class; and
Y_i are amount of expenditure for each class, expressed in %.

The concentration ratios obtained by this formula for the rural and urban areas of Lashkar Gah and for the City as a whole, are given in Table 31, below.

Data on expenditure items, after being arranged and tabulated were plotted on arithmetic and logarethmic scales. As it appeared that the average expenditure schedules for all expenditure items-- food, clothing, rent, fuel & lighting, and miscellaneous-- were not linear. In order to obtain reliable measurement of the actual data, it was necessary to fit, out of various regression functions available, a method involving a polynomial of the second degree Least Square Method.

The second degree curve equation used, was:

$$Y = a + bX + cX^2 \qquad (1)$$

This technique is founded upon marginal analysis and the separation of elasticity into two component parts; marginal expenditure and average expenditure. It has been claimed (1) that this method is most applicable to household survey data.

The symbols in equation (1) are:

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(1) see Donald H.Niewiaroski: " A Method To Aid In the Selection of Regression Functions In Demand Analysis", Presented At American Statistical Association Meeting, March 1964.

Y = the dependent variable, or per capita expenditure on any item-- food and miscellaneous items in this paper.

X = the independent variable, or per capita total expenditure

a = a constant, the intercept; and

b and c are the coefficients.

The Least Square method normal equations for the above, used here, are:

$$\sum Y = Na + b\sum X + c\sum X^2$$
$$\sum XY = a\sum X + b\sum X^2 + c\sum X^3$$
$$\sum X^2 Y = a\sum X^2 + b\sum X^3 + c\sum X^4$$

In order to get the values for a, b, and c, manipulation has been made in Table 32 for food and Table 33 for miscellaneous items, and substituted in the above normal equations. The three normal equations were then solved simaltaneously. From substitution of the values of a, b, and c in original equation (1), the estimators-- i.e. the fitted equations -- were found (see the four fitted equations in Table 33). The calculated per capita expenditure on each item, Y, found by these equations, are shown in Table 32 and 33.

The concepts, used in the technique for further analysis, are defined as follows:

Average Expenditure (AE): The proportion of total expenditure spent on each item. In this paper, the actual AE was calculated as well as the fitted average expenditure.

Marginal Expenditure(ME): the change in expenditure on each item relative to a small change in total expenditure, or, the proportion of an additional unit of expenditure spent on each item. The calculated ME and the ME curves, in

this analysis were determined by the first derivative of the second degree polynomial equation employed in the actual analysis (see Table 32 and 33).

Elasticity : the percentage change in the dependent variable, Y , for a one percent change in the independent variable, X , Or, as calculated ME divided by calculated AE for each point elasticity, and sum of the ratios (Σ ME/Σ AE) for average elasticity (see Table 33).

A check upon the precision of calculated data and the fitted shapes of the related curves is the correlation coefficients, or correlation index, standard error of estimate and the standard error of the regression functions.

The definition of these concepts and the methods of calculation used in this paper, are:

Coefficient of Determination (R^2) = $\frac{\text{Explained Variation}}{\text{Total Variation}}$, or

$$= \frac{\Sigma (Y - \bar{Y})^2}{\Sigma (Y - \bar{Y})^2}$$

where Y is the calculated values of dependent variable;
Y the actual values of dependent variable; and
$\bar{Y}$ the arithmetic mean of the dependent variable.

Coefficient of Correlation (R) = $\sqrt{R^2}$ or as in the case of miscellaneous expenditures in urban areas:

$$R = \frac{\Sigma (X - \bar{X}) (Y - \bar{Y})}{\sqrt{\Sigma (X - \bar{X})^2 \Sigma (Y - \bar{Y})^2}}$$

Where X and $\bar{X}$ represent the actual and the mean values for the independent variable, respectively.

The Standard Error is S.E. = $\sqrt{\frac{\Sigma (Y - \bar{Y})^2}{N}}$

where N is the number of observation, or, the number of

expenditure classes.

$$\text{The Coefficient of Variation} = \frac{\text{Standard Error}}{\bar{Y}} \times 100$$

A check upon the precision of calculated estimates are the coefficient of variation, standard error of estimate and coefficient of variation. The first measure compares the variation explained by the second degree polynomial to the total variation in the actual data. In other words, a coefficient of determination of .98 means that the equation used explains 98% of the variation in the actual data. The second measure, standard error of estimate, measures the amount of variation of actual data from the estimated trend line in absolute amount. This absolute amount is then compared to the average of the actual data yielding a ratio. Thus, if the absolute amount of standard error as in the case of food expenditure, is 17.5 and the average actual food expenditure is Afs. 503, the former divided by the later gives a percent of 3.5. ~~This~~ The values for these measures in simple terms are given in Table 25.

The results of the regression functions indicate that, except for the low ranges of expenditure, the fitted ME schedules appear to be a good match for the fitted AE curves as the equations yield coefficients of variation equal to or less than 3.5% and the coefficient of determination are above .95.

The above findings would reveal that the calculations and analysis made are, statistically, correct and, therefore, could help in further analysis with regard to future household surveys and planning, especially in a situation where advanced techniques are lacking.