

# INEQUALITIES IN CONSUMPTION PATTERN OF MILK AND MILK PRODUCTS IN MUZAFFARNAGAR (UTTAR PRADESH)

By

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## SUMMARY

An attempt has been made to study inequalities in the distribution of consumer expenditure and consumption of milk and milk products among different categories of households utilising household budget data in rural and urban sectors of Muzaffarnagar district. Inequality in total expenditure and consumption distribution was found to be higher in urban area than in rural area. Ignoring the consumer price differentials between the two sectors, the estimates of Gini coefficients gave a simple measure of urban rural disparity in the level of living. The deserved divergencies in expenditure and consumption for different occupations, types of consumer households and socio-economic ranks in the district suggested that these could be mitigated by improving the socio-economic environment of the weaker sections.

## 1. INTRODUCTION

The existence of large disparities in living standards between regions and between the people belonging to different socio-economic groups is believed to be an important cause of prevailing social tensions and unrest. It has also been expressed by many intellectuals that inequalities in the standards of living are growing and this trend, if not checked, would aggravate tensions and endanger the country's stability. The precise relationship between economic inequalities and social tensions may be debatable. However, the prevalence of inequalities, undoubtedly, constitutes a major problem. That is why reduction in inequalities has been the main plank of our development strategy during the various plans. Development

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The data for the present study were taken from first author's Ph.D. Thesis on "Consumption behaviour of milk and milk products in Muzaffarnagar (Uttar Pradesh)—An econometric study."—1979

plans of the Government are judged not merely by their success in achieving a rapid expansion of the aggregate output but also in terms of how the fruits of development are reaching the different classes and regions. It is therefore essential that the nature and extent of inequalities, the manner in which they change, and the specific factors underlying these phenomena are understood properly.

Over the years, considerable information on inequalities in living standards has been accumulated. The most important sources are National Sample Survey (NSS) and National Council of Applied Economic Research Surveys (NCAER). These surveys have been extensively utilised by different workers (Iyengar and Mukharjee, 1961; Ahmed, 1961; Ohja and Bhatt, 1964; Iyengar, 1964; Mukharjee and Chatterjee, 1967; Swami, 1967; Datta Mazumdar, 1969; Minhas, 1969; Ohja, 1970; Bardhan, Pranab. 1970; Vidya nathan, 1974 and others) to assess the degree of income inequalities and the changes in inequalities over time. Most of these studies are confined to broad commodity groups, lack a region-specific approach and have paid little or no attention in studying the inequalities in the consumption of milk and milk products. Moreover, household size and composition; occupation, levels of income, prices, habits and social customs and resource endowments are not the same in different parts of the country and such differences are likely to influence the inequalities in living standards. Attention is focussed, therefore, in this paper on inequalities in the distribution of consumer expenditure and consumption of milk and milk products among various categories of households in the study area.

The household budget data were collected by investigating a cross-section of 220 households (160 from rural and 60 from urban sectors of Muzaffarnagar district). The selection of households was made by adopting a multi-stage stratified random sampling design. Relevant information was gathered three times during the survey period (once in each season—rainy, winter and summer) during 1976-77.

The effect of occupation on inequalities in household consumption was investigated by classifying the sample households into four broad groups, namely, agriculture, business, service and labour households. In order to assess the influence of geographical situation, the data have been, analysed separately for urban and rural sectors. The effect of type of consumer with specific references to inequalities in consumption pattern of milk and milk products was investigated by classifying the sample households into three groups,

namely ; (i) pure consumer, (ii) consumer producer (commercial), and (iii) consumer producer (non-commercial). In order to assess the impact of socio-economic status, the sample households were stratified into three groups, low, medium and high.

The most accepted determinants of socio-economic status of the households are education, occupation and income. A composite index jointly based on these variables was developed. For this purpose, first the scores were assigned to 7 educational levels, *i.e.* illiterate (1) literate with primary level, (2) middle school level, (3) high school, (4) intermediate level, (5) graduation (6) and professional degree, masters degree and above; (7) four occupation groups *i.e.* labour (1), business (2), service (3) and agriculture (4) and; seven monthly household expenditure groups *i.e.* Rs. 260 and below (1), upto Rs. 390 (2), upto Rs. 590 (3), upto Rs. 775 (4), upto 1115 (5); upto Rs. 1570 (10) and above Rs. 1570 (12). For individual families the composite score was obtained by adding educational occupational and income scores obtained by each household. The families were then distributed into three socio-economic status groups, namely, high, medium and low, based on the cumulative square root method of stratification.<sup>2</sup>

The widely used inequality measures in empirical literature are the variance, the coefficient of variation, the standard deviation of logarithms and the gini coefficients of Lorenz ratios. The merits of one over the other have been sufficiently well documented in literature (Atkinson, 1970; Santra, 1970; Das Gupta *et al.*, 1973; Sen, 1973a and 1973b).<sup>3</sup> In the present study the gini coefficients (a concept identical to the Lorenz ratio) have been used as the measure of inequality.

## 2. INEQUALITIES IN TOTAL CONSUMER EXPENDITURE

The Gini coefficients of inequalities in total expenditure distribution for the rural and urban households of the district are

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<sup>1</sup> B. Kuppaswamy developed a scale for measuring socio-economic status of urban households, see : Manual of Socio-Economic status scale (urban). Manasayan, Delhi, 1962. Trivedi and Pareek developed a socio-economic scale for rural areas. See : Socio-Economic status scales (rural), Measurement in Extension Research instruments developed at IARI (1963-72), New Delhi.

<sup>2</sup> See : Ravindra Singh (1975). "On optimum stratification for proportional allocation", *Sānkhya*, Vol. 37, series 6, part I. pp. 109-115.

<sup>3</sup> See : I.Z. Bhatti, "Inequality and poverty in rural India," Poverty and Income Distribution in India, Statistical Publishing Society, Calcutta, Dec. 1974, pp. 294-295.

presented in Table 1. Inequality in total expenditure distribution was found to be higher in urban area (0.398) than rural one (0.341). Thus the analysis supports the repeatedly proposed hypothesis that rural expenditure inequalities are lower than urban ones.<sup>4</sup> This goes to suggest that the urban population with higher average per capita expenditure (Rs. 153.82 per month) and higher expenditure inequality was not better off than the rural population with lower average per capita monthly expenditure (Rs. 142.61 per month) and low inequality. Bhattacharya and Mahalonobis (1967) observed that apart from Assam, Andhra Pradesh was the only state where the urban inequalities were lower than rural inequalities.

In the rural areas the total expenditure among businessmen (0.390) is clearly the most unequally distributed and among the cultivators the least (0.274), with the service (0.324) and labour families (0.293) falling in between in that order. Among the urban households the inequality ranks, with respect to total expenditure distribution for the four occupation categories are ; (i) labour; (ii) business, (iii) service, and (iv) agriculture, in that order. Considering the four occupation categories in both the rural and the urban sectors, the magnitude of Gini coefficients exhibited highest inequality among the business families in the rural areas (0.390) and least for the cultivator families in the urban areas (0.215). This state of affairs may be attributed to the expenditure with more diversification in consumption bundle by the business families in rural areas as compared to agriculturists in the urban sectors. Further, the variability in the total per capita expenditure for the business families in rural areas was much higher than agriculturists in the urban sectors.

Inequality in the distribution of per capita expenditure in rural areas, as one might expect, is uniformly less for all types of consumers of milk than the inequality among all the three categories of consumers in urban households. Among the consumer categories the magnitude of Gini coefficient was least among the consumer-producer (commercial) of milk in the rural areas (0.220) and maximum inequality was discernible in pure consumer households

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<sup>4</sup> See for example, B.S. Minhas, "Rural Poverty, Land distribution and Development Strategy : Facts and Policy." Paper presented at Seminar on Employment and Income distribution, New Delhi, March 29-30, 1970. Published in Indian Economic Review (April, 1970). Also, Paul Jonas, "An Analysis of Bovine Milk Consumption in Major Indian Metropolitan Areas," USAD, July, 1971, pp. 81.

TABLE 1

Gini coefficients for expenditure on milk and milk products and total expenditure—Muzaffarnagar District—U.P.

S. No.	Particulars	Total expenditure				Milk and Milk products			
		Average monthly expenditure (Rs.)		Gini Coefficient		Average monthly expenditure (Rs.)		Gini Coefficient	
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
<i>A.</i>	<i>Occupation</i>								
1.	Labour	78.48	101.45	0.293	0.382	13.80	19.64	0.437	0.691
2.	Service	159.58	145.77	0.324	0.322	38.08	29.28	0.261	0.314
3.	Business	138.46	148.86	0.390	0.381	27.37	34.53	0.275	0.577
4.	Agriculture	191.73	325.71	0.274	0.215	42.25	58.14	0.210	0.179
<i>B.</i>	<i>Type of Consumer</i>								
1.	Pure consumer	94.26	132.51	0.351	0.392	13.86	24.52	0.486	0.412
2.	Consumer producer (commercial)	87.74	139.11	0.220	0.306	21.32	35.11	0.263	0.248
3.	Consumer producer (non-commercial)	182.64	222.64	0.285	0.289	41.88	52.47	0.288	0.214
<i>C.</i>	<i>Socio-Economic status</i>								
1.	Low	74.86	98.53	0.222	0.321	14.65	20.16	0.488	0.433
2.	Medium	126.72	112.36	0.229	0.239	32.71	24.64	0.277	0.266
3.	High	224.56	207.38	0.234	0.234	45.39	41.97	0.156	0.105
	Overall	142.61	153.82	0.341	0.398	31.36	31.60	0.319	0.395

in urban sector (0.392). This is understandable in view of the fact that consumer households with higher per capita expenditure also had greater inequality.

A comparison of Gini coefficient of inequality in total expenditure for different socio-economic groups in two regions have shown interesting results. It may be seen that little variation was discernible in the magnitude of Gini coefficients for different socio-economic groups within the rural sector, although inequality in the expenditure distribution tended to increase with higher socio-economic status of the household. However, a reverse trend was observed in urban areas where highest inequality was found on low-socio-economic status households (0.321) and least (0.234) in the high status families. What deserves to be marked, however, is that while inequality was higher in rural areas for the higher per capita expenditure class, in the urban areas the families having low socio-economic status had low per capita monthly expenditure and highest inequality, indicating maximum economic hardship for this group of households. In this context, it may be noted that a high inequality in households, with large per capita consumer expenditure implies less human hardship than the same level of inequality with low per capita consumer expenditure. The people of rural areas with lower inequality and lower average per capita expenditure are certainly better off than those of urban sector with higher inequalities but lower average per capita expenditure.

### 3. INEQUALITIES IN THE CONSUMER EXPENDITURE ON MILK AND MILK PRODUCTS

Comparing the Gini coefficients for the expenditure on milk and milk products, a higher degree of inequality was observed for urban households (0.395) than for rural families (0.319) in Muzaffarnagar district. This may be attributed to the dependence of urban households on market milk and treating it rather as a luxury item. The rural households being self producers of this commodity regard it more or less an item of necessity.

The ranking of inequality coefficients was maximum for labour households followed by business and service class families and it was minimum for cultivator households in both the rural and the urban areas. Further, in general, the magnitude of Gini coefficients in consumer expenditure on milk and milk products were higher for urban households with the exception of agriculturist families where inequality measures for the rural population were more than the urban population.

The comparison between type of consumer households indicated that the inequalities in the consumer expenditure on milk and milk products were of a low order for the urban area as compared to rural households presumably due to widespread adoption of dairy enterprise on rural households. This tends to supplement the belief that milch animals are maintained mostly for domestic use in the rural areas and for supplementing family income in the urban areas.

A low degree of inequality in the distribution of expenditure on milk and milk products accompanied by corresponding high per capita expenditure for the high socio-economic group in both the areas made the living comfortable for this group as a whole. On the other hand, higher magnitudes of inequality accompanied with low per capita expenditure for the low socio-economic group made the life somewhat more vulnerable as compared to other two status groups. The variation in the extent of inequality might be ascribed to low income and poor education which caused variation in the level of milk consumption in this group.

The foregoing discussion suggests that the inequality in the distribution of consumer expenditure on milk and milk products can be reduced by improving the economic condition and educational level of weaker sections through developmental plans and by making milk available at a lower price (no matter how low the fat content) for the vulnerable group of population.

#### 4. INEQUALITIES IN THE CONSUMPTION OF MILK AND MILK PRODUCTS

It is sometimes argued that consumption and not income or expenditure truly reflects the consumer behaviour of a commodity and hence, if disparities are to be studied, there is a special appropriateness in a measure based on consumption. The correspondence of consumption and level of living at any point of time, specially for a poor country, can scarcely be questioned. Nevertheless, the present section includes a discussion of inequalities in the consumption of milk and milk products by decomposing this broad commodity group into three milk items, namely, liquid milk, ghee and butter, and "other milk products".

The Gini coefficient for the per capita monthly consumption of total milk and milk products was lower for rural than for urban areas, thus indicating greater inequalities in the consumption of this commodity in urban Sector (Table 2). Among the individual

TABLE 2

Gini coefficients for consumption of milk and milk products—Muzaffarnagar District (U.P.)

<i>Item</i>	<i>Rural</i>		<i>Urban</i>		<i>Overall</i>	
	<i>Av. monthly consumption</i>	<i>Gini Coefficient</i>	<i>Av. monthly consumption</i>	<i>Gini Coefficient</i>	<i>Av. monthly consumption</i>	<i>Gini coefficient</i>
Liquid	12.589	0.265	11.038	0.284	12.166	0.270
Ghee and butter	0.456	0.295	0.329	0.396	0.421	0.316
Other milk products	4.026	0.347	3.586	0.542	3.906	0.397
Total milk and milk products	25.688	0.302	21.519	0.363	24.551	0.318



milk items, maximum inequalities were observed in respect of 'other milk products' (including curd, paneer, khoa, sweets and other milk preparations) between rural and urban areas of the district followed by 'ghee and butter' and liquid milk consumption in that order. This may again be attributed to the widespread use of home produced milk and milk products in rural areas. In the urban area the people have to depend mainly on the availability of the product in the market and substitution of this product does not take place with equally nutritive and less costly items of consumption.

The Gini coefficients for consumption of milk and milk products by season, occupation, type of consumer and socio-economic status of rural and urban households are presented in Table 3 and 4. Maximum inequality was observed in summer for all the three milk items, namely, liquid milk, 'ghee and butter' and 'other milk products' in the rural areas. Whereas in urban areas maximum inequality was observed in summer, rainy and winter season respectively for liquid milk, 'ghee and butter' and other milk products'.

The least inequality for liquid milk and 'ghee and butter' consumption was discernible for agriculture and service households respectively for rural areas. With respect to 'other milk products', the lowest and highest inequality was observed for agriculture and business households respectively. The Gini coefficients were lowest for agriculturist families for all the three milk items in urban areas. The maximum inequality in this case was exhibited by labour families for liquid milk and 'ghee and butter' and by service families for 'other milk products'.

The inequalities in the per capita consumption of liquid milk, 'ghee and butter' were highest for pure consumer households in urban areas, whereas for 'other milk products', the Gini coefficient was highest for consumer produce (commercial) families. The lowest inequality was, however, observed for consumer producer (non-commercial) households for all the three milk items in both the urban and rural areas. The magnitude of highest inequality for rural areas also exhibited similar results as that for urban areas.

The households with low economic status had to face hardships with respect to consumption of all three milk items because of high magnitude of inequality accompanied by low per capita consumption. However, the households enjoying high socio-economic status were better off with minimum inequality coefficient and a high per capita consumption of milk and milk products. These general observations were equally applicable to both the rural and urban households in Muzaffarnagar district.

TABLE 3

Gini-coefficient for consumption of milk and milk products by season, occupation, type of consumer households and socio-economic status—Rural Muzaffarnagar (UP)

Sl. No.	Particulars	Liquid milk		Ghee and butter		Other milk products		Total milk and milk products	
		Av. Monthly consumption	Gini coefficient	Av. Monthly consumption	Gini coefficient	Av. Monthly consumption	Gini coefficient	Av. Monthly consumption	Gini coefficient
<b>A. Season</b>									
1. Rainy		13.378	0.268	0.481	0.292	5.015	0.316	25.995	0.331
2. Winter		13.464	0.246	0.510	0.265	4.064	0.356	28.545	0.367
3. Summer		10.925	0.292	0.377	0.331	2.998	0.424	22.523	0.307
<b>B. Occupation</b>									
1. Labour		7.071	0.372	0.152	0.541	1.562	0.345	11.760	0.413
2. Service		14.952	0.264	0.817	0.136	3.628	0.280	31.390	0.238
3. Business		10.175	0.291	0.429	0.282	3.795	0.440	23.639	0.322
4. Agriculture		16.303	0.165	0.574	0.170	5.915	0.222	34.217	0.191
<b>C. Type of consumer</b>									
1. Pure consumer		5.233	0.454	0.327	0.584	1.166	0.328	11.340	0.453
2. Consumer Producer (commercial)		12.390	0.155	0.160	0.572	1.530	0.402	17.521	0.234
3. Consumer Producer (Non-Commercial)		16.546	0.144	0.568	0.156	5.918	0.206	34.539	0.171
<b>D. Socio-Economic Status</b>									
1. Low		7.370	0.440	0.167	0.607	1.556	0.319	12.277	0.456
2. Medium		12.881	0.207	0.568	0.240	3.748	1.178	26.553	0.255
3. High		17.105	0.139	0.605	0.161	6.612	0.202	37.169	0.146
<b>Overall</b>		12.589	0.265	0.456	0.295	4.026	0.347	25.688	0.302

TABLE 4

Gini-coefficient for consumption of milk and milk products by season, occupation, type of consumer households and socio-economic status-urban—Muzaffarnagar (U.P.)

Sl. No.	Particulars	Liquid milk		Ghee and butter		Other milk products		Total milk and milk products	
		Av. Monthly consumption	Gini coefficient	Av. Monthly consumption	Gini coefficient	Av. Monthly consumption	Gini coefficient	Av. Monthly consumption	Gini coefficient
<b>A. Season</b>									
1.	Rainy	11·290	0·255	0·315	0·431	4·950	0·399	22·123	0·350
2.	Winter	11·460	0·290	0·367	0·420	3·170	0·714	21·444	0·377
3.	Summer	10·364	0·314	0·305	0·351	2·638	0·574	20·989	0·370
<b>B. Occupation</b>									
1.	Labour	8·444	0·673	0·039	0·419	1·435	0·338	10·552	0·563
2.	Service	10·476	0·262	0·388	0·318	2·369	0·458	20·961	0·296
3.	Business	11·324	0·225	0·344	0·402	3·910	0·414	23·038	0·349
4.	Agriculture	17·896	0·122	0·525	0·214	13·242	0·118	37·684	0·161
<b>C. Type of consumer</b>									
1.	Pure consumer	9·054	0·300	0·268	0·453	1·902	0·377	16·959	0·396
2.	Consumer Producer (Commercial)	14·609	0·083	0·265	0·341	4·314	0·413	24·065	0·206
3.	Consumer Producer (Non-commercial)	16·125	0·144	0·544	0·130	8·643	0·338	34·813	0·162
<b>D. Socio-Economic Status</b>									
1.	Low	8·128	0·432	0·101	0·344	1·503	0·446	11·491	0·433
2.	Medium	9·233	0·218	0·279	0·300	2·141	0·423	16·951	0·266
3.	High	14·508	0·099	0·478	0·146	4·518	0·091	29·681	0·105
	<b>Overall</b>	<b>11·038</b>	<b>0·284</b>	<b>0·329</b>	<b>0·396</b>	<b>3·586</b>	<b>0·542</b>	<b>21·519</b>	<b>0·363</b>

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