ANALYSIS OF CONSUMPTION EXPENDITURE PATTERNS IN INDIA

By

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CHAPTER I

INTRODUCTION

Objective

This study examines the differences in (i) the marginal rate of consumption and (ii) the elasticity, both with respect to income between income groups and corresponding land holding groups. This objective is important for the following reason: The absolute and the proportionate change in the amount of aggregate demand for a commodity associated, respectively, with an absolute and a proportionate change in per capita income are significantly influenced by the percentage distribution of the increased income between different income groups. This reason gains an added significance due to current economic changes in rural India on account of the new foodgrains technology. It is in the context of these changes in India that Mellor and Lele have examined the effect of different distributions of income on absolute change in the consumption expenditure pattern (7).

Procedure

The above mentioned objective is analyzed by comparing:

(a) two data sources viz., National Sample Survey (NSS) and National Council of Applied Economic Research (NCAER), used in estimating consumption functions for food grains, and milk and milk products.

(b) the differences in rural and urban consumption functions for food grains, milk and milk products, and clothing estimated by using NSS data, and

(c) 18 consumption functions for 18 commodity categories estimated by using NCAER data.

Comparison (a) is undertaken with a view to examining the similarities in the two data sources that have different sampling designs (see Appendix 1). If the consumption functions for food grains and milk and milk products estimated by using NSS and NCAER are similar, then the result would imply that the consumption functions for other commodities may also be similar for the two data sources. The comparison is restricted to two commodities because the definitions of other commodity categories in the two data sources are different (see Appendices 2 and 3).

Comparison (b) is attempted because we expect differences in rural and urban consumption functions at the same income level because of differences in such factors as tastes and preferences, availability of various goods and so on in the two areas. This comparison is restricted to NSS data because NCAER did not provide the division of households into rural and urban.

Comparison (c) is attempted because of the importance of analyzing the allocation of an entire budget of a household on various commodities. This comparison is restricted to NCAER data because NSS did not give a detailed commodity classification (see Appendix 3).

Sequence of Presentation

Chapter II deals with the sampling design and concepts adopted in the two data sources used for this study.

Chapter III deals with the methodology developed.

In Chapter IV the estimated models of consumption functions are analyzed. This chapter is divided into three sections, each dealing with the three comparisons mentioned earlier.

In Chapter V the main conclusions of the study are recapitulated.

CHAPTER II

DATA, SAMPLING DESIGN AND CONCEPTS

Sources of Data

Ideally we require data on consumption of various items, household size, incomes, etc. of the landless and landholding households for a period after 1966-67. This is because the new food grains technology has occurred in that period. The NSS provides such data for rural[1/] and urban households. However, these data were available for 1963-64 (4). In addition, we have used the NCAER data for its Consumer Expenditure Survey of 1964-65 (8). Further, both these sources gave only the grouped data. This implies that only one common consumption function could be estimated for landless and various landholding households. The number of observations was 26 (13 each for rural and urban households) in NSS data and 24 in NCAER data.

Sampling Design

NSS data were collected covering a period, February 1963 to January 1964. This survey is a repetitive multipurpose, fact-finding survey, carried out twice every year. NCAER data were collected in the All-India Consumer Expenditure Survey covering a period, May 1964 to April 1965.

Both the surveys used a multistage sample design with stratification suitable to their purposes. Although NCAER used the same frame of census blocks as NSS for the purpose of selecting samples, NCAER stratified its sample districts into developmental and nondevelopmental areas. For classifying places with 10,000 or more population into these two areas, factory employment and rate of growth of population were used. Against this, for classifying areas under 10,000 population data on such aspects as land use, sources of irrigation, use of improved seeds, fertilizers, tractors, electricity for agricultural and industrial purposes, existence of small and medium industries, existence of market facilities, of cooperative societies, of educational, social, medical and recreational institutions, and facilities for transportation were collected.[2/] Based on these data, "appropriate

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1/ NSS defines rural area as the area with less than 10,000 population, and the urban area as the one with 10,000 or more population.

2/ Although NCAER provided the data for households belonging to developed and nondeveloped areas separately, these households could not be approximated as urban and rural, respectively. This is because their definition of developed and nondeveloped areas include households from areas with population under 10,000 (i.e. rural area) as well as that with 10,000 or more (i.e. urban area) population.

weightage was allocated to each of these factors and the villages were classified as developmental on their qualifying for a minimum number of points; others were deemed nondevelopmental" (8, pp. 11).

At the household level, NSS classified the urban households into five classes and rural households into six classes on the basis of their major source of income and household size. NCAER, however, classified households into high and low income groups. An examination of bar charts of the distribution of selected households of the two studies (Appendix 1) into various expenditure groups reveals that NCAER sample seems to have lower weightage to low expenditure households, whereas NSS seems to have lower weightage to high expenditure households.

NCAER survey was carried out in three rounds, each round with a different set of sample households, although each set was selected from the two broad income groups viz., high and low. The first round was conducted during May-August 1964, the second round during September-December 1964, and the third in January-April 1965. The reference period varied from a day to a year for different households depending on whichever seemed most appropriate. However, the study reported the data for a period of a month. Against this, NSS was carried out in one round only. The reference period was thirty days preceding the date of inquiry for every selected household. NCAER sample covered 3395 households, whereas NSS covered 26,072 households.

Concepts

The definitions of a household and monthly household consumer expenditure were the same in the two surveys. However, the definitions of household size and per capita monthly consumer expenditure in these surveys were different. NSS defined household size as family members plus any person who takes principal meals with the household at least 16 days during a period of 30 days preceding the date of the survey. NCAER defined household size as family members plus boarders, employees, occasional visitors or relatives staying with the household sometime during the one month reference period preceding the date of inquiry. NSS defined per capita monthly consumer expenditure as total monthly household consumer expenditure divided by the household size. NCAER defined per capita monthly expenditure as total monthly household consumer expenditure divided by the family size (i.e. number of family members in the household).

The details of commodity classification used in the two sources of data are given in Appendices 2 and 3. Except for food grains and milk and milk products, no other commodity classification of NSS and NCAER is closely comparable. The preceding discussion on sampling and concepts used by the two surveys sufficiently suggests the difficulties of comparing the estimates of the consumption functions based on these two data sources.

CHAPTER III

METHODOLOGY

To analyze whether or not the marginal propensity to consume and elasticity with respect to income for a commodity vary from one income (and the corresponding land holding) group to the other, a methodology was evolved for:

(a) estimating consumption functions, and

(b) identifying income classes by land holding groups.

Consumption Functions

Two important methodological issues of estimating cross-sectional consumption functions are selection of (i) a functional form and (ii) relevant variables.

Functional Form

The question of selecting a proper functional form arises because the marginal propensity to consume and elasticity with respect to income implied by different forms vary significantly. Goreux has shown that the expenditure elasticities are very similar at the middle levels of income for double-log, semi-log, log-inverse, inverse and sigmoid functions. But at the extremes of low and high incomes they show very large discrepencies (1).

Therefore the different functional forms that may be considered are linear, hyperbolic, quadratic, semi-log, log-log inverse, double log, and log-inverse (1, 6, 9, 10). From the viewpoint of economic theory of consumer behavior a curvilinear function would be desirable. This is because the linear function forces the marginal propensity to be constant. Further, income elasticity, according to this function for all goods tends to unify as income increases. This may be considered unreasonable (9). We have selected to first estimate the log-log inverse (LLI) function,

$$\ln Y = \ln\alpha + \beta 1/x + \gamma \ln x$$

or

$$Y = \alpha e^{\beta/x} x^{\gamma}$$

for the following reasons:

First, this function satisfies the assumptions of (i) varying marginal propensity to consume and (ii) some initial levels of income

for expenditure on certain commodities. Second, since theoretically this function can turn down it can incorporate the behavior of consumption of an inferior good. However, inasmuch as such behavior is not expected for the observed ranges of data, the function in practice would attain an asymptotic levels of consumption expenditure. Third, the LLI function can also provide for increasing as well as decreasing income elasticity depending on the different commodities for which it is fitted. This property of the function can be exploited if the sign of β is not restricted. Fourth, the LLI function provides a direct test on varying elasticity. This is because if β is zero, then the function results into a double-log function which has a property of constant elasticity. Fifth, the LLI function includes in it two other functions viz., double-log (DL), if β is zero, and log-inverse (LI) if γ is zero. And thereby facilitates a test of three functions at a time. In an empirical estimate of the function, however, neither β nor γ would be zero. We shall therefore select one of the three functions viz., LI, LLI, and DL, by examining the partial r^2, coefficient of partial determination, of the variables associated with β and γ. If the partial r^2 of the variable under question is less than one percent, we shall reestimate the function after dropping that variable.

Variables

Due to nonavailability of detailed data, we selected per capita monthly consumption expenditure on a particular commodity (E) and per capita monthly total consumer expenditure[3] (X), respectively, as dependent and independent variables. Although the selection of these variables was guided by the availability of data, we shall briefly discuss the limitations and merits of using the selected variables.

Total (per capita monthly) consumption expenditure is not exactly equivalent to (per capita monthly) current income[4] because the latter includes current saving besides consumption expenditure. It is because of this difference between current income and total consumption expenditure that the elasticities estimated by using expenditure as an independent variable may have an upward bias. However, inasmuch as total consumption expenditure could be financed from current income, past saving, and borrowings it may be a better explanatory variable than the current income.[5] In this context, total consumption expenditure can be considered as a proxy for permanent income--the concept modern consumption theory emphasizes (3), although permanent income measured in terms of one year's consumption expenditure is

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3/ This implies that our regression model would estimate the marginal propensity and elasticity with respect to expenditure and not income.

4/ Income data was not available in NSS alone.

5/ This advantage is particularly valuable when one does not have, as is the case with us, separate data on other variables. This is because omission of relevant variables also causes a bias in the estimated parameters (2).

rather unsatisfactory. This is particularly true for a cross-sectional analysis that involves an inherent aggregation of heterogeneity in such variables as age, composition of households, indifference maps, etc.

The dependent variable in the model is consumption expenditure (E) rather than consumption which is advocated by the modern consumption theory. The theory emphasizes the concept of "consumption" because it is consumption and not purchases that provides utility. Thus, maximization of utility rather than purchases would be the goal of an individual. However, the distinction between consumption (use) and consumption expenditure (purchase) seems more meaningful for durable goods. Hence, until the use of such goods increases in India the concept of "consumption" may be of limited use. Also obtaining data on "consumption" is found difficult even in the U.S.A.!

Furthermore, in addition to the distinction between purchase and use, there is also a distinction between physical quantities and monetary expenditure. The quantity elasticity is generally lower than the expenditure elasticity. The difference between these two corresponds to the quality elasticity which measures the elasticity of price paid per unit in relation to income (1).

Finally, the expenditure data has in it an implicit simultaneity in the variables. This is because total expenditure by definition depends on the size of expenditure on individual items (the dependent variable in the model). This simultaneity would cause a dependence between the random disturbance terms and an explanatory variable. Such dependence, in turn, may cause a bias in the estimate of the regression coefficient. However, Goreux says, "When computation is based on grouped data, this bias may to a large extent be eliminated, without introducing an instrumental variable, by classifying the households into income brackets and using the average of the total expenditure for each group as the explanatory variable," (1, pp. 4-5). Due to nonavailability of required income data we could not use this device. Nevertheless, this bias is likely to be small for individual food items and may be disregarded for all items except modern durables like cars, refrigerators, etc. (1). However, the expenditure on such durables forms a negligible share in the budget of an average household in India.

Expenditure vis-a-vis Land Holding Classes

As mentioned earlier, the objective of this paper is to examine the marginal propensity to consume and elasticity with respect to income (more appropriately, expenditure) of various landholding groups for different commodities. Since the available data on consumption expenses did not provide the land holdings corresponding to different total consumer expenditure, we evolved the following procedure.

Using the National Sample Survey of land holding for 1961-62, (5), the cumulative percentage of rural population in various land

holding classes was worked out. Similarly, from the NSS, 1963-64, data on consumption expenditure for rural households, the cumulative percentage distribution of rural population in various (per capita monthly) expenditure classes was worked out. The two cumulative distributions were then matched by inspection to find out the approximate correspondence between the level of expenditure and land holding. The use of cumulative distribution provided a basis to determine the level of expenditure and land holding in various deciles of the population. The average per capita expenditure in each expenditure class (and also in the corresponding holding sizes) was weighted by the number of people in each class. The expenditure classes are thus defined in terms of deciles of the population. Table 1 gives the per capita expenditure in various deciles and the corresponding holding size groups. In computing the marginal propensity to expend and the expenditure elasticity from the estimated consumption functions, we have used the per capita monthly total consumer expenditure of these classes.

Table 1. Per capita monthly total consumer expenditure, by holding size groups and by expenditure classes, Rural India, 1963-64 and 1961-62

Expenditure classes	Holding size groups	Per capita monthly total consumer expenditure
DECILES	ACRES	RUPEES
Bottom 2	less than 0.49	8.93
3rd	0.50-0.99	13.14
4 & 5th	1.00-4.99	17.80
6, 7 & 8th	5.00-9.99	24.13
9th	10.00-14.99	30.71
Lower 1/2 of 10th	15.00-29.99	41.89
Upper 1/2 of 10th	30.00+	85.84
All deciles		24.43

Source: Compiled from National Sample Surveys, 1961-62 and 1963-64, Nos. 162 and 142, The Cabinet Secretariate, Government of India, 1969 and 1968, respectively

CHAPTER IV

ANALYSIS OF THE ESTIMATED MODEL

Introduction

Using the ordinary least squares method the log-log inverse model was first estimated for both the data sources. The model is:

$$\ln E_{ij} = \ln \alpha + \beta \frac{1}{X_j} + \gamma \ln X_j + \epsilon_j$$

where E_{ij} = per capita monthly consumer expenditure on i^{th} commodity in j^{th} per capita monthly total consumer expenditure class.

X_j = per capita monthly total consumption expenditure in j^{th} class.

ϵ_j = error term in j^{th} class.

Each of the variables in the model was weighted by the square root of the number of households in each class to correct for heteroscedasticity that would be caused by the use of grouped data.

NSS and NCAER consumption functions for food grains and milk and milk products are analyzed in section 1. Section 2 is devoted to a comparison of rural and urban NSS consumption functions for food grains, milk and milk products and clothing. Section 3 deals with NCAER consumption functions for 18 commodity categories. In this section we shall also discuss the estimated pattern of additional demand that may be generated by various expenditure (and corresponding land holding) classes.

Section 1. NSS and NCAER Consumption Functions

Estimated Equations

The estimated equations (including alternative functional form equations) for the two commodities under study are:

	$\hat{\alpha}$	$\hat{\beta}$	$\hat{\gamma}$	$\bar{R}^2$	SSE
1. Food grains					
NSS--LLI	2.746*	-9.203*	.004	.984	443.082
	(.515)	(2.587)	(.125)		
LI	2.764*	-9.285*		.985	443.105
	(.056)	(.953)			
NCAER--LLI	2.579*	-9.150**	.018	.960	33.207
	(.604)	(4.242)	(.131)		
LI	2.663*	-9.720*		.962	33.240
	(.050)	(1.175)			
2. Milk & Milk Products					
NSS--LLI	-1.455*	-17.414*	.869*	.984	340.391
	(.452)	(2.267)	(.109)		
NCAER--LLI	-.214	-24.518*	.595**	.945	125.045
	(1.172)	(8.232)	(.254)		

Figures in paranthèses are standard errors
*Significant at 1 percent
**Significant at 5 percent

$\bar{R}^2$ of these equations were high, presumably because of use of grouped data. The plot of residuals for all the equations exhibited fair degree of randomness. Also, the signs of $\hat{\beta}$ and $\hat{\gamma}$ were as per expectations. Most of the regression coefficients which were tested using the "t" statistic were found significant either at 1 or 5 percent level. However, $\hat{\gamma}$ in food grains equation was insignificant for both the data sources. This is also true of the $\hat{\gamma}$ in equation for milk and milk products estimated by using NSS data. More important, the r^2, the coefficient of partial determination, of the variable associated with γ in food grains equation was negligible (.00005 for NSS and .0009 for NCAER data) compared to that in milk and milk products equation (.733 for NSS and .207 for NCAER). This suggests that log-inverse (LI) instead of log-log-inverse (LLI) would be a better fit for food grains. Thus, we estimated the LI function for this commodity for both the data sources.

The size of $\hat{\beta}$, the coefficient associated with the inverse of X, in each equation being fairly large and significant shows that the expenditure elasticity for both the commodities in the two data sources would vary with the per capita total expenditure level. We shall examine this below for the earlier mentioned seven expenditure classes.

Estimated Expenditure Elasticity
and Marginal Propensity to Expend

Using the above equations[6] and the per capita monthly total consumer expenditure (as given in Table 1)[7] for the seven expenditure classes we estimated the expenditure elasticity (η), marginal propensity to expend (MPE), average propensity to expend (APE, i.e. budget share) and expenditure levels (E) for food grains and milk and milk products. The results on η and MPE are given in Table 2, whereas those on APE and E are given in the Appendix 4.

Expenditure elasticity for both the commodities declines continuously as per capita total consumer expenditure (and hence the corresponding land holding size) increased, irrespective of whether it was estimated from NSS or NCAER data. This is because in a broad sense both these commodities are "necessities." Further, the MPE on food grains also behaved similarly. But the MPE on milk and milk products first increased and then remained almost constant as the per capita total consumer expenditure increased. The MPE on milk and milk products remained almost constant for the upper five deciles of the population which constituted mainly the medium and large farmers. This is true for both the sources of data.

As regards the size of expenditure elasticity and MPE for the two commodities from the two data sources, their means for all classes together were roughly the same. This was true for MPE on milk and milk products in all the expenditure classes. But the MPE on food grains was higher for NSS than for NCAER data in bottom five deciles. However, the expenditure elasticity of both the commodities was higher for NCAER than for NSS data in bottom five deciles. The similarities in the results from the two data sources for the two commodities under study imply that such similarities may also exist for other commodities.

6/ In the case of food grains, LI instead of LLI equation is used for both the data sources.

7/ These expenditure levels lie within the range of the values of the independent variable used in estimating the consumption functions from both data sources.

Table 2. Marginal propensity to expend (MPE) and expenditure elasticity (η) of food grains, and milk and milk products, by expenditure classes, All-India, 1963-64 and 1964-65

Expenditure classes & corresponding land holding groups (Acres)	Per capita mo. total consumer expenditure	NSS				NCAER			
		Food grains		Milk & milk products		Food grains		Milk & milk products	
		MPE	η	MPE	η	MPE	η	MPE	η
	Rupees								
Bottom 2 deciles-- less than 0.49	8.93	0.65	1.04	0.07	2.82	0.59	1.09	0.07	3.34
3rd decile-- 0.50-0.99	13.14	0.42	0.71	0.10	2.19	0.38	0.74	0.11	2.46
4 & 5th deciles-- 1.00-4.99	17.80	0.28	0.52	0.11	1.85	0.25	0.55	0.12	1.97
6, 7 & 8th deciles-- 5.00-9.99	24.13	0.17	0.38	0.12	1.59	0.16	0.40	0.13	1.61
9th decile-- 10.00-14.99	30.71	0.11	0.30	0.12	1.44	0.11	0.32	0.13	1.39
Lower $\frac{1}{2}$ of 10th decile-- 15.00-29.99	41.89	0.07	0.22	0.12	1.28	0.06	0.23	0.12	1.18
Upper $\frac{1}{2}$ of 10th decile-- 30.00+	85.84	0.02	0.11	0.11	1.07	0.02	0.11	0.09	0.88
Mean for all classes	24.43	0.17	0.38	0.12	1.58	0.15	0.39	0.13	1.60

Source: Estimated from the functions fitted to data from National Sample Survey, 1963-64, No. 142, The Cabinet Secretariate, Government of India, 1968 and also from the National Council of Applied Economic Research, "All-India Consumer Expenditure Survey", 1964-65, Vol. II, New Delhi, 1967.

Section 2. Rural and Urban, NSS Consumption Functions

The use of all-India consumption functions for estimating the expenditure elasticity and marginal propensity to consume for the rural expenditure (and the corresponding land holding) classes implies that a difference does not exist between the rural and urban consumption functions. In order to examine this hypothesis, we estimated the consumption functions separately for rural and urban households for food grains, milk and milk products and clothing by using the NSS data.

Estimated Equations

The estimated equations are:

	$\hat{\alpha}$	$\hat{\beta}$	$\hat{\gamma}$	$\bar{R}^2$	SSE
1. Food grains					
Rural	1.844* (.076)	-6.006* (.359)	.261* (.019)	.999	2.751
Urban	2.646* (.126)	-8.610* (.789)	-.048 (.028)	.999	2.186
Rural and Urban Combined	2.746* (.515)	-9.203* (2.587)	.004 (.125)	.984	443.082
2. Milk and milk products					
Rural	1.564** (.565)	-17.115* (2.677)	.891* (.140)	.990	153.366
Urban	1.414* (.355)	-12.885* (2.223)	.850* (.079)	.996	17.332
Rural and Urban Combined	-1.455* (.452)	-17.414* (2.267)	.869* (.109)	.984	340.391
3. Clothing					
Rural	3.915* (.755)	-8.644** (3.579)	1.516* (.187)	.986	274.156
Urban	1.152* (.346)	-32.253* (2.163)	.800* (.077)	.997	16.408
Rural and Urban Combined	-2.874* (1.016)	-13.043** (5.098)	1.222* (.246)	.939	1721.483

Figures in parentheses are standard errors
*Significant at 1 percent
**Significant at 5 percent

$\bar{R}^2$ of all the equations were high. Both $\hat{\beta}$ and $\hat{\gamma}$ in all the equations except $\hat{\gamma}$ in food grains equation for urban households turned out significant. In this exceptional case even the sign of γ was not as per expectations, although r^2 of the variable associated with $\hat{\gamma}$ was as high as .222. Further, $\hat{\beta}$ being negative in all the equations the expenditure elasticity of the three commodities would decline (as per capita total consumer expenditure increases) in both the areas. The differences in the estimated consumption functions of rural and urban areas was tested by the F test. The test suggests that these two functions are different for the three commodities, at 5 percent level of significance. Thus, the hypothesis of no difference between the rural and urban consumption functions is rejected.

Estimated Expenditure Elasticity (η)
and Marginal Propensity to Expend (MPE)

The above equations were used to estimate η, MPE, APE and E on three commodities in rural and urban areas at the same level of per capita total consumer expenditure (as given in Table 1). Table 3 gives the results on η and MPE, whereas Appendix 5 gives the results on APE and E.

The expenditure elasticities for both food grains and milk and milk products are higher in all expenditure classes in rural than in urban areas. Indeed, the expenditure elasticity of food grains in rural areas declines less rapidly than in urban areas as per capita total consumer expenses rise. But the converse is true of the behavior of expenditure elasticity of milk and milk products. Expenditure elasticity of clothing is, however, higher in all expenditure classes except the top decile in urban than in rural areas. Over the expenditure classes this elasticity declines more rapidly in urban than in rural areas.

The MPE on food grains and clothing is higher in all expenditure classes in rural than in urban areas. But, the MPE on milk and milk products is higher in the bottom three deciles in urban than in rural areas. In the remaining expenditure classes the MPE remained the same in both areas. The above discussion also shows that the expenditure elasticity and MPE for an individual commodity would vary from one expenditure group to the other in both rural and urban areas. However, the MPE on milk and milk products varied only in the bottom three deciles; in the other deciles it remained almost constant.

The preceding discussion warrants examination of the consumption functions for all the commodities that comprise a budget of a household separately for rural and urban areas. However, due to non-availability of the required data, the NCAER (All-India) data are used in the following section to estimate consumption functions for 18 commodity categories.

Table 3. Marginal propensity to expend (MPE) and expenditure elasticity (η) of food grains, milk and milk products, and clothing, by expenditure classes, Rural and Urban India, 1963-64

Expenditure classes & corresponding land holding groups (acres)	Rural						Urban					
	Food grains		Milk & milk products		Clothing		Food grains		Milk & milk products		Clothing	
	η	MPE	η	MPE	η	MPE	η	MPE	η	MPE	η	MPE
Bottom 2 deciles--less than 0.49	0.93	0.60	2.81	0.07	2.48	0.06	0.92	0.50	2.29	0.09	4.41	0.02
3rd decile--0.50-0.99	0.72	0.43	2.19	0.09	2.17	0.08	0.61	0.30	1.83	0.11	3.25	0.05
4 & 5th deciles--1.00-4.99	0.60	0.32	1.85	0.11	2.00	0.11	0.44	0.18	1.57	0.12	2.61	0.08
6, 7 & 8th deciles--5.00-9.99	0.51	0.24	1.60	0.12	1.87	0.13	0.31	0.11	1.38	0.12	2.14	0.09
9th decile--10.00-14.99	0.46	0.19	1.45	0.12	1.80	0.16	0.23	0.07	1.27	0.12	1.85	0.10
Lower $\frac{1}{2}$ of 10th decile--15.00-29.99	0.40	0.14	1.30	0.12	1.72	0.19	0.16	0.04	1.16	0.12	1.57	0.11
Upper $\frac{1}{2}$ of 10th decile--30.00+	0.33	0.07	1.09	0.11	1.62	0.29	0.05	0.01	1.00	0.11	1.18	0.10
Mean for all classes	0.52	0.24	1.59	0.12	1.87	0.14	0.30	0.11	1.38	0.12	2.12	0.09

Source: Estimated from the log-log-inverse function fitted to data from NSS, 1963-64, No. 142, The Cabinet Secretariate, Government of India, 1968.

Section 3. NCAER Consumption Functions

This section being concerned with examining the allocation of an entire budget of a household on various commodities, the individual commodity consumption functions should be estimated subject to the budget constraint. This approach would ensure that the sum of estimated expenditure on individual commodities would not exceed the total budget of a household. Formally, this additivity condition can be satisfied by the log-log inverse model if the following restrictions are used in the estimation procedure:

$$(1) \quad \sum_{i=1}^{19} \beta_i = 0$$

$$(2) \quad \sum_{i=1}^{19} \gamma_i = 1$$

where i stands for 1, . . ., 19 commodities.

We have not used the above approach, because the commodity category of "Miscellaneous" (see Appendix 2) included such heterogenous articles as biscuits and confectionery, medicines, toiletry, and sundry goods--the details of which were not specified in the original study. Thus, equations for 18 expenditure categories were individually estimated without using the above two restrictions. And the expenditure on the 19th commodity category viz, miscellaneous, was estimated as a residual.

Estimated Equations

Table 4 gives the estimated equations (including the alternative functional form) for 18 expenditure categories. The plot of residuals for different equations except for other textiles, footwear and house rent revealed a fair degree of randomness. $\bar{R}^2$ for equations estimated for various expenditure categories ranged between .717 and .979. Such high $\bar{R}^2$'s were presumably due to use of grouped data. However, use of grouped data implies a loss of degrees of freedom which, in turn, reduces the (statistical) efficiency of the significance test for regression coefficients. Considering this implication, the number of "β" and "γ" (in LLI function) that were significant at the specified probability level was reasonable. Thus, out of 18 each $\hat{\beta}$ and $\hat{\gamma}$, 8 and 13, respectively, were significant either at 1 or 5 or 10 percent level. Furthermore, r^2 of the variable associated with $\hat{\gamma}$ was less than one percent in only four out of 18 (LLI) equations. These four equations are for tobacco, conveyance, consumer services and education. This finding suggests that a double-log (DL) instead of LLI function would be a better fit for these four expenditure categories. Hence a DL function was fitted to these four categories of expenditure.

The sign of $\hat{\beta}$ is consistent with a prior expectation for various expenditure categories. Thus, $\hat{\beta}$ is positive in seven out of 18 (LLI)

Table 4. The estimated equations for various expenditure categories, NCAER, 1964-65

Expenditure Categories	Functional Form	Regression Coefficients $\hat{\alpha}$	$\hat{\beta}$	$\hat{\gamma}$	$\bar{R}^2$	SSE
1. Foodgrains	LLI	2.579* (.604)	-9.150** (4.242)	.018 (.131)	.960	33.207
	LI	2.663* (.050)	-9.720* (1.175)		.962	33.240
2. Milk & Milk Products	LLI	-0.214 (1.172)	-24.518* (8.232)	.595** (.254)	.945	125.045
3. Meat, Eggs & Fish	LLI	-2.379 (1.582)	-14.246 (11.112)	.749** (.343)	.850	227.886
4. Other Foods	LLI	-4.642* (.784)	13.122** (5.507)	1.529* (.170)	.971	55.970
5. Tobacco	LLI	-3.295* (1.019)	.166 (7.164)	.741* (.221)	.802	94.702
	DL	-3.272* (.212)		.736* (.061)	.811	94.704
6. Vanaspati	LLI	-.412 (3.160)	-45.939** (22.203)	.263 (.685)	.754	909.775
7. Other Oils	LLI	.381 (.652)	-22.971* (4.579)	.112 (.141)	.945	38.694
8. Sweetners	LLI	-.164 (1.037)	-20.307* (7.285)	.264 (.225)	.891	97.936
9. Cotton Textiles	LLI	-.744 (.463)	-10.308* (3.251)	.524* (.100)	.979	19.510
10. Woolen Textiles	LLI	-6.752* (2.337)	-21.635 (16.422)	1.521* (.507)	.890	497.655
11. Other Textiles	LLI	-15.646* (3.385)	30.405 (23.778)	3.341* (.734)	.810	1043.426
12. Footwear	LLI	-3.351*** (1.794)	-16.127 (12.602)	.675*** (.389)	.810	293.063
13. Consumer Durables & Semi-durables	LLI	-7.761* (1.641)	8.050 (11.530)	1.923* (.356)	.912	245.330

Table 4.--Continued

Expenditure Categories	Functional Form	Regression Coefficients $\hat{\alpha}$	$\hat{\beta}$	$\hat{\gamma}$	$\bar{R}^2$	SSE
14. Conveyance	LLI	-8.320*	3.956	2.180*	.933	416.770
		(2.139)	(15.028)	(.464)		
	DL	-7.770*		2.063*	.910	418.145
		(.445)		(.129)		
15. Consumer Services	LLI	-6.052*	3.905	1.613*	.923	178.207
		(1.399)	(9.827)	(.303)		
	DL	-5.509*		1.497*	.926	179.547
		(.291)		(.084)		
16. Education	LLI	-8.043*	.409	2.135*	.941	268.895
		(1.718)	(12.071)	(.373)		
	DL	-7.986*		2.123*	.944	268.909
		(.357)		(.103)		
17. Fuel & Light	LLI	-1.046**	-6.552**	.553*	.976	18.586
		(.451)	(3.173)	(.098)		
18. House Rent	LLI	-5.213	-39.198	1.547	.717	2804.972
		(5.549)	(38.987)	(1.203)		

Figures in parentheses are standard errors.
*Significant at 1 percent
**Significant at 5 percent
***Significant at 10 percent

equations. These seven equations are for other foods, (which include fruits, nuts, vegetables, etc.) tobacco, other textiles, durables, conveyance, consumer services, and education. Each of these expenditure categories can be broadly termed as "luxury" items. The expenditure elasticity of these seven categories would, therefore, increase as per capita total consumer expenditure increases. The exceptions to this would be tobacco and education, the expenditure elasticity for which would remain constant even for LLI function. This is because the size of $\hat{\beta}$ in the (LLI) equations for these two items is less than one.

Finally, the r^2 of the variable associated with $\hat{\gamma}$ was less than one percent in only one (i.e. food grains) out of 18 (LLI) equations. In this one case, therefore, log-inverse (LI) function was fitted.

Estimated Expenditure Elasticity and Marginal Propensity to Expend

Using the above equations[8] and the per capita total consumer expenditure of the seven expenditure (and corresponding land holding) classes (as given in Table 1), expenditure elasticity (η) and MPE of the 18 expenditure categories were computed. Tables 5 and 6 give the results. Appendices 6 and 7 give the estimated average propensity to expend (APE) and per capita expenditure (E) on the 18 items.

Table 5 shows that the expenditure elasticity of all the 18 expenditure categories except that of tobacco, education, conveyance and consumer services varied from one expenditure group to the other. Further, the expenditure elasticity of other foods, other textiles and durables increased as per capita total consumer expenditure increased.

Table 6 on MPE of 18 expenditure categories shows that the MPE also varied from one class to the other for all categories except tobacco, footwear, woolen textiles, and other textiles. Although, however, the MPE for other categories varied, the variation was not continuous in all categories. Thus, the MPE on milk and milk products, meat, eggs and fish, vanaspati, and to an extent durables, conveyance, and consumer services remained constant in some (though not in all), particularly in fourth through ninth expenditure deciles.

Estimated Pattern of Additional Demand

In the context of increasing incomes in rural areas, examination of marginal propensity to expend on various commodities is relevant to judge the pattern of additional demand. We have below obtained the sum of the marginal propensity to expend on each item that comprise the three broad groups of expenditure categories for the seven expenditure and corresponding land holding classes:

Expenditure classes	Corresponding land holding groups	Marginal propensity to expend on			
		Food grains	Non-food grain agri-cultural[a]	Non-agri-cultural[b]	Miscellaneous[c]
Deciles	Acres	Rupees			
Bottom 2	less than 0.49	0.59	0.20	0.21	-
3rd	0.50-0.99	0.38	0.31	0.22	0.09
4th & 5th	1.00-4.99	0.25	0.34	0.22	0.19
6th, 7th & 8th	5.00-9.99	0.16	0.36	0.26	0.22
9th	10.00-14.99	0.11	0.35	0.27	0.27
Lower $\frac{1}{2}$ of 10th	15.00-29.99	0.06	0.34	0.32	0.28
Upper $\frac{1}{2}$ of 10th	30.00+	0.02	0.31	0.51	0.16

a/ Items 2 through 8, in Table 6.
b/ Items 9 through 18 in Table 6.
c/ Estimated as a residual.

8/ We have used LI equation for food grains, DL equation for tobacco, education, conveyance and consumer services, and LLI equation for the remaining expenditure categories in computing η, MPE, APE and E.

Table 5. Expenditure elasticities of various expenditure categories, by expenditure classes, NCAER, 1964-65.

	Bottom 2 deciles (less than 0.49 acres)	3rd decile (0.50-0.99 acres)	4th & 5th deciles (1.00-4.99 acres)	6th, 7th & 8th deciles (5.00-9.99 acres)	9th decile (10.00-14.99 acres)	Lower ½ of 10th decile (15.00-29.99 acres)	Upper ½ of 10th decile (30.00+ acres)	Mean for all classes
Per capita monthly consumer expenditure (Rs.)	8.93	13.14	17.80	24.13	30.71	41.89	85.84	24.43
Expenditure elasticities of								
1. Food grains	1.04	0.71	0.53	0.40	0.31	0.24	0.12	0.39
2. Milk & milk products	3.34	2.46	1.97	1.61	1.39	1.18	0.88	1.60
3. Meat, eggs & fish	2.34	1.83	1.55	1.34	1.21	1.09	0.91	1.33
4. Other foods	0.06	0.53	0.79	0.98	1.10	1.22	1.38	0.99
5. Tobacco	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
6. Vanaspati	5.41	3.76	2.84	2.17	1.76	1.36	0.80	2.14
7. Other oils	2.68	1.86	1.40	1.06	0.86	0.66	0.38	1.05
8. Sweetners	2.54	1.81	1.40	1.11	0.92	0.75	0.50	1.10
9. Cotton textiles	1.68	1.31	1.10	0.95	0.86	0.77	0.64	0.95
10. Woolen textiles	3.94	3.17	2.74	2.42	2.22	2.04	1.77	2.41
11. Other textiles	@	1.03	1.63	2.08	2.35	2.61	2.99	2.10
12. Footwear	2.48	1.90	1.58	1.34	1.20	1.06	0.86	1.34
13. Durables & semi-durables	1.02	1.31	1.47	1.59	1.66	1.73	1.83	1.59
14. Conveyance	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06
15. Consumer services	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
16. Education	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12
17. Fuel & light	1.29	1.05	0.92	0.82	0.77	0.71	0.63	0.82
18. House rent	5.94	4.53	3.75	3.17	2.82	2.48	2.00	3.15

@Negligible

Source: Estimated from the functions fitted to data from NCAER, "All-India Consumer Expenditure Survey," 1964-65, Vol. II, New Delhi, 1967.

Table 6. Marginal propensity to expend (MPE) on various expenditure categories, by expenditure classes, NCAER, 1964-65.

	Bottom 2 deciles (less than 0.49 acres)	3rd decile (0.50-0.99 acres)	4th & 5th deciles (1.00-4.99 acres)	6th, 7th & 8th deciles (5.00-9.99 acres)	9th decile (10.00-14.99 acres)	Lower ½ of 10th decile (15.00-29.99 acres)	Upper ½ of 10th decile (30.00+ acres)	Mean for all classes
Per capita monthly consumer expenditure (Rs.)	8.93	13.14	17.80	24.13	30.71	41.89	85.84	24.43
MPE on								
1. Food grains	0.59	0.38	0.25	0.16	0.11	0.06	0.02	0.15
2. Milk & milk products	0.07	0.11	0.12	0.13	0.13	0.12	0.09	0.13
3. Meat, eggs & fish	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.03
4. Other foods	0.01	0.05	0.07	0.09	0.10	0.12	0.16	0.09
5. Tobacco	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
6. Vanaspati	@	0.01	0.02	0.02	0.02	0.02	0.01	0.02
7. Other oils	0.05	0.05	0.04	0.04	0.03	0.02	0.01	0.04
8. Sweetners	0.04	0.05	0.05	0.04	0.03	0.02	0.01	0.04
9. Cotton textiles	0.09	0.08	0.07	0.06	0.06	0.05	0.03	0.06
10. Woolen textiles	@	@	@	0.01	0.01	0.01	0.02	0.01
11. Other textiles	@	@	@	0.01	@	@	0.02	@
12. Footwear	@	0.01	0.01	0.01	0.01	0.01	0.01	0.01
13. Durables & semi-durables	0.01	0.01	0.01	0.02	0.02	0.03	0.05	0.02
14. Conveyance	0.01	0.01	0.02	0.02	0.03	0.05	0.10	0.03
15. Consumer services	0.02	0.02	0.02	0.03	0.03	0.04	0.06	0.03
16. Education	0.01	0.01	0.02	0.03	0.03	0.05	0.11	0.03
17. Fuel & light	0.07	0.07	0.06	0.05	0.05	0.04	0.03	0.05
18. House rent	-	0.01	0.01	0.02	0.03	0.04	0.08	0.02
19. Miscellaneous[a] (approx.)	-	0.09	0.19	0.22	0.27	0.28	0.16	0.23

@Negligible

a/ Estimated as a residual

Source: Estimated from the functions fitted to data from NCAER, "All-India Consumer Expenditure Survey," 1964-65, Vol. II, New Delhi, 1967.

It can be seen from the above that the marginal propensity to expend on food grains is the highest in the bottom two deciles which are largely composed of landless labor households. Even the third decile which is comprised of smaller farms would spend 38 percent of their incremental expenditure on food grains. Thus, quite ironically it is the poor who would support through his demand for food grains the green revolution! Such a support, however, would require public policy of generating employment and income of the poor. This policy is particularly required because this group of people have benefitted directly the least from the green revolution.

The rapid decline in MPE on food grains implies that the marginal propensity to market food grains would increase as we move along the expenditure deciles and the corresponding landholding groups.

The MPE on nonfood grain agricultural commodities first increased and then gradually declined along the expenditure classes. More importantly, the MPE on milk and milk products is relatively high in the 6th through 9th deciles which are comprised of farmers with 5 to 15 acres. This is a very happy outcome because expansion of livestock enterprises which are at present in rural areas characterized by labor-intensive technology, provides the scope for meeting the need of generating employment. Credit and marketing facilities would, however, be most required for the expansion of livestock enterprise.

Furthermore, the MPE on other foods (which include fruits and vegetables, besides other items) increases rapidly as per capita total consumer expenditure increases. Again, production of these products, particularly fruits and vegetables, entail labor-intensive techniques.

Along the expenditure scale the MPE on nonagricultural commodities increases only in the upper half of the expenditure distribution. Only the upper half of the 10th decile would spend over 50 percent of its incremental expenditure on nonagricultural items. Among the various nonagricultural items the MPE for cotton textiles and fuel and light declines along the expenditure scale. Against this, the corresponding figures for woolen textiles and footwear remains constant. But for durables, consumer services, education, conveyances and house rent it shows a tendency to increase.

It should be recognized that the above analysis of MPE on different nonagricultural items has remained incomplete due to lack of details on "miscellaneous" category which accounted for more than 10 percent of the incremental expenditure in all but the bottom three deciles. The analysis has also suffered due to the outdated nature of the data studied. Finally, inasmuch as the assumption of all-India consumption pattern being applicable to rural households is not valid, the above results show perhaps an underestimation of the incremental demand for food grains, and an overestimation of change in demand for other commodities.

CHAPTER V

CONCLUSIONS

The main conclusions are: (1) The expenditure elasticity of food grains, and milk and milk products varied from one expenditure class to the other in both NSS and NCAER data. However, in these two data sources the marginal propensity to expend on milk and milk products remained almost constant over all expenditure classes beyond the bottom three deciles. (2) The above finding is also applicable to rural and urban NSS consumption functions. (3) The rural consumption functions were different from the urban consumption functions for the three commodities viz., food grains, milk and milk products and clothing studied. (4) In NCAER data except for tobacco, education, conveyance and consumer services the expenditure elasticity of all other expenditure categories (food grains, milk and milk products, meat, eggs and fish, other foods, vanaspati, other oils, sweetners, cotton textiles, woolen textiles, other textiles, footwear, durables, fuel and light and house rent) varied in different expenditure classes. (5) But the variation in marginal propensity to expend on all the items from one expenditure class to the other was not continuous. (6) The bottom three deciles which comprised landless and smaller farm households would provide the maximum boost to the development of the food grains sector, whereas, the remaining deciles would provide the maximum market for nonfood grain agricultural goods. But the additional demand for nontraditional nonagricultural items would mainly come from the top decile in rural India.

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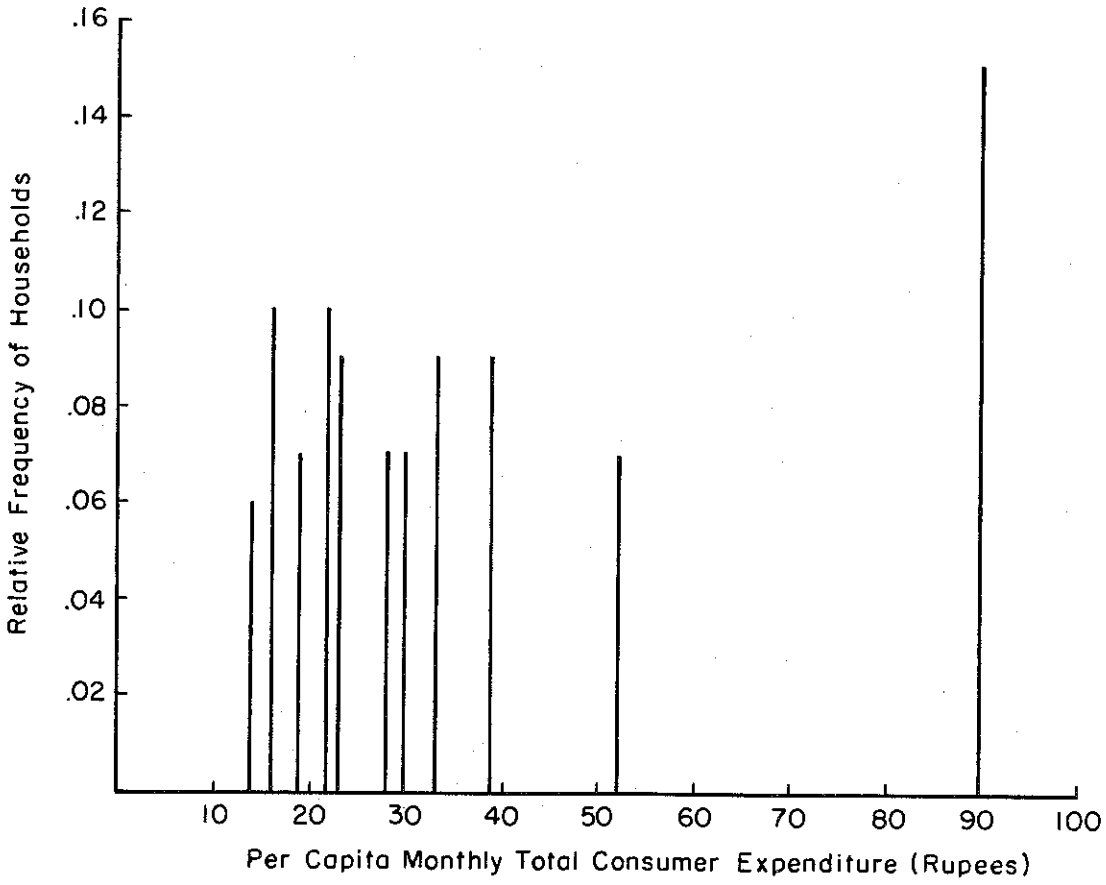
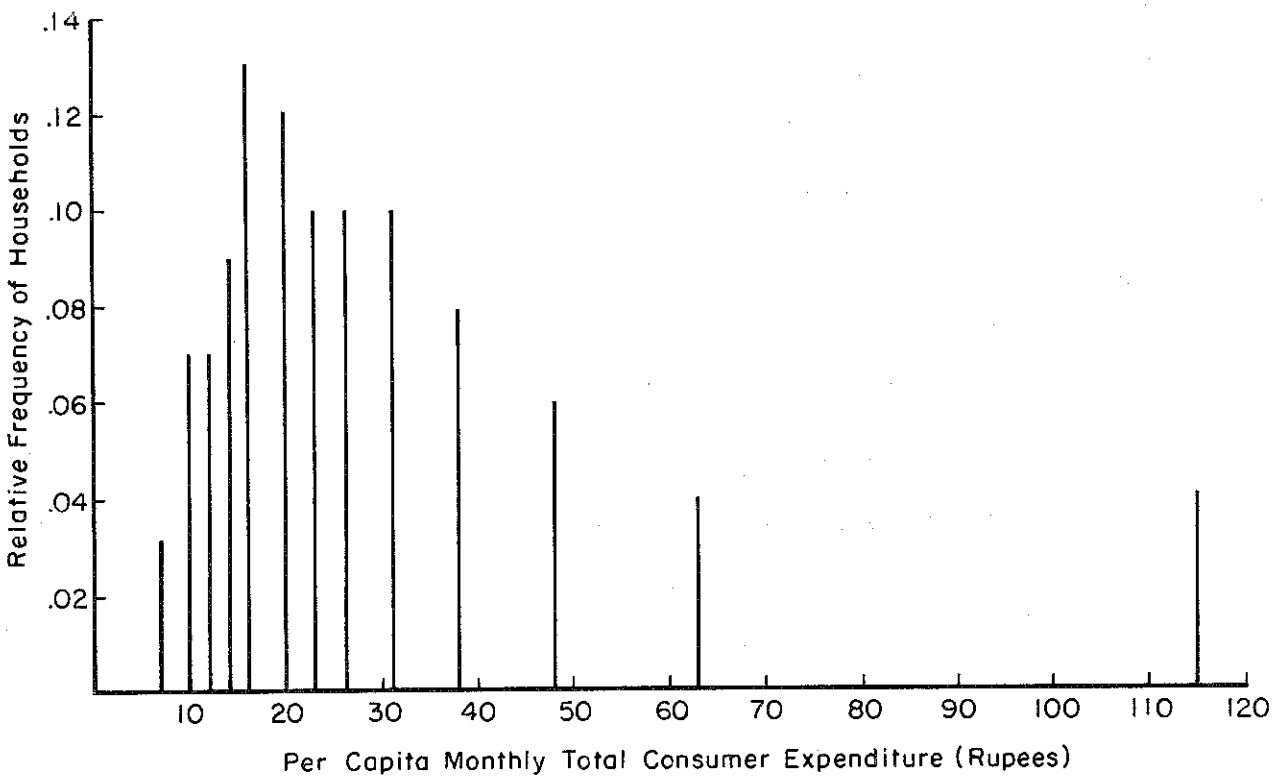
FIGURE I. DISTRIBUTION OF HOUSEHOLDS BY PER CAPITA MONTHLY TOTAL CONSUMER EXPENDITURE, NCAER, 1964-65



Source : Compiled from National Council of Applied Economic Research, All-India Consumer Expenditure Survey, Volume II, New Delhi 1967

FIGURE 2. DISTRIBUTION OF HOUSEHOLDS BY PER CAPITA MONTHLY TOTAL CONSUMER EXPENDITURE, NSS, 1963 - 64



Source: Compiled from National Sample Survey, No. 142, The Cabinet Secretariate, Government of India, 1963-64

Appendix 2

Classification of Commodities, NCAER, 1964-65

1.	Food grains:	Cereals, pulses. Cereals, include rice, wheat, jowar, maize, bajra, barley, ragi, small millets and their products. Pulses include tur, mung, moth, gram, urad, peas and their products.
2.	Milk and Milk Products:	Milk, buttermilk, ghee, butter.
3.	Meat, eggs and fish:	Details not specified in the source.
4.	Other foods:1/	Vegetables, fruits, nuts, spices, salt, beverages, refreshments, jams, jelly, pickles.
5.	Tobacco and allied products:	Bidi, cigarettes, chewing tobacco, etc.
6.	Vanaspati:	Hydrogenated edible oil.
7.	Other edible oils:	Groundnut oil, mustard oil.
8.	Sweeteners:	Sugar, gur, and chandsari.
9.	Cotton textiles:	Mill-made, khadi and handloomed clothing, including ready made garments.
10.	Woolen textiles:	Woolen clothing.
11.	Other textiles:	Silk, rayon, nylon clothing.
12.	Footwear:	Sandals, shoes.

1/ To estimate expenditure on "other foods" log-log-inverse function was estimated on NSS data taking other food expenditures as a function of total expenditure. The estimated equation was then used to predict other food expenditure for NCAER. From the predicted value of other food expenditures the expenditure on oils, meat, eggs and fish, and sweetening agents as reported in NCAER was subtracted to arrive at expenditure on "other foods" as defined here. This was done because the NSS classification of other foods included oils, meat, eggs and fish, and sweeteners, besides the items that are included in the classification of "other foods" defined here. This procedure was followed because NCAER did not give separate data for the items included in "other foods".

13.	Durable and Semi-durables:	Furniture, kitchen equipment, sewing machines, electric fans, transistor radios, radios, bicycles, motor cars, etc.
14.	Conveyance:	Expenditure of transportation by bus, taxi, train, aeroplane, steamer, boat, motor car, motorcycle, scooters, rick-shaws, bullock cart, horse cart; including conveyance charges incurred by children for going to school.
15.	Consumer Services:	Medical care, litigation, domestic work, barbers, washermen, dry clearners, carpenters, blacksmiths, priests, plumbers, gardeners, gold and silversmiths, and drivers.
16.	Education:	Books, journals, newspapers, periodicals, stationery, school fees, private tutor's fees.
17.	Fuel and light:	Details not specified in the source.
18.	House rent:	Details not specified in the source.
19.	Miscellaneous:	Biscuits and confectionery, intoxicants, pan, medicines, toiletry, sports and amusements, sundry goods (details unspecified in the study), ceremonials and gifts.

Consumption functions were estimated for items 1 to 18.

Source: National Council of Applied Economic Research, All-India Consumer Expenditure Survey, Vol. II, New Delhi, 1967.

Appendix 3

Classification of Commodities, NSS, 1963-64

1. Food grains:	Cereals, pulses. Cereals include rice, wheat, jowar, bajra, maize, barley, small millets, ragi, Bengal gram and their products. Pulses include tur, gram, moong, masoor, urad, peas and their products.
2. Milk and Milk Products:	Liquid milk, milk (condensed, powdered), ghee, butter, dahi, ghol, lassi, and other milk products.
3. Other foods:	Oil, oil seeds and products, vegetables, fruits and nuts, meat, eggs and fish; sugar, salt, spices, beverages, refreshments and processed food; pickles, jams and jellies.
4. Clothing:	Cotton (mill made, hand-loomed and khadi), woolen, silk, rayon, etc., including bedding and upholstery.
5. Fuel and light:	Coke, coal, firewood, electricity, gas, dungcake, charcoal, kerosene, candle, matches and other fuel and lighting oil.
6. Rents:	Rents on residential house, residential land and other consumer goods. No imputation of rent for residential houses owned by the sample households was made.
7. Taxes:	Consumer taxes like road Cess, chewkidari taxes, municipal rates, consumer license fees and other local taxes. Income tax or taxes relating to household enterprise are excluded.
8. Other nonfood items:	Pan etc., tobacco and products, drugs and intoxicants, amusements and sports, education, medicine, toilets, sundry goods, consumer services, conveyance, ceremonials, furniture, musical instruments, ornaments, domestic utensils, footwear and other durable or semi-

	durable goods and their repairing expense including the maintenance of residential houses.

Consumption functions were estimated for item numbers 1, 2 and 4.

Source: The National Sample Survey, No. 142, The Cabinet Secretariate, Government of India, 1968.

Appendix 4. Average propensity to expend (APE) and per capita expenditure (E) of food grains, and milk and milk products, by expenditure classes, All-India, 1963-64 and 1964-65

Expenditure classes & corresponding land holding groups (Acres)	Per capita mo. total consumer expenditure	NSS				NCAER			
		Food grains		Milk & milk products		Food grains		Milk & milk products	
		APE	E	APE	E	APE	E	APE	E
	Rupees								
Bottom 2 deciles--less than 0.49	8.93	0.63	5.61	0.02	0.22	0.54	4.83	0.02	0.19
3rd decile--0.50-0.99	13.14	0.59	7.82	0.04	0.58	0.52	6.84	0.04	0.58
4 & 5th deciles--1.00-4.99	17.80	0.53	9.42	0.06	1.07	0.47	8.31	0.06	1.13
6, 7 & 8th deciles--5.00-9.99	24.13	0.45	10.80	0.07	1.80	0.40	9.58	0.08	1.94
9th decile--10.00-14.99	30.71	0.38	11.72	0.08	2.60	0.34	10.45	0.09	2.79
Lower ½ of 10th decile--15.00-29.99	41.89	0.30	12.71	0.09	3.95	0.27	11.37	0.10	4.15
Upper ½ of 10th decile--30.00+	85.84	0.17	14.24	0.11	9.13	0.15	12.80	0.10	8.58
Mean for all classes	24.43	0.44	10.83	0.08	1.84	0.39	9.60	0.08	1.98

Source: Estimated from the functions fitted to data from NSS, 1963-64, No. 142, The Cabinet Secretariate, Government of India, 1968 and also from NCAER, All-India Consumer Expenditure Survey, 1964-65, Vol. II, New Delhi, 1967.

Appendix 5. Average propensity to expend (APE) and per capita expenditure (E) of food grains, milk and milk products, and clothing, by expenditure classes, Rural and Urban India, 1963-64.

Expenditure classes & corresponding land holding groups (Acres)	Rural						Urban					
	Food grains		Milk & milk products		Clothing		Food grains		Milk & milk products		Clothing	
	APE	E	APE	E	APE	E	APE	E	APE	E	APE	E
Bottom 2 deciles-- less than 0.49	0.64	5.71	0.02	0.22	0.02	0.21	0.54	4.84	0.04	0.37	0.01	0.05
3rd decile-- 0.50-0.99	0.60	7.84	0.04	0.56	0.04	0.51	0.49	6.47	0.06	0.81	0.02	0.21
4 & 5th deciles-- 1.00-4.99	0.54	9.56	0.06	1.04	0.05	0.96	0.42	7.57	0.08	1.36	0.03	0.52
6, 7 & 8th deciles-- 5.00-9.99	0.47	11.31	0.07	1.76	0.07	1.74	0.35	8.47	0.09	2.13	0.04	1.06
9th decile-- 10.00-14.99	0.41	12.71	0.08	2.53	0.09	2.71	0.29	9.04	0.10	2.94	0.06	1.71
Lower $\frac{1}{2}$ of 10th decile-- 15.00-29.99	0.35	14.52	0.09	3.88	0.11	4.67	0.23	9.59	0.10	4.28	0.07	2.90
Upper $\frac{1}{2}$ of 10th decile-- 30.00+	0.22	18.84	0.10	9.06	0.18	15.40	0.12	10.30	0.11	9.21	0.09	7.65
Mean for all classes	0.47	11.39	0.07	1.79	0.07	1.78	0.35	8.50	0.09	2.17	0.04	1.09

Source: Estimated from the functions fitted to data from NSS, 1963-64, No. 142, The Cabinet Secretariate, Government of India, 1968.

Appendix 6. Average propensity to expend (APE) on various expenditure categories, by expenditure classes, NCAER, 1964-65.

Decile	Bottom 2 deciles (less than 0.49 acres)	3rd decile (0.50-0.99 acres)	4th & 5th deciles (1.00-4.99 acres)	6th, 7th & 8th deciles (5.00-9.99 acres)	9th decile (10.00-14.99 acres)	Lower ½ of 10th decile (15.00-29.99 acres)	Upper ½ of 10th decile (30.00+ acres)	Mean for all classes
Per capita monthly consumer expenditure (Rs.)	8.93	13.14	17.80	24.13	30.71	41.89	85.84	24.43
APE on								
1. Food grains	0.54	0.52	0.47	0.40	0.34	0.27	0.15	0.39
2. Milk & milk products	0.02	0.04	0.06	0.08	0.09	0.10	0.10	0.08
3. Meat, eggs & fish	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.02
4. Other foods	0.13	0.10	0.09	0.09	0.09	0.09	0.12	0.09
5. Tobacco	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02
6. Vanaspati	@	@	0.01	0.01	0.01	0.01	0.01	0.01
7. Other oils	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.03
8. Sweetners	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.04
9. Cotton textiles	0.05	0.06	0.07	0.07	0.07	0.06	0.05	0.07
10. Woolen textiles	@	@	@	@	@	@	0.01	@
11. Other textiles	@	@	@	@	@	@	0.01	@
12. Footwear	@	@	@	@	@	@	0.01	0.01
13. Durables & semi-durables	@	@	@	0.01	0.01	0.02	0.03	0.01
14. Conveyance	@	0.01	0.01	0.01	0.02	0.02	0.05	0.01
15. Consumer services	0.01	0.01	0.02	0.02	0.02	0.03	0.04	0.02
16. Education	@	0.01	0.01	0.01	0.02	0.02	0.05	0.01
17. Fuel & light	0.06	0.07	0.07	0.06	0.06	0.06	0.04	0.06
18. House rent	@	@	@	0.01	0.01	0.02	0.04	0.01
19. Miscellaneous[a/] (approx.)	0.09	0.07	0.08	0.11	0.15	0.18	0.21	0.11

@Negligible

a/ Estimated as a residual

Source: Estimated from the functions fitted to data from NCAER, All-India Consumer Expenditure Survey, 1964-1965, Vol. II, New Delhi, 1967.

Appendix 7. Per capita monthly expenditure on various expenditure categories, by expenditure classes, NCAER, 1964-65.

	Bottom 2 deciles (less than 0.49 acres)	3rd decile (0.50-0.99 acres)	4th & 5th deciles (1.00-4.99 acres)	6th, 7th & 8th deciles (5.00-9.99 acres)	9th decile (10.00-14.99 acres)	Lower ½ of 10th decile (15.00-29.99 acres)	Upper ½ of 10th decile (30.00+ acres)	Mean for all classes
Per capita monthly consumer expenditure (Rs.)	8.93	13.14	17.80	24.13	30.71	41.89	85.84	24.43
Monthly per capita expenditure on								
1. Food grains	4.83	6.84	8.31	9.58	10.45	11.37	12.80	9.68
2. Milk & milk products	0.19	0.58	1.13	1.94	2.79	4.15	8.58	1.98
3. Meat, eggs & fish	0.10	0.22	0.36	0.56	0.76	1.08	2.20	0.57
4. Other foods	1.19	1.34	1.64	2.16	2.78	3.98	10.16	2.19
5. Tobacco	0.19	0.25	0.32	0.39	0.47	0.59	1.00	0.40
6. Vanaspati	0.01	0.04	0.11	0.23	0.36	0.59	1.25	0.23
7. Other oils	0.14	0.34	0.56	0.81	1.02	1.28	1.84	0.82
8. Sweetners	0.16	0.36	0.58	0.85	1.08	1.40	2.17	0.86
9. Cotton textiles	0.47	0.84	1.20	1.64	2.04	2.63	4.34	1.66
10. Woolen textiles	@	0.01	0.03	0.06	0.11	0.20	0.79	0.06
11. Other textiles	@	0.01	0.01	0.02	0.04	0.09	0.66	0.02
12. Footwear	@	0.06	0.10	0.15	0.21	0.30	0.59	0.16
13. Durables & semi-durables	0.07	0.11	0.17	0.27	0.40	0.68	2.45	0.28
14. Conveyance	0.04	0.09	0.16	0.30	0.49	0.94	4.12	0.30
15. Consumer services	0.11	0.19	0.30	0.48	0.68	1.09	3.19	0.48
16. Education	0.04	0.08	0.15	0.29	0.49	0.94	4.33	0.30
17. Fuel & light	0.57	0.89	1.19	1.56	1.89	2.37	3.82	1.57
18. House rent	@	0.02	0.05	0.15	0.30	0.69	3.38	0.15
19. Miscellaneous[a] (approx.)	0.82	0.87	1.43	2.71	4.35	7.52	18.17	2.72

@Negligible

a/ Estimated as a residual

Source: Estimated from the functions fitted to data from NCAER, All-India Consumer Expenditure Survey, 1964-65, Vol. II, New Delhi, 1967.