

DEMAND FORECASTS FOR CONSUMER GOODS

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DEMAND FORECASTS FOR
CONSUMER GOODS

*[Toilet and Washing Soaps, Milk, Ghee, Vanaspati, Butter and
Other Milk Products]*



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P R E F A C E

THIS REPORT deals with a study relating to prospects of expansion of India's demand by 1961 for toilet soap, washing soap, milk, ghee, butter, vanaspati (hydrogenated vegetable oil), and a few miscellaneous milk products. The study was undertaken sometime ago as a research project sponsored by Messrs. Hindustan Lever Ltd., and the findings of the research are now published, with their consent.

Similar studies on a few other types of consumer goods have also been completed, and those relating to some industrial raw-materials and producer goods are underway. The results of these studies will also be published with the consent of the sponsors. In view of the urgent need for scientific research in this field, especially in the context of planning, the National Council also proposes to carry out similar studies for a few important commodities, on its own initiative.

Owing to lack of sufficiently reliable data, and the changing consumption patterns in a developing economy like ours, it is quite possible that demand forecasts prepared with the application of available techniques, which have been evolved to suit situations in developed industrial economies, may not yield highly precise and firm results. However, it is hoped that the publication of this report will stimulate further methodological research, and in course of time, help evolve techniques for demand forecasting more appropriate to developing economies. In these countries, primary statistics are generally of a poor quality, fresh data collection presents formidable problems, and techniques of research evolved in the West are not likely to be applicable without major modifications, or often without fundamental departures in the approach to economic phenomena and problems.

It is not necessary to anticipate here the methodological issues raised in the reports. However, it may be mentioned that this is the first time that data available from the National Sample Survey for individual consumer items have been used for analytical purposes. Some observations

on the suitability of National Sample Survey data for socio-economic analysis will also be found included in the report.

Mr. Maurice Zinkin and Mr. P. L. Tandon, Directors of Messrs. Hindustan Lever Limited, and the statisticians on the staff of the concern, had shown deep interest in the project at all stages, and I am happy to be able to take this opportunity for expressing the gratitude of the National Council to them:

Dr. Ashok Mitra was in charge of the project under the supervision and guidance of the Director-General.

P. S. LOKANATHAN

Director-General

CHAPTER I

INTRODUCTION

THE BASIC importance of demand analysis of consumer goods, industrial raw-materials and capital goods is evident in the context of industrial development of India in particular, and economic development in general. The National Council of Applied Economic Research has therefore been engaged in carrying out demand forecast studies for a number of commodities. The present report contains the findings of a research project sponsored by Messrs. Hindustan Lever Ltd. on the prospects of expansion of India's demand for toilet soap, washing soap, milk, ghee, butter, vanaspati and "other milk products" over the next five years or so. It is not claimed that any precise degree of accuracy can be attached to the present estimates. The aim in this report has been mainly to try to determine a certain range of magnitudes for the possible increases in India in the consumption of the commodities mentioned above, over the next few years. Even in a stable economy, where variations in consumer taste and behaviour over a period are generally expected to conform to some predictable patterns, attempts at forecasting demand are often vitiated by statistical difficulties. In the case of a country like India, where basic data are crude and sketchy, and where current developments in income growth, consumption rise and people's tastes and habits represent a sharp break with the immediate past, the possibility of wide margins of error is still greater. It is, however, hoped that the range of demand increases suggested here will not be too wide off the mark, and that even if substantial divergence is finally discovered between the present extrapolations and the actual consumption increases, this by itself would provide further incentive as well as guidance for the refinement of both primary data collection and forecasting procedures applicable in a developing economy.

Two separate methods are ordinarily followed for deriving coefficients of market demand : time series analysis and study of cross-section data. In

the former case, time series of consumption, income, prices, etc. for a number of years are analysed through the method of least squares, and income and price elasticities of demand are derived from the value of the regression coefficients. It is usual now-a-days to incorporate in the regression equation for market demand not only the factor of elasticity of demand for a commodity with respect to its own price, but also the factor of demand for a commodity with respect to the prices of substitutable and/or complementary commodities (cross-elasticities). Some of the commodities covered in this report are in the nature of a cluster of substitutable and complementary commodities, some belonging to the first order of mutual relationship, as, for example, the two categories of milk or the two categories of ghee, while the rest represent a second order of relationship, for example, vanaspati and ghee, or ghee and butter. In the present analysis, attention is given mainly to discussing the prospects of demand expansion of vanaspati, as it was in this item that sponsors of the project were more directly interested. This does not, of course, imply that the other items are completely omitted in the discussion. But the emphasis is laid on exploring the consequences of shifts in the demand for these other items on the consumption of vanaspati. Since consumption of a commodity over a period of time is affected by changes in taste and habits, a trend coefficient is also taken into account. The values of the respective elasticities are first obtained from the fitted equation and the results are then used for forecasting purposes. The procedure is one familiar in comparative statics. Thus, for example, on the assumption that price elasticities and the trend coefficient remain stable, a projection is made about the probable variation in the consumption of the commodity in question as a result of a given shift in the level of income. At the next stage, the effects of specific changes in price are also studied alongside the effects of income shifts. These projections, however, have validity only so long as it is assumed that no fundamental change in the structure of demand—and, therefore, in the values of the elasticities—is likely to occur over the period for which forecasts are being built. Their significance is lost the moment such changes do take place.

. Cross-section study of market demand is generally made by analysing family budget data. Family budgets of different income groups in a

community for a given period are studied and income elasticities are derived by plotting the shifts in the proportion of total expenditure spent on a particular commodity by different income groups. The income elasticity for a commodity need not be unique or uniform over the whole range of the community. There may be kinks in the elasticity curve, and different values may emerge at different ranges of income. Where historical data are non-existent or inaccessible, use has been made of income elasticities obtained from family budget studies to project the future pattern of demand. Strictly speaking, cross-section data cannot substitute time series-data, and the use of the former to extrapolate shifts in demand is open to question. Where circumstances permit no other way out, attempts may be made to compare elasticities derived from family budget data for at least two separate years and thereby judge the degree of stability in the value of elasticity. In certain instances, the cross-section elasticity of demand may be modified on the basis of a set of general considerations, before it is applied for demand projections.

CHAPTER II

EXPENDITURE ELASTICITIES

Washing and Toilet Soaps

THE RELATIONSHIP between the average per capita annual expenditure per household on washing or toilet soap and the average overall household expenditure was built up from NSS data¹ in the form of a simple equation. This relationship was taken to be approximately linear, in a double logarithmic scale. The relative increase in the average per capita expenditure per household for the soap category in response to a certain increase in overall household expenditure was obtained from the regression equation.² This relation expresses the expenditure elasticity for the

¹ The sources of data and their limitations are discussed in detail in the appendix.

² The type of functional relationship to be chosen for deriving income (and expenditure) elasticities raises a number of issues. There is a clear demarcation of views in this respect, and the protagonists are divided between the "per capita" and "per family" schools. While recent developments in the methodology of demand analysis support the view that it is the shift in behaviour of an individual which should be the focal point of demand forecasting, others would argue that as an approximate measure, postulating shifts in per family behaviour will be equally satisfactory. The choice is from among the following three types of relations: (a) relationship between per family total expenditure and per family expenditure on an individual item, (b) relationship between per capita total expenditure and per capita expenditure on an individual item, and (c) relationship between per family total expenditure and per capita expenditure on an individual item. In the present analysis, relation (c) has been chosen. This choice has to a degree been guided by practical considerations. Since the NSS data, in the form supplied to the National Council, gave expenditure figures according to family expenditure brackets, it was a problem to unscramble these figures and reassemble them to obtain per capita total expenditure groups against which commodity-wise expenditure figures could be plotted.

On the other hand some attempts were made to work out elasticities by fitting the relation (a) in the case of all-India figures for both washing and toilet soaps. It was found that the values of elasticities from plotting the relations (a) and (c) respectively did not in these cases differ significantly, perhaps on account of the fact that although the

particular item. If this elasticity is e and overall household expenditure increases by $100a$ per cent, the increase in average per capita expenditure per household on the item will be

$$100 \{(1+a)^e - 1\} \text{ per cent.}$$

Table II gives the behaviour of the expenditure elasticity of consumption for washing soap for all the observations. Similar estimates for toilet soap are reproduced in Table III.³

Since the number of responding household samples is the highest for the all-India data, the reliability of the estimates is also the highest for these observations. The precision of estimates progressively deteriorates for the zones, individual states and individual cities, where the number of observations is necessarily restricted. In some cases, as can be seen from the tables, it was not possible to make any estimates of elasticity because of paucity of available observations. In other cases, the results are of unequal reliability depending on the number of observations included in each.⁴ Table IV presents the frequency distribution of expenditure elasticities for both washing soap and toilet soap. It will be seen that in neither case does any particular range emerge within which an appreciable number of elasticities cluster; there are large number of observations where the expenditure elasticities vary from the neighbourhood of 0.2 to that of 0.8, yielding an amplitude of 200 per cent around 0.4. On the other hand, the degree of stability in the estimates is relatively large in the case of all-India data. Thus, in the case of washing soap, the all-India estimates of elasticity for urban areas derived from the fourth and fifth rounds and from the sixth and seventh rounds are about

average family size in different expenditure brackets differed to an extent in both urban and rural areas, the degree of this difference was not outstandingly sharp.

It was finally decided to plot the relation between per family expenditure and per capita commodity expenditure. This is certainly an approximation of the concept of expenditure elasticity, but the error margins involved in this procedure are unlikely to be any greater than those arising from any other method.

³ Data for the urban areas on consumption of washing soda for the four rounds were also made available to the Council. Mainly because of the small number of entries, the expenditure elasticities worked out from them were found to be totally unreliable.

The appropriateness of the form of the logarithmic function was checked by drawing freehand curves which fitted quite well to the data reduced logarithmically.

⁴ It was not considered necessary to work out the standard errors of the estimates.

the same, namely, 0.24 and 0.27, and 0.45 and 0.46, respectively. For rural areas, the all-India estimates of elasticity for washing soap are respectively 0.35, 0.25, 0.45 and 0.44 for the four rounds (Table II). It is of interest to note that expenditure elasticities for washing soap in the case of both urban and rural areas are almost identical for the sixth and the seventh round data.⁵

For toilet soap, the urban expenditure elasticities for the four rounds are 0.57, 0.62, 0.75 and 0.73 respectively (Table III). The corresponding values for rural areas are 0.53, 0.20, 0.73 and 0.43.⁶

A certain order of stability is maintained among elasticity estimates for the rural sector of the six zonal groups. Thereafter, the estimates start aberrating violently (Table III). On the basis of these evidences alone, no reliable and significant conclusion can be drawn with respect to the relative magnitudes of expenditure elasticity for the different sectors, zones, states, cities and towns. In the case of all-India estimates, too, it is not possible to obtain a clear and consistent picture regarding the absolute magnitude of the elasticities.

Tables V and VI give the percentage increases in consumer expenditure on washing and toilet soaps respectively, as would follow from the values of elasticities obtained on the basis of hypothetical increases in income of the order of 15 per cent, 20 per cent, 25 per cent and 30 per cent respectively. In line with rather sharp variations in the values of elasticities, the derived increases in consumer expenditure also fluctuate over a very wide margin. As will be noticed, even for all-India estimates, both urban and rural, the hypothetical increases in expenditure on soap items show an amplitude of almost 200 per cent over the different rounds. Results are much more divergent for zonal and states estimates.

The NSS data are as yet incapable of yielding a continuous picture of consumer behaviour spread over a number of years. There is also therefore the problem of deciding on the validity of applying cross-section

⁵ However, coincidence in the values of the urban and rural elasticities does not imply an equal shift in *absolute* quantity in the two sectors as a result of an equal percentage variation in income levels; the hypothesis merely indicates the possibility of an equal relative shift.

⁶ One might note that the expenditure elasticity for toilet soap obtained from these data appears to be higher than that for washing soap.

NSS elasticities for purposes of demand projection. This would have been somewhat less difficult had there been some stability in the magnitude of the elasticities. Given the observed fluctuations in their values, it becomes apparent that, for working out the demand extrapolations for the soap categories at least, it is necessary to look for alternative basic data.

Analysis of Desai's Data

The only period for which detailed historical series are available in India on items of consumer expenditure is the pre-World War II decade. R.C. Desai's book on *Standard of Living in India and Pakistan, 1931-32 to 1940-41* sets out estimates of consumer expenditure at current as well as constant prices for a large category of consumer items. The period covered in Desai's volume is one in which the Indian economy was particularly unsettled. The depression during the early thirties was followed by a very slow recovery, and it was only around 1940 that the economy started picking up. Thus, over the decade, there was but little upsurge in India's national income and, consequently, in the volume of aggregate consumer expenditure. Desai's estimates suggest that, in real terms, aggregate consumer expenditure moved up by only about 7.8 per cent between 1931-32 and 1940-41 (Table VII). It will be reasonable to assume that the rate of increase in national income was not of a higher order. It is therefore remarkable that consumer expenditure on soap and washing soda, according to Desai, moved up from the equivalence of Rs. 55 million in 1931-32 to the equivalence of Rs. 81 million in 1940-41 (both at 1938-39 prices). This implies an order of increase of 47.2 per cent in ten years. Although no separate breakdown of the increase is available, in case this estimate is reliable, it would follow that in the pre-war decade the combined income-and-trend elasticity of soap and washing soda, considered together, was in the neighbourhood of 4.

When a multiple regression line is fitted to the data, a trend coefficient of the order of 2.51 and a secular expenditure elasticity, which can roughly represent the secular income elasticity amounting to 1.22, can be obtained. Admittedly, there are limits to the reliance that may be placed on Desai's pioneering figures. It is possible that, given the rather uncertain character of the data, these high estimates of the trend-and-income

elasticities of soap and washing soda have a spurious base. But even if in actuality consumption increase was somewhat less than the order given by Desai, a combined trend-and-income elasticity of demand of between 2.5 and 3 for the period cannot be ruled out.

If this were the case for a particularly stagnant period as the decade 1931-41, it would follow that the income-cum-trend elasticity of soap has been considerably higher over the last few years when national income has risen at a fairly rapid pace, when there has been increase in literacy and provision of medical care, and when the media of commercial advertisement have penetrated further into the country. As is being shown below, there is at least some empirical evidence which would confirm the view that income and trend elasticities of demand for soap items have been fairly high in recent years.

In Table VIII, estimates are given of the variation in total availability of the two categories of soap in the organised sector during the period 1950-56. These estimates do not include the production of soap in the hands of hundreds of small-scale manufacturers operating within limited areas all over the country. The availability relates to estimates of production in organised units only and adjusts them for exports and imports. It will be seen that this availability of washing soap in the country went up by about 55 per cent between 1950 and 1956 and, similarly, the availability of toilet soap also registered an increase of the order of 41 per cent. Over these years, the national income of the country is estimated to have gone up by slightly less than 20 per cent. Thus, these estimates would give the rough value of income elasticity for washing soap in the neighbourhood of 2.5 and for toilet soap in the region of 2.⁷ Values of the combined elasticities are somewhat less than the elasticities derived from Desai's pre-war figures. They are nonetheless of a sufficiently high magnitude.

A further check on availability is possible. The Soaps Division of Messrs. Hindustan Lever Limited communicated to the National Council an estimate of the variation in soap consumption for the whole of India as well as the several linguistic zones (Hindi : North and North-West, Hindi : Central and North-East, Punjab, Gujerat, Maharashtra,

⁷ Surprisingly, the trend coefficients, when worked out, appear to be rather low, viz., 0.4 in the case of washing soap and 0.3 for toilet soap.

Tamilnad, Andhra, Karnataka, Kerala, Bengal, Assam and Orissa) during the years 1951 to 1956 (Table IX). These figures also include rough estimates of soap production from small unorganised units and, therefore, would more or less represent aggregate soap consumption in the country. The percentage increases in soap consumption in 1956 with reference to 1951 as worked out from these figures are given in Table X. For washing soap, the percentage increase in consumption is almost uniform in the different linguistic areas, namely, of the order of 40 per cent. For toilet soap, the estimates vary; while Orissa shows no perceptible increase in consumption over the period, for other areas estimates of consumption increase oscillate from about 17 per cent (Gujerat), nearly 20 per cent (Bengal and Assam), around 25 per cent (the Hindi-speaking areas, the Punjab and Maharashtra), to nearly 30 per cent (Karnataka and Tamilnad) and 35 per cent (Andhra). Kerala shows the highest rate of increase, about 40 per cent.

Thus, these overall figures of increase also indicate that the income elasticity of washing soap consumption has been in the region of 2 in India as a whole as well as the different regions. In the case of toilet soap, in the majority of regions, the magnitude of income elasticity again appears to have moved within the range of 1 and 2 in recent years.

Milk, Ghee, Vanaspati, Butter, etc.

As in the case of analysis of demand for soaps, the procedure followed here is to develop cross-section expenditure elasticities for the various items on the basis of NSS data. The series for average per capita annual expenditure for household on each item and the aggregate household expenditure as derived from data for the four rounds were related to a simple equation of consumer response described earlier.⁸ The assumed relationship was approximately linear in the double logarithmic scale. This would then give the relative increase in the average per capita expenditure per household for the item in question consequent on a certain hypothetical increase in the total household expenditure.

Tables XI, XII, XIII, XIV, XV, XVI and XVII respectively give the figures of expenditure elasticities as derived from the NSS data for the

⁸ The reasons for choosing this particular type of relation have been discussed in foot note 1 to this chapter.

four rounds for milk (cow), milk (buffalo), ghee (cow), ghee (buffalo), vanaspati, butter and other milk products. These items are in the nature of substitutes or are complementary to one another, and it is significant that expenditure elasticities for them show a close approximation to one another. This closeness of the values of elasticities is spread over the results of different rounds, urban as well as rural, for the all-India figures, for the zones, and even for the various states. Another striking point to note is that, in contrast to the expenditure elasticities obtained for washing and toilet soaps, for the majority of the items being considered in this report, the expenditure elasticity emerges as being in close proximity to unity. Thus, for example, for milk (cow), all-India urban elasticities for the four rounds are 0.82, 0.97, 0.89 and 1.06 respectively. For rural areas, the corresponding all-India estimates are respectively 0.84, 0.85, 0.97 and 0.77.

Even when the samples are broken down and the data for individual zones or states—or for towns and cities—are analysed, the stability of expenditure elasticities in the region of unity persists. In those cases where the elasticity slides down considerably from the level of unity, the aberration is usually on account of the sample size being unduly small. The statistical explanation for this, it would appear, is that the smaller size of samples often vitiates the degree of fit of the regression line.

In the case of milk (buffalo), the all-India urban expenditure elasticities over the different rounds are 0.75, 0.60, 0.84 and 0.57 respectively. On the other hand, for rural areas, the all-India elasticities are, in most cases, pronouncedly above unity, namely 1.11, 1.07, 1.05 and 1.00 respectively. Elasticities for the urban breakdowns, and for rural and states are in some cases even higher. For ghee (cow), the urban all-India elasticities are 1.16, 0.86, 1.18 and 1.40 respectively. The corresponding rural elasticities are 0.87, 0.88, 1.08 and 0.79. In the case of ghee (buffalo), the corresponding figures for urban areas are 0.88, 0.56, 1.05 and 0.89 respectively and for rural areas 1.12 for the fourth round, 1.23 for the sixth round and 0.99 for the seventh round. For vanaspati, the all-India urban figures are 0.72, 0.92, 0.71 and 0.71 respectively over the rounds. For rural areas, the respective elasticities are 0.81, 0.96, 1.58 and 1.19. The all-India butter elasticities are 1.71, 1.16, 1.80 and 1.25 respectively for urban areas and 1.52, 1.79, 1.66 and 2.37 respectively for rural areas.

Lastly, for other milk products, the urban all-India elasticities are 1.11, 1.25, 0.74 and 0.14 respectively.⁹ For this item, the quality of rural data obtained is rather poor. The respective elasticities as could be worked out are 0.79, 0.17, 0.68 and 0.41 in respective order for the several rounds.

The frequency distribution of all the expenditure elasticities derived from the NSS data is shown in Table XVIII. Of the total number of 471 elasticities, as many as 307—or almost 66 per cent—have values ranging from 0.75 to above. There are at the same time 98 frequencies—nearly 28 per cent—in the range between 0.50 and 0.75. A heavy concentration of values in the region of unity is evident.

It is true that because of the short nature of the two series correlated and the small number of frequencies within each series, most of the expenditure elasticities worked out will not be able to stand up to rigorous statistical tests. No attempt has been made to work out the standard errors of the estimates. But the fact that an overwhelming majority of elasticities pertaining to different items, regions and groups conform tenaciously to a uniformity would testify to the veracity of the obtained values of expenditure elasticities for the different items. It may be argued that in the case of vanaspati, expenditure elasticities for both urban and rural areas, and for all the rounds, are somewhat lower in value than the corresponding estimates for the other categories including milk and ghee (both cow and buffalo). However, this lower value for the vanaspati elasticity may be exclusively on account of the fact that the degree of response in this case was lower than for the other items in both urban and rural areas.

These elasticity estimates confirm an important fact previously established from the soap data. For vanaspati, milk, ghee, butter and other milk products also, there is no significant difference in the values of the elasticities as between the urban and rural areas. Contrary to widely-held notions, it would appear that the degree of consumer response to shifts in overall household incomes and expenditures is about the same for rural and urban areas. This discovery opens up possibilities of further analysis of rural—urban differentials in consumption patterns.

⁹ This low elasticity can be explained by the small number of responding households.

As in the case of extrapolations of demand for washing and toilet soaps, it is possible to concentrate on expenditure elasticities as obtained from the NSS data and use them to work out a set of alternate percentage increases in consumer expenditure, on items being covered in the present report, in response to hypothetical increases in total household incomes. These exercises are repeated for milk (cow), milk (buffalo), ghee (cow), ghee (buffalo), vanaspati, butter and other milk products in Tables XIX, XX, XXI, XXII, XXIII, XXIV and XXV respectively. The tables illustrate the percentage shifts in consumption expenditure on each respective item corresponding to increases in income amounting to 15 per cent, 20 per cent, 25 per cent and 30 per cent respectively; the implied assumption in the calculations being that income elasticities can be roughly represented by expenditure elasticities. These are of course more or less mechanical extrapolations, and their value is mostly notional.¹⁰

¹⁰ One objection to the applicability of elasticities derived from NSS data for postulating shifts in consumption is that these data pertain only to households, and therefore do not take into account consumption on the part of institutions such as hotels and restaurants. Two assumptions can however be made. The first one is that consumption in institutions behave sympathetically with consumption in households. The second is that in the aggregate, consumption demand for these commodities channelled through restaurants will generally be a small part of the total consumption in the country.

CHAPTER III

OTHER CONSIDERATIONS IN DEMAND ANALYSIS

ACTUALLY, a number of considerations have to be taken into account before the NSS expenditure elasticities can be employed for projecting the pattern of future demand of the consumer items discussed here. One of these is that items such as vanaspati, ghee, etc. are substitutable categories, so that over a period of time there will be a certain amount of internal shift of demand from some items to others. It is not possible to read from family budget data, spanning only two years, how these shifts have worked in recent years. To do the task successfully, it will be necessary to have time series of these items spread over a number of years. Had these series been available, it would have been possible to estimate "cross elasticities" reflecting the phenomenon of demand shifts from a particular item or items to others.

In the absence of such detailed time series, it becomes necessary to devote attention to a number of pragmatic considerations. Here the discussion will be confined to vanaspati only, the item with which the sponsors of the project are directly concerned.

If it is assumed that national income is to increase by about a quarter in the course of Second Five Year Plan, then, on the assumption that the income elasticity of demand for vanaspati is in the region of 1, it would follow that, over the period, the consumption of vanaspati would also go up by about 25 per cent. However, this would be so only if the trend-effects on the consumption of vanaspati—discussed below—are taken for granted, and also if it is considered that vanaspati consumption takes place in isolation of the consumption of other commodities in the group, namely milk, ghee, butter, and other milk products. But, as has been seen, for all these other items also, an income elasticity of the order of unity—with perhaps a certain amplitude of variation of 10 to 20

per cent either way—can be envisaged. This being the case, an increase in national income to the extent of 25 per cent, spread uniformly over different population groups, would mean a consequent shift in the consumption demand for these other items also by an equal percentage.

Thus, an important point of consideration is whether in reality the supply of the categories like, milk, ghee, butter and other milk products is going to expand by 25 per cent over the Plan period. An increase in the supply of milk to this extent is possible only if (a) there is an increase in the cattle population by 25 per cent, or, on the other hand, (b) the yield from the existing cattle population goes up by a quarter. The first possibility can be straightway ruled out.¹¹ Also, despite the various suggested measures for toning up the organisation of animal husbandry in the country, it is doubtful whether the output of milk products will show any spectacular spurt over the period. The increase in the supply of ghee and butter will depend not only on the possibility of an increased supply of milk but also on a number of organisational questions. The fact that by and large the supply of milk and ghee is in the hands of small-scale organisers and intermediaries, strengthens the doubts regarding the possibilities of rapid increase in the supply of these commodities. In contrast, vanaspati production is exclusively in the organised sector and its capacity can be expanded at short notice.

It is natural to expect that if, along with a 25 per cent increase in national income, there is no concomitant rise in the production of milk, ghee, butter, etc., there will be large segments of unsatiated demand. In such a situation, it is likely that a part of the pent-up demand is diverted to vanaspati, where the production can expand with relative ease. It may be hazardous to try to quantify the order of magnitude of the shift-over to vanaspati. But even assuming that about half of the additional demand generated for milk and milk products turns to vanaspati, the order of this supplementary increase in the demand for the latter, over and above the "induced" increase will, undoubtedly, be large.

Admittedly, vanaspati is not a direct substitute for milk and the relationship between the two commodities is of a second order. Hence, any

¹¹ The Second Five Year Plan is vague about the target of increase in milk output. It seems that an increase of the order of 10 per cent in the local and regional supply has been thought of.

diversion of unsatiated milk demand to vanaspati may be considerably reduced in the process of shifts. However, available data show that while the output of milk has been remarkably inelastic, the consumption of vanaspati has increased rapidly. Table XXVI quotes the estimates of production of milk, ghee and butter as obtained from the livestock census organised since 1940, and it can be seen that their output has remained more or less at the same level. Table XXVII, which gives production figures of vanaspati since 1930, shows on the other hand that, over the same period, the output of vanaspati has increased approximately fourfold. This could be taken as evidence of a shift in consumer demand from milk to vanaspati, although more definite statements on the nature and process of this shift would require further research.

CHAPTER IV

SECULAR CHANGE IN TASTES

SECULAR change in tastes as between toilet soap and washing soap could be assumed, as the two categories of soaps have distinctly different uses, and therefore they are not easily substitutable, one for the other. The problem of secular change in tastes, however, assumes some importance in the case of items like milk, butter, ghee, vanaspati, etc., because there is reason to believe that there would be a movement away from the consumption of milk, butter, ghee and other milk products to that of vanaspati. This question cannot be completely answered without considering the problem of secular shifts in people's tastes and consumption habits. There is little doubt that a sharp take-off in vanaspati consumption in the country is possible only in the event of a breakthrough of the consumer resistance which at present keeps a large segment of the population away from vanaspati. Unfortunately, historical data which might provide a guide towards checking and assessing secular shifts in consumption habits are always difficult to obtain. As stated earlier, for India, for the pre-war period, the only data available are those assembled in R.C. Desai's *Standard of Living in India and Pakistan, 1931-32 to 1940-41*. Table XXVIII reproduces Desai's figures of consumption expenditure on vegetable oils, butter, milk, ghee and other milk products in the country over the period 1931-32 to 1940-41 at constant prices, and compares them with the estimates of total consumer expenditure. Regression lines were fitted between the latter series and each of the expenditure series for the individual items; expenditure elasticities and trend coefficients obtained are shown in Table XXIX. A feature of these estimates is that, with the exception of butter, expenditure elasticities for all the other items are very low.¹² So far as the values of the trend coefficient are concerned, it is negative for ghee, 0.24

¹² This is in contrast to the estimates for the elasticity soap based on Desai's figures.

for butter, 1.00 for vegetable oils, and for milk and milk products it is as high as 2.14. The wide disparity in the values of trend coefficient for different items is hard to explain, although the value for milk and milk products appears plausible. The expenditure on vanaspati is apparently subsumed under "vegetable oils" and the trend coefficient for it cannot be secured separately in this case.

However, figures of vanaspati production in the country are available for the years beginning from 1931 and have been given in Table XXVII. The figures for 1931-40 from this table were correlated with Desai's series of total national expenditure for the period in order to obtain separately the trend coefficient as well as the expenditure elasticity for vanaspati for the period. Computations yield an extremely high value, namely 36.9, for the trend coefficient, along with a negative value for the expenditure elasticity. One reason for this high value will be that the production of vanaspati was started in the country only in the early thirties, and over the decade 1931-1940 output went up by nearly 2,642 per cent. The trend coefficient will be heavily influenced by this fact of expansion from a small base, and will have little relation to the actual "autonomous" shifts in consumption habits. Thus, not much reliance can be placed on the value of the coefficient obtained.

For the post-war years, production figures of vanaspati are available on a detailed basis. The index of this production series¹³ beginning from 1948 is given in Table XXX together with an index of movement in national income at constant prices.¹⁴ The trend and income elasticities derived from correlating the series are respectively 2.62 and 1.09. These estimates are more dependable on two counts. In the first place, the degree of reliability of basic data is certainly much higher for the post-war estimates. Moreover, the production figures of vanaspati had by 1948 crossed over the stage of explosive expansion.

¹³ The index of production can be roughly taken to be having the same characteristics as the index of consumption; the external transactions of vanaspati over the period were, on the whole, unimportant.

¹⁴ National Income Index relates to fiscal years.

CHAPTER V

THE PRICE FACTOR

AT THIS stage, a brief discussion on the price factor in influencing the relative shifts in consumption may be in order. The price factor did not exercise any major influence upon the upsurge of soap consumption during the period 1950-55. This is borne out by the movement of price-quotations for these years for the leading qualities in the two categories of soap, as given in Table XXXI. The figures show that in both cases, the price variation over the period has been insignificant. It is also not possible to discern any appreciable shift in the price structure of vanaspati in the country from the quotations of retail prices of Dalda¹⁵ detailed in Table XXXII. Even though price control over vanaspati was lifted in June 1952, it was not followed by any significant rise in prices. There was a little decline in the level of prices during 1954-55, with a revival in 1956. On the other hand, the increase in consumption of vanaspati has continued at a monotonic pace over the entire period. It cannot, therefore, be claimed that price variation over the period has been much of a determining factor in promoting the consumption of vanaspati.

It may be argued that the increase in vanaspati consumption is partly on account of the increasing price levels of competing products like ghee and butter, as well as milk. While it is true that during 1940-46 prices of these categories went up in many instances by even 600 to 700 percent, the trend of prices of all these items since 1949 has actually been downward, as can be seen from Table XXXIII. Thus, price elasticities of competing commodities cannot explain the continuing spurt in vanaspati demand over the last decade. Further correlation analysis to bring out the order of magnitude of the relevant cross-elasticities is therefore not strictly necessary.

¹⁵ The movements in the prices of other brands must have been similar ; attention is confined here to Dalda because of its being the market leader.

It is difficult to make any quantitative assessment of the likely variations in the prices of items like ghee and milk over the next few years ; but in so far as these prices rise more steeply or fall relatively less than the price of vanaspati, there would be an additional factor influencing a secular shift in consumption in favour of vanaspati. The possibility that the supply of milk and milk products would fail to respond adequately to the "induced" demand arising out of increases in the national income would imply that their prices might tend to move upwards. The factor of scarcity of milk and milk products will therefore affect vanaspati production in two distinct ways : (a) unsatiated demand from the former categories will move over to vanaspati ; and (b) there will be a further shift in favour of vanaspati on account of the rise in prices of milk and milk products.

CHAPTER VI

CONCLUSIONS

CONSIDERING together the historical data and the estimates of soap consumption between 1950 and 1956, it can be concluded with some confidence that, despite the indeterminate nature of the figures obtained from the analysis of NSS data, the income elasticity¹⁶ of the soap categories is greater than unity. The income elasticity of washing soap is somewhat higher than that for toilet soap. It seems plausible that in both pre-war and post-war periods the income elasticity of demand for washing soap has, allowing for regional variations, maintained a range between 2 and 4. In the light of the spread of literacy and sanitation taking place in the country, it would be reasonable to assume that there is no possibility of this elasticity dropping below the figure of 2.5 within the next five or ten years.

Similarly, in the case of toilet soap, it can be concluded that historically the income elasticity of demand for most regions has stayed within the range of 1 to 2, and that there is every likelihood of this value of income elasticity being maintained over the next decade.

If it is assumed that the national income of India in 1961 will be about 20 per cent higher than the 1956 level, it is then likely that the increase in washing soap consumption will be in the range of 50 to 60 per cent above the 1956 figures bringing the total consumption to between 310 thousand tons and 331 thousand tons. If the national income increase is of the order of 25 per cent, the increase in washing soap consumption should be 60 to 70 per cent bringing the total consumption to between 331 thousand tons and 351 thousand tons. On the other hand, if national income goes up by only 15 per cent during the period of the Second Plan, the corresponding increase in washing soap consumption will then

¹⁶ It is being assumed here that the trend elasticity is subsumed under the income elasticity.

probably be around the range of 40 per cent bringing the total consumption to 186 thousand tons. At the other end, a 30 per cent increase in national income is likely to raise the demand for washing soap to a level 80 per cent higher than the 1956 consumption so that the total consumption amounts to 372 thousand tons.

Similarly, in the case of toilet soap, national income increase of about 20 per cent should yield a rate of increase of consumption between 35 and 40 per cent. If the rate of national income increase is 25 per cent, it can be expected that toilet soap consumption in the country would go up by 40 to 50 per cent to between 47 thousand tons and 50 thousand tons by 1961. In case national income expands by as high a percentage as 30, the corresponding increase in toilet soap consumption is likely to be of the order of 50 to 60 per cent bringing the total consumption to about 53 thousand tons.

A final point needs to be added with respect to these extrapolations. The hypothetical increases postulated here refer to the *total* increases in the consumption of the soap categories, irrespective of whether they are the products of big units or small manufacturing concerns. It is thus quite possible that, in case over the next years the big manufacturing units expand at the expense of the small units, the order of increase of demand for the products of the organised sector may be even higher than the projected increases in aggregate soap consumption by 1961.

In the other group of items, namely milk, ghee, vanaspati, butter, etc., attention is confined only to vanaspati, on the supposition that a demand forecast for this item will have direct operational significance. It is in any case not unreasonable to assume that possibilities of rapid expansion of production of milk and milk products, at least in the short period, are limited. Thus an increased propensity for the consumption of these items will have a larger significance from the point of view of substitute commodities which can be readily made available in the market. Exclusive concentration on vanaspati in the following paragraphs can thus be defended.

For vanaspati, the Planning Commission envisages an expansion of capacity by about 15 per cent—from nearly 389,000 tons to 445,000 tons—and an increase in production of the order of 48 per cent—from 270,000 tons to 400,000 tons—over the Second Plan period. The

corresponding increase in domestic consumption has also been assumed at 48 per cent, from the level of 255,000 tons to around 375,000 tons.¹⁷

Is this assumption regarding the likely increase in internal consumption more or less justified, or is there a likelihood of a still sharper rise in consumption by 1961? Statistical forecasts regarding behaviouristic phenomena are always difficult, and the difficulties are the greater in a period of rapid changes. Thus, what is being stated here represents merely a point of view, backed by a set of statistical considerations, rather than any definitive alternative forecast.

Three factors, which would affect substantially the pattern of future consumption of vanaspati, and which stand out from the present analysis, are :

- (i) "induced" increase in consumption because of a rise in national income ;
- (ii) "transferred" increase in consumption because of a spill-over of demand from milk and milk products ; and
- (iii) "autonomous" increase resulting from secular changes in people's tastes and habits.

So far as the first factor is concerned, the decisive influence operates through the value of the income elasticity. As has been evident from the analysis of cross-section elasticities, an order of magnitude in the neighbourhood of unity can be confidently assumed for the income elasticity of vanaspati. This value of the income elasticity is also confirmed by an analysis of the figures for the past decade. On the assumption that national income rises by 25 per cent over the Second Plan period, it would therefore follow that the "induced" increase in the consumption of vanaspati will also be around 25 per cent which amounts to 64 thousand tons.

This is, however, subject to a proviso. Although, the several correlations quoted in Chapter III show that the income elasticity of demand for vanaspati is in the region of unity over all areas and regions in the country, there is no parallel set of evidence available which would go to prove that the anticipated increase in national income by a quarter will also be evenly spread over different states and regions, and over urban and rural areas. Since the per capita level of consumption of vanaspati

¹⁷ *Programmes of Industrial Development, 1960-61*, Planning Commission, pp.416-20.

will vary from area to area and group to group, given an income elasticity of unity, a disparate rise in income as between areas and groups will mean that vanaspati consumption will also rise by disparate percentages over these areas and groups. In such circumstances, even though national income will aggregate to a 25 per cent increase, the corresponding rise in total vanaspati consumption may be higher or lower.

The next point to consider is the diversion of demand from milk and milk products because of the failure of output to pick up in the latter categories. Table XXV shows that, for the past two decades, production of these items has been almost stationary. The volume of production of ghee and vanaspati is currently of about the same order, and of the items considered in this report, they are most directly substitutable for each other. Thus, with income elasticity of ghee also in the region of unity, if a national income rise by a quarter results in a heightened pressure on the supply of the item, there can be little doubt that considerable new demand would be generated for vanaspati. Similarly, some second-order spill-over from milk, butter and other milk products cannot also be ruled out. All told, therefore, a further increase in the consumption demand for vanaspati, amounting to another 15 to 20 per cent of the base-year consumption, can be safely taken credit for.

Finally, account has to be taken of the autonomous influences continuously swelling the consumption figures of vanaspati. Here, the statistical basis for making any statement is comparatively weak. The trend coefficient obtained for the pre-war period, inordinately high as it is, is obviously the product of explosive growth in output, and cannot therefore be used with confidence for purposes of prediction. The value of the coefficient for the post-war decade—2.6—is also quite high, and, if it is assumed that this value would also operate for some of the coming years, the increase in vanaspati consumption on account of this factor alone would be about 60 per cent over the period of the Second Plan. However, the value of the trend coefficient may be considerably lower by now, and it is not possible to be categorical regarding the level it might assume during the period under consideration. But, all the same, it may not be too wide of the mark to state that there might well be an increase of at least 20 per cent in vanaspati consumption as a result of autonomous shifts in consumer habits.

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Taking these factors together, therefore, it is possible to say that an overall increase of 60 to 70 per cent in the consumption of vanaspati, amounting to between 409 thousand tons and 434 thousand tons need not be considered improbable over the period of the Second Plan, even if this estimate is considerably higher than the Planning Commission's prognosis of a rise of slightly less than 50 per cent. At the same time, a margin of error, with an amplitude of, for example, 20 per cent either way, should be appended to the present estimate also.

APPENDIX

A NOTE ON SOURCES OF DATA AND THEIR LIMITATIONS

IN INDIA, time series of consumption figures are almost non-existent, the only exception being the figures available in R.C. Desai's *Standard of Living in India and Pakistan, 1931-32 to 1940-41*. Even cross-section studies for common consumer items had till recently been attempted only sporadically, and for limited centres either in the rural or in the urban areas. It is only since 1950 that the National Sample Survey (NSS) has initiated a continuous repetitive investigation into the pattern of consumer expenditure in the country. The major advantage of the NSS is that all the regions of the country are being covered, and equal importance is being given to collection of statistics from both urban and rural areas. For the first time, a unified mass of data is being made available which should, at least in the long run, make it possible to form a composite picture of the structure of consumer demand in the country.

At the same time, the specific defects inherent in the NSS estimates have to be mentioned. The sample design of the NSS is formulated to facilitate a multi-purpose exploration. Thus, the sample is so drawn as to represent a compromise between the different optimum frames which would have been appropriate with respect to cross-section analysis of different groups of commodities. Hence, the requirements for statistical analysis of particular commodities cannot be fully met. It is in the nature of the sample, for example, that the reliability of the data pertaining to a particular item, like toilet soap, washing soap, milk or vanaspati, is reduced significantly. Since the number of households within the broad sample frame responding to the enquiries on washing or toilet soap or other individual commodities is unlikely to be more than 20 to 25 per cent of the total frame, and in many instances even less, the reliability of the data for such items is correspondingly diminished.

Further, a significant portion of consumption of washing soap is by washermen and laundry establishments. The latter are almost totally excluded from the NSS sample frame. This multi-purpose frame also cannot—and does not—adequately represent the households of washermen. The operational efficiency of NSS data for purposes of projection is therefore further reduced. Likewise, the quality of data in respect of other items, such as milk, ghee, butter, vanaspati, other milk products, etc., available in the published reports of the NSS, is also such as would necessarily reduce their utility for demand analysis.

Data on Washing and Toilet Soaps

Summary data for the first three rounds of the NSS are available to the public, but since both washing soap and toilet soap constitute sub-items under the group "toilet items", the estimates of consumer expenditure on these categories cannot be extracted from the printed reports. Moreover, it was considered inadvisable to make any analytical use of data from the first three rounds of the NSS, as the non-sampling errors in these earlier rounds are relatively high and the reliability of the data is, therefore, low. The other point to be noted is that data obtained for any individual item or sub-item are not strictly comparable between the different rounds, since the number of entries over these rounds varied significantly.

In view of this position, Messrs. Hindustan Lever Limited made arrangements with the Indian Statistical Institute to collect the requisite data on washing soap and toilet soap during the fourth, fifth, sixth and seventh rounds of the NSS and to process and tabulate them for use by the National Council. Data obtained during these rounds were spread over the periods April-December 1952, December 1952-March 1953, May-September 1953, and November 1953-March 1954 respectively. The estimates transmitted to the Council gave all-India figures of consumption, separately for urban and rural areas, with further break-down into estimates for six zones and for the individual states before reorganisation.¹ For rural areas, the data gave monthly household expenditure levels in rupees for the following expenditure groups : Re. 1 to Rs. 50, Rs. 51 to

¹ The urban figures were further broken down to estimate for the four major cities, and for other cities and towns with different population ranges.

Rs. 100, Rs. 101 to Rs. 150, Rs. 151 to Rs. 300, Rs. 301 to Rs. 500 and Rs. 501 and above. For urban areas, another closed group, Rs. 501 to Rs. 1,000, was introduced. The tabulated data detailed the unestimated reporting households in the sample for each expenditure group, unestimated reporting persons in the sample for each group, estimated annual household expenditure on the particular commodity or item, and also the estimated annual per capita expenditure for each of these groups on the item.

The number of reporting households in the sample for the items varied from group to group within each round for the same sample, as also from round to round, from zone to zone and from area to area.² As a result, the comparability—as between zones or areas or rounds—of the data is seriously circumscribed. It is, therefore, clear that any results secured through analysing these data will not stand the test of rigorous statistical validity. Despite this limitation, for want of better data, these figures have been used to derive cross-section elasticities pertaining to the rural and urban areas, to the different zones, groups and also the various states.³

Another difficulty arises from the fact that cross-section elasticities derived from NSS data represent expenditure elasticities rather than income elasticities. Some adjustments in the value of elasticities are therefore necessary for projecting possible expansion in consumer demand in response to certain given or anticipated expansions of income. But these adjustments are unlikely to raise any intricacies since, over wide ranges, expenditure will be closely correlated to income.

A further statistical hurdle has to be mentioned. Since the data relate to only six or seven expenditure groups, the series available for cross-section analysis are unduly short. The error component in these estimates will therefore be subject to a high amplitude.⁴ Moreover, when data for the individual states or cities or zones, were taken up for processing, it was found that the number of sample households reporting was thinning

² The amplitude of these variations ranged from 500 to even 1,000 per cent.

³ The open groups were closed for purposes of regression analysis at Rs. 700 for the rural areas and Rs. 1,400 for urban areas.

⁴ Of course, a larger amplitude of the error component in a correlation does not necessarily imply that there is systematic bias in the estimate of the coefficient. Whether such a bias will occur or be significant depends also on a number of other factors.

down, and for many groups and areas the response was either extremely poor or almost absent. In all these cases, not even a crude regression line could be drawn.

The difficulty arising from small entries under the relevant sub-items may be partly met by combining the data from several rounds of the NSS. Such a procedure would help to enlarge the sample size and thus reduce the error margin of the estimates. At the same time, however, it is really not possible to ignore the ticklish problem of deflation of prices and expenditures, which would be involved in such an approach ; since the different rounds cover separate periods with significant changes in prices, it would have been necessary to have detailed series of prices before the data could be combined in a meaningful way. Hence, it was not considered advisable to combine the data from different rounds, as this would have merely meant bringing together non-homogeneous categories.

In fact, the present finding with respect to the usefulness of NSS data for purposes of demand forecasting is mostly negative. Unless a significant period elapses and the figures from the different rounds of the NSS are continuously processed and tested against the acknowledged rules of statistical significance, these data cannot be used for further meaningful analysis, without considering the implications of the defects involved.

*Data on Milk, Ghee, Vanaspati, Butter and
Other Milk Products*

The position in respect of requisite consumption data for these commodities is similar to that in the case of soaps. Even though demand analysis for these items was begun later, and the NSS was then in its fourteenth round, no data giving the results of the fourth and subsequent NSS rounds were published. Special tabulations were therefore arranged with the Indian Statistical Institute by the sponsor, and made available to the Council for further work. Confidential releases in respect of one or two later rounds also did not give the detailed, item-wise tabulations needed for demand analysis of these commodities. For these items, as in the case of soaps, the available data were not found amenable to time series analysis, and traditional methods of family budget analysis had to

be used. The tabulations made available for these items gave details of unestimated reporting households and unestimated reporting persons for each cluster of samples, and gave corresponding estimated annual expenditure for each commodity, household as well as per capita. Here again the usefulness of the data was reduced, because of wide variations in the number of reporting households between rounds, zones and states, as well as between groups and also between individual items. Thus, for example, in the case of vanaspati, the all-India figures for urban areas show that the unestimated reporting households in the sample for all expenditure levels vary from 1,146 in the fourth round to 578 in the fifth, 210 in the sixth and 250 in the seventh. The number of reporting households vary for each individual expenditure level as between the different rounds, as also between the different expenditure levels, for the same sample. In Table I, figures are reproduced from the NSS tabulations to provide some idea about the sharp fluctuations in the number of reporting households in both rural and urban all-India samples, for the different rounds. The autarchy is heightened when the samples are broken down for zones and states. The statistical significance of these fluctuations in the number of reporting households is that the results derived from processing the data of individual samples will not be comparable to one another. Figures from one round are not comparable to those from another round, even for the same area, the same item and the same group. As between different areas, rounds and groups, the comparability is of course infinitesimally less.

A major contributing factor for unevenness in the number of households as between rounds and expenditure levels is the disparate nature of responses for the various items on the part of households. It is understood that the Indian Statistical Institute took a card count of the schedules from the seventh round for some blocks of consumer expenditure. The result of the count was presented in the form of a distribution of items according to the percentage of reporting sample households. Estimates regarding the degree of response for the other three rounds are not available, but analysis of the seventh round schedules, as reported indicates that the response, for example for vanaspati, was confined to between 10 and 25 per cent of the total number of urban households in the all-India sample and to between only 1 and 5 per cent of the total

number of rural households. The lower response in rural areas for this item is according to expectations. Similarly, in the case of milk (cow), response in urban areas was between 10 and 25 per cent of total households ; the same degree of response was also registered in the case of rural households. For milk (buffalo), response in both urban and rural areas was in the range of 25 to 50 per cent of the total number of households : an identical range of response was found for ghee (buffalo). In the case of ghee (cow), response in urban areas was from 1 to 5 per cent of total households, while, strangely, in rural areas it was between 5 and 10 per cent of the households. For butter, in both urban and rural areas, the response was from 1 to 5 per cent of the aggregate number of households. In the case of other milk products, it was from 1 to 5 per cent of the households. These widely differing levels of response are likely to be due to differences in the consumption of these items.

Where responses are from between 1 to 5 per cent only of the total sample of households, the statistical reliability of the processed data is likely to be considerably reduced. Also, as in the case of analysis of soaps and washing soaps, for many of the items the number of households responding in a particular state or in a particular zone was so insignificant that the data were not amenable to correlation analysis. This, for example, has been true of the vanaspati figures for the rural areas in many of the states. The gaps in the analysed data will become apparent from the appended tables.⁵

⁵ Some dispersed data were also available for items such as *dahi*, *ghol*, and *lassi*. These minor items have been left out of the analysis.

T A B L E S

TABLE I

NUMBER OF REPORTING

Expenditure levels in rupees	Milk (Cow)				Milk (Buffalo)				Ghee (Cow)			
	4th	5th	6th	7th	4th	5th	6th	7th	4th	5th	6th	7th
<i>Rural Areas</i>												
1- 50	388	187	64	174	359	235	81	158	91	58	16	57
51- 100	1,206	607	246	359	990	618	197	370	299	150	58	99
101- 150	1,034	460	216	180	822	481	188	227	260	135	61	42
151- 300	1,121	486	259	189	1,036	561	262	245	310	124	58	50
301- 500	291	132	68	43	324	164	65	40	74	32	12	12
501 and above	141	46	27	18	134	50	22	18	36	15	10	4
TOTAL	4,181	1,918	880	943	3,665	2,109	815	1,058	1,070	514	215	270
<i>Urban Areas</i>												
1- 50	155	66	31	47	231	168	53	111	18	9	4	4
51- 100	486	269	90	139	771	461	139	237	68	35	13	15
101- 150	459	287	87	89	638	340	133	118	74	43	13	14
151- 300	712	276	126	92	954	417	172	146	164	76	28	28
301- 500	243	99	43	31	252	108	50	42	73	27	11	10
501-1,000	113	44	29	23	126	38	23	19	45	13	10	9
1,001 and above	24	15	6	6	23	8	8	2	13	7	3	2
TOTAL	2,192	1,056	412	427	2,995	1,530	578	675	455	210	80	80

TABLE I

HOUSEHOLDS IN NSS SAMPLES

<i>Ghee (Buffalo)</i>				<i>Vanaspati</i>				<i>Butter</i>				<i>Other milk products</i>			
<i>4th</i>	<i>5th</i>	<i>6th</i>	<i>7th</i>	<i>4th</i>	<i>5th</i>	<i>6th</i>	<i>7th</i>	<i>4th</i>	<i>5th</i>	<i>6th</i>	<i>7th</i>	<i>4th</i>	<i>5th</i>	<i>6th</i>	<i>7th</i>
287	157	36	141	57	20	6	13	22	9	2	4	27	24	7	9
924	618	172	369	131	47	23	47	62	34	8	25	83	58	23	15
990	537	196	252	91	50	15	26	86	50	18	17	56	39	8	9
1,263	645	314	241	103	38	16	20	134	62	24	26	52	20	13	12
398	161	72	44	40	16	8	9	45	31	8	6	20	2	1	2
171	57	29	23	32	4	5	4	20	9	...	1	7	3	2	...
4,031	2,175	819	1,070	454	175	73	119	369	195	60	79	245	146	54	47
103	77	23	54	89	43	19	33	7	2	...	5	8	2	1	2
397	294	70	145	237	142	31	73	29	17	3	4	42	15	4	9
479	266	81	111	227	129	41	42	39	18	3	6	32	24	4	6
822	360	118	136	375	165	65	69	131	33	17	17	75	16	9	11
264	109	60	46	136	58	32	18	58	27	11	10	37	15	5	6
126	42	31	24	70	30	18	18	51	10	8	9	11	4	2	1
19	10	10	6	12	11	4	2	12	3	1	1	6	5	...	...
2,210	1,168	393	522	1,146	578	210	250	327	110	43	52	211	81	25	35

TABLE II
EXPENDITURE ELASTICITY OF CONSUMPTION FOR WASHING SOAP
(as obtained from NSS data)

Region	Fourth round	Fifth round	Sixth round	Seventh round
<i>Urban Areas</i>				
All-India	0.24	0.27	0.45	0.46
All towns with population less than 50,000	0.41	0.39	0.51	0.46
All towns with population between 50,000 and 100,000	...	...	0.45	0.15
All towns with population above 100,000	0.22	-0.04	0.21	0.27
Four big cities	0.18	0.21	0.24	0.17
Calcutta	0.69	...	0.16	0.12
Bombay	-0.10	0.17	0.29	-0.14
Delhi	0.005	0.22	0.36	0.25
Madras	0.52	0.20	0.20	0.21
<i>Rural Areas</i>				
All-India	0.35	0.25	0.45	0.44
West India	0.88	0.42	0.37	0.48
Central India	0.07	0.57	0.26	0.61
North-west India	0.33	0.26	0.42	0.64
North India	0.29	0.24	0.31	0.20
East India	0.32	0.41	0.44	0.44
South India				
Pepsu	0.10	0.24	0.34	0.20
Delhi	0.27	-0.1	...	...
Rajasthan	0.58	0.13	-0.04	0.97
Hyderabad	0.78	0.64	0.60	0.62
Madhya Pradesh	0.53	0.75	0.54	0.66
Travancore-Cochin	0.34	0.17	0.33	0.63
Bombay				
Madras	0.26	0.16	...	0.02
Mysore	0.81	0.03	0.68	0.44
West Bengal	0.23	0.47	0.45	0.16
Assam	0.06	0.27	0.23	0.04
Orissa	0.43	...	0.14	...
Uttar Pradesh	0.30	0.25	0.32	0.30
Bihar	0.31	0.39	0.38	0.52
Madhya Bharat	0.67	0.72	0.77	0.48

TABLE III
EXPENDITURE ELASTICITY OF CONSUMPTION FOR TOILET SOAP

(as obtained from NSS data)

<i>Region</i>	<i>Fourth round</i>	<i>Fifth round</i>	<i>Sixth round</i>	<i>Seventh round</i>
<i>Urban Areas</i>				
All-India	0.57	0.62	0.75	0.73
All towns with population less than 50,000	0.24	0.85	0.71	0.22
All towns with population between 50,000 and 100,000	...	...	0.48	0.63
All towns with population above 100,000	0.53	0.36	0.60	0.45
Four big cities	0.60	0.61	0.82	0.72
Calcutta	0.39	0.60	0.63	0.66
Bombay	0.57	0.44	0.56	...
Madras	0.63	0.46	0.34	0.62
Delhi	0.33	0.58	0.70	0.33
<i>Rural Areas</i>				
All-India	0.53	0.20	0.73	0.43
West India	0.69	0.69	0.60	0.04
Central India	0.84	0.80	0.42	...
North-west India	0.50	0.28	0.66	0.53
North India	0.40	0.33	0.50	0.31
East India	0.48	-0.06	0.62	0.01
South India	0.61	0.60	0.81	0.65
Pepsu	0.35	0.30	...	0.03
Delhi	0.45	...	...	...
Rajasthan	0.28	0.15	0.46	0.50
Hyderabad	0.90	0.13	0.35	...
Madhya Pradesh	0.67	0.45	0.79	0.37
Travancore-Cochin	0.32	0.30	0.57	0.08
Bombay	0.72	...	0.14	0.36
Madras	0.25	0.63	0.86	0.68
Mysore	0.11	0.44	...	...
West Bengal	0.36	0.85	0.68	0.16
Assam	0.01	0.10	0.50	0.10
Orissa	1.10	0.71	..	...
Uttar Pradesh	0.43	0.34	0.40	0.07
Bihar	0.62	0.54	-0.62	0.32

TABLE IV

FREQUENCY DISTRIBUTION OF EXPENDITURE ELASTICITIES OF CONSUMPTION

Class	Washing soap		Toilet soap	
	Urban area frequency	Rural area frequency	Urban area frequency	Rural area frequency
.001 - .050	1	5	...	4
.051 - .100	...	5	...	4
.101 - .150	2	3	...	4
.151 - .200	6	7	...	2
.201 - .250	8	7	2	1
.251 - .300	3	10	...	4
.301 - .350	...	10	3	6
.351 - .400	2	6	2	5
.401 - .450	3	10	2	6
.451 - .500	2	4	2	6
.501 - .550	2	4	1	3
.551 - .600	...	3	7	3

-601 -- -650	...	5	6	
-651 -- -700	1	3	2	6
-701 -- -750	...	2	4	3
-751 -- -800	...	2	...	2
-801 -- -850	...	1	2	4
-851 -- -900	...	1	...	2
-901 -- -950	...	...	...	...
-951 -- 1-000	...	1	...	...
1-001 -- 1-050	...	...	...	...
1-051 -- 1-100	...	1	...	1

TABLE V

PERCENTAGE INCREASES IN CONSUMER EXPENDITURE CORRES-

(Basis: NSS

WASHING

Region	Fourth round			
	16%	20%	25%	30%
<i>Urban Areas</i>				
All-India	3.4	4.5	5.5	6.5
All towns with population below 50,000	5.9	7.7	9.6	11.4
All towns with population of 50,000-100,000	...	...	...	...
All towns with population above 100,000	3.1	4.1	5.1	5.9
Four big cities	2.5	3.4	4.1	4.8
Calcutta	10.1	13.4	16.6	19.9
Bombay	...	...	...	...
Delhi	0.07	0.1	0.11	0.1
Madras	7.4	10.0	12.3	14.5
<i>Rural Areas</i>				
All-India	5.1	6.6	8.1	9.6
West India	5.4	7.2	8.8	10.5
Central India	1.0	1.3	1.6	1.9
North-west India	4.7	6.2	7.6	9.0
North India	4.1	5.4	6.7	7.9
East India	4.6	6.0	7.4	8.7
South India	...	...	...	...
Pepsu	1.4	1.8	2.3	2.7
Delhi	3.9	5.1	6.3	7.4
Rajasthan	8.4	11.1	13.9	16.4
Hyderabad	11.5	15.3	19.1	22.7
Madhya Pradesh	7.6	10.2	12.6	14.9
Travancore-Cochin	4.8	6.4	7.9	9.3
Bombay	...	...	...	...
Madras	3.7	4.8	6.0	7.0
Mysore	12.0	16.1	19.8	23.7
West Bengal	3.3	4.2	5.3	6.2
Assam	0.8	1.1	1.4	1.6
Orissa	6.2	8.1	10.1	11.9
U.P.	4.2	5.6	6.9	8.1
Bihar	4.4	5.8	7.2	8.5
Madhya Bharat	10.1	13.0	16.1	19.2

TABLE IV

PONDING TO 15%, 20%, 25% AND 30% INCREASES IN INCOME

data]

S.O.A.P.

Fifth round				Sixth round				Seventh round			
15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%
3.9	5.1	6.3	7.4	6.5	8.5	10.6	12.6	6.6	8.7	10.9	12.8
5.6	7.4	9.1	10.8	7.4	9.7	12.0	14.3	6.6	8.7	10.9	12.8
...	...	...	...	6.5	8.5	10.6	12.6	2.2	2.8	3.4	4.0
...	...	...	...	3.0	3.9	4.8	5.6	8.9	5.1	6.3	7.4
3.0	3.9	4.8	5.6	3.4	4.5	5.5	6.5	2.4	3.1	3.9	4.6
...	...	...	...	2.2	2.8	3.6	4.2	1.7	2.2	2.7	3.2
2.4	3.1	3.9	4.6	4.2	5.4	6.7	7.9	...	...	...	...
3.1	4.1	5.1	5.9	5.2	6.8	8.3	9.9	3.5	4.7	5.8	6.8
2.8	3.7	4.6	5.4	2.8	3.7	4.6	5.4	3.0	3.9	4.8	5.6
...
3.5	4.7	5.8	6.8	6.5	8.5	10.6	12.6	6.4	8.3	10.4	12.2
6.0	8.0	9.8	11.6	5.3	7.0	8.6	10.2	6.9	9.1	11.3	13.4
8.2	10.8	13.6	16.1	3.8	4.8	5.9	7.0	8.9	11.8	14.0	17.3
3.8	4.8	5.9	7.0	6.0	8.0	9.8	11.6	9.3	12.4	15.3	18.2
3.4	4.5	5.5	6.5	4.4	5.8	7.2	8.5	2.8	3.7	4.6	5.4
5.9	7.7	9.6	11.4	6.4	8.3	10.4	12.2	6.4	8.3	10.4	12.2
...
3.4	4.5	5.5	6.5	4.8	6.2	7.8	9.3	2.8	3.7	4.6	5.4
...
1.8	2.4	2.9	3.5	...	...	...	...	14.5	19.3	24.2	29.0
9.3	12.4	15.3	18.2	8.7	11.5	14.3	17.0	9.0	11.9	14.8	17.7
11.0	14.7	18.2	21.7	7.8	10.4	12.8	15.2	9.6	12.8	15.9	19.0
2.4	3.1	3.9	4.6	4.7	6.2	7.6	9.0	9.1	12.1	15.1	18.0
...
2.2	3.0	3.6	4.2	...	...	...	...	0.2	0.3	0.4	0.6
0.4	0.6	0.7	0.8	10.0	13.2	16.3	19.5	6.4	8.3	10.4	12.2
6.9	8.9	11.0	13.1	6.5	8.5	10.6	12.6	2.2	3.0	3.6	4.2
3.9	4.5	6.3	7.4	3.3	4.2	5.3	6.2	0.6	0.7	0.9	1.1
...	...	...	...	2.0	2.6	3.1	3.7	...	...	...	...
3.5	4.7	5.8	6.8	4.6	6.0	7.4	8.7	4.2	5.6	7.2	8.1
5.6	7.2	9.1	10.8	5.5	7.2	8.8	10.5	7.5	10.0	12.3	14.7
10.6	14.0	17.4	20.8	11.3	14.8	18.8	22.4	6.9	9.1	11.3	13.4

TABLE VI

INCREASE IN CONSUMER EXPENDITURE CORRESPONDING

(Basis : NSS)

TOILET

Region	Fourth round			
	15%	20%	25%	30%
<i>Urban Areas</i>				
All-India	8.2	10.9	13.6	16.1
All towns with population below 50,000	3.4	4.5	5.5	6.5
All towns with population of 50,000—100,000	...	...	...	...
All towns with population above 100,000	7.6	10.2	12.6	14.9
Four big cities	8.7	11.5	14.3	17.0
Calcutta	5.5	7.2	9.1	10.5
Bombay	8.2	10.9	13.6	16.1
Madras	9.1	12.1	15.1	18.0
Delhi	4.7	6.2	7.6	9.0
<i>Rural Areas</i>				
All-India	7.6	10.2	12.6	14.9
West India	10.3	13.5	16.7	20.2
Central India	12.5	16.3	20.6	24.7
North-west India	7.2	9.5	11.7	14.0
North India	5.8	7.5	9.3	11.1
East India	6.9	9.1	11.3	13.4
South India	8.9	11.8	14.6	17.3
Pepsu	5.1	6.6	8.1	9.6
Delhi	6.5	8.5	10.6	12.6
Rajasthan	4.0	5.3	6.5	7.6
Hyderabad	13.4	17.9	22.3	26.6
Madhya Pradesh	10.1	13.0	16.1	19.2
Travancore-Cochin	4.6	6.0	7.4	8.7
Bombay	10.6	14.0	17.4	20.8
Madras	3.5	4.7	5.8	6.8
Mysore	1.6	2.1	2.5	2.9
West Bengal	5.2	6.8	8.3	9.9
Assam	0.1	0.2	0.2	0.2
Orissa	16.6	22.2	27.8	33.5
U. P.	6.2	8.1	10.1	11.9
Bihar	9.0	11.9	14.8	17.7

TABLE VI

TO 15%, 20%, 25% AND 30% INCREASES IN INCOME

data)

SOAP

Fifth round				Sixth round				Seventh round			
15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%
9.0	11.9	14.8	17.7	11.0	14.7	18.2	21.7	10.7	14.1	17.6	21.1
12.7	16.8	20.9	24.9	10.5	13.9	17.3	20.4	3.1	4.1	5.1	5.9
...	...	...	...	6.9	9.1	11.3	13.4	9.1	12.1	15.1	18.0
5.2	6.8	8.3	9.9	8.7	11.5	14.3	17.0	6.5	8.5	10.6	12.6
8.9	11.8	14.6	17.3	12.2	16.3	20.2	24.0	10.6	14.0	17.4	20.8
8.7	11.5	14.3	17.0	9.1	12.1	15.1	18.0	9.9	12.8	15.9	18.8
6.4	8.3	10.4	12.2	8.0	10.7	13.4	15.8	...	...	...	...
6.6	8.7	10.9	12.8	4.8	6.3	7.9	9.3	9.0	11.9	14.9	17.7
8.4	11.1	13.9	16.4	10.3	13.7	16.9	20.5	4.7	6.2	7.6	9.0
...
2.8	3.7	4.6	5.4	10.8	14.2	17.6	21.2	6.2	8.1	10.1	11.9
10.3	13.5	16.7	20.2	8.7	11.5	14.3	17.0	0.6	0.7	0.9	1.1
11.8	15.9	19.5	23.4	6.0	8.0	9.8	11.6	...	...	...	...
4.0	5.3	6.5	7.6	9.6	12.8	16.9	19.0	7.6	10.2	12.6	14.9
4.7	6.2	7.6	9.0	7.2	9.5	11.7	14.0	14.4	15.8	7.2	8.5
...	...	...	...	9.0	11.9	14.8	17.7	0.1	0.2	0.2	0.2
8.7	11.5	14.3	17.0	12.0	16.1	19.8	23.7	9.5	12.6	15.6	18.6
4.2	5.6	7.2	8.1	...	...	...	...	...	0.6	0.7	...
...
2.0	2.8	3.4	4.0	6.6	8.7	10.9	12.8	7.2	9.5	11.7	14.0
1.8	2.4	2.9	3.5	5.1	6.6	8.1	9.6	...	...	...	...
6.5	8.5	10.6	12.6	11.7	15.5	19.3	23.1	5.3	7.0	8.6	10.2
5.4	5.6	7.2	10.4	8.2	10.9	13.6	16.1	1.1	1.5	1.8	2.1
...	...	...	...	2.0	2.6	3.1	3.7	5.2	6.8	8.3	9.9
9.1	12.1	15.1	18.0	12.8	16.9	21.1	25.3	10.0	13.2	16.8	19.5
6.4	8.3	10.4	12.2	...	...	...	...	...	...	...	...
12.7	16.8	20.9	24.9	10.0	13.2	16.8	19.5	2.2	2.8	3.6	4.2
1.4	1.8	2.3	2.7	7.2	9.5	11.7	14.0	1.4	1.8	2.3	2.7
10.4	13.8	17.2	20.4	...	...	...	...	...	...	...	...
4.8	6.4	7.9	9.3	5.7	7.5	9.4	11.1	1.0	1.2	1.6	1.8
7.8	10.4	12.8	15.2	...	...	...	...	12.2	16.3	20.2	24.0

TABLE VII
CONSUMER EXPENDITURE 1931-32 TO 1940-41 AT 1938-39 PRICES
(in million rupees)

	1931-2	1932-3	1933-4	1934-5	1935-6	1936-7	1937-8	1938-9	1939-40	1940-1
Soap and washing soda	55	59	62	59	53	57	59	72	68	81
Total	24,458	24,425	24,516	24,756	25,035	25,853	25,863	25,852	25,503	26,389

SOURCE : R.C. Desai, *Standard of Living in India and Pakistan, 1931-32 to 1940-41.*

TABLE VIII
AVAILABILITY OF SOAP*, 1950-56

(in tons)

	1950	1951	1952	1953	1954	1955	1956
Washing soap	60,085	66,487	70,184	81,003	71,721	83,473	93,041
Toilet soap	12,017	14,623	14,037	12,554	15,779	15,177	16,916

*Represents availability in the organised sector.
SOURCE : Ministry of Commerce and Industry.

TABLE IX
SOAP CONSUMPTION IN INDIA, 1951-56
(in hundred tons)

Linguistic region	1951			1952			1953			1954			1955			1956		
	Total	W	T	Total	W	T	Total	W	T	Total	W	T	Total	W	T	Total	W	T
All-India	1,734	1,474	260	1,820	1,555	265	1,840	1,571	269	1,930	1,654	276	2,200	1,896	305	2,400	2,067	333
Hindi :																		
North & north-west	381	331	50	400	349	51	404	353	51	424	371	53	483	425	58	527	464	63
Hindi :																		
Central & north-east	240	210	30	252	222	30	254	223	31	267	236	31	304	270	34	332	294	38
Punjab	146	26	20	153	133	20	155	134	21	162	142	20	185	162	23	202	177	25
Gujarat	116	104	12	121	110	11	123	111	12	129	117	12	147	134	13	160	146	14
Maharashtra	183	157	26	193	166	27	194	168	26	203	177	26	232	203	29	253	221	32
Tamilnad	116	90	26	121	95	26	123	96	27	129	101	28	147	115	32	160	126	34
Andhra	89	72	17	94	76	18	95	78	17	100	81	19	114	92	22	124	101	23
Karnataka	142	128	14	149	135	14	151	136	15	158	143	15	180	164	16	197	179	18
Kerala	96	81	15	102	85	17	103	86	17	108	90	18	123	104	19	134	113	21
Bengal	142	106	36	149	111	38	151	112	39	158	118	40	180	136	44	197	148	49
Assam	63	53	10	66	56	10	67	57	10	70	60	10	80	69	11	87	75	12
Orissa	20	16	4	20	17	3	20	17	3	22	18	4	25	21	4	27	23	4

W = Washing soap T = Toilet soap including Lifebuoy

SOURCE : Soap Division, Hindustan Lever Limited.

TABLE X
PERCENTAGE INCREASE OF SOAP CONSUMPTION IN 1966
WITH REFERENCE TO 1951

<i>Linguistic region</i>	<i>Washing soap</i>	<i>Toilet soap</i>
All-India	40.2	28.1
Hindi :		
North & north-west	40.2	28.0
Hindi :		
Central & north-east	40.0	26.7
Punjab	40.5	25.0
Gujarat	40.4	16.7
Maharashtra	40.8	23.1
Tamilnad	40.0	30.8
Andhra	40.3	35.3
Karnataka	39.9	28.6
Kerala	39.5	40.0
Bengal	39.6	19.4
Assam	41.5	20.0
Orissa	43.8	...

TABLE XI
EXPENDITURE ELASTICITIES OF MILK (COW) -

(Basis : NSS data)

Region	Fourth round	Fifth round	Sixth round	Seventh round
<i>Urban Areas</i>				
All-India	0.82	0.97	0.89	1.06
All towns with population below 50,000	0.72	1.00	0.54	0.92
All towns with population between 50,000 and 100,000	...	...	1.08	0.15
All cities with population above 100,000	0.86	0.96	0.94	1.14
All cities	0.72	1.25	0.64	0.90
Delhi	1.22	...	...	...
Madras	0.96	1.42	0.78	0.85
Bombay	...	...	...	...
Calcutta	0.86	0.93	0.06	1.02
<i>Rural Areas</i>				
Madras	1.10	1.07	...	0.68
Mysore	0.47	0.48	0.78	0.21
Uttar Pradesh	0.55	...	0.26	0.78
Bihar	0.88	0.90	1.12	0.92
West Bengal	0.94	0.69	0.73	0.62
Assam	0.53	0.48	0.53	...
Madhya Bharat	0.55	0.27	...	...
Bombay	0.16	0.85	0.76	0.47
Punjab	0.36	0.94	1.33	0.17
Travancore-Cochin	1.17	1.08	0.68	1.63
Saurashtra	0.01	0.15	1.23	0.36
Hyderabad	0.72	0.66	0.64	0.93
Pepsu	0.86	0.26	...	...
Rajasthan	0.81	0.91	0.68	...
Bhopal	0.63	...	...	...
Orissa	1.18	...	0.92	...
Madhya Pradesh	0.63	0.86	1.04	...
Vindhya Pradesh	0.65	...	...	...
Kutch	...	...	...	0.29
North India	0.55	0.49	0.26	0.65
East India	0.94	0.191	0.78	0.90
South India	1.00	0.99	1.00	0.77
West India	0.16	0.71	0.80	0.47
Central India	0.52	0.34	1.19	0.69
North-west India	0.66	0.72	1.23	0.43
All-India	0.84	0.85	0.97	0.77

TABLE XII
EXPENDITURE ELASTICITIES OF MILK (BUFFALO)

(Basis : NSS data)

<i>Region</i>	<i>Fourth round</i>	<i>Fifth round</i>	<i>Sixth round</i>	<i>Seventh round</i>
<i>Urban Areas</i>				
All-India	0.75	0.60	0.84	0.57
All towns with population below 50,000	0.67	0.23	0.65	0.80
All towns with population between 50,000 and 100,000	...	...	0.88	0.74
All cities with population above 100,000	0.58	0.63	0.14	...
All cities	1.01	0.69	1.06	0.59
Delhi	0.43	0.84	0.58	0.45
Bombay	0.75	0.35		0.59
Madras	1.40	...	0.51	...
<i>Rural Areas</i>				
Madhya Bharat	1.98	1.25	0.28	0.19
Bombay	0.67	0.60	0.57	0.73
Bihar	1.26	0.86	1.40	1.01
Mysore	0.80	0.29	...	...
Hyderabad	0.81	...	1.01	...
Saurashtra	0.36	...	...	...
Madhya Pradesh	1.12	...	...	0.65
Pepeu	0.99	1.13	...	1.54
Punjab	0.91	0.66	0.98	0.64
Rajasthan	1.22	2.00	1.30	1.17
Madras	1.28	1.38	1.38	0.80
North India	0.94	0.99	1.20	0.89
East India	1.37	0.94	1.63	1.07
South India	1.23	1.26	1.16	0.76
West India	0.70	0.62	0.64	0.72
Central India	1.28	1.36	0.88	0.52
North-west India	1.14	1.06	1.06	1.21
All-India	1.11	1.07	1.05	1.00

TABLE XIII
EXPENDITURE ELASTICITIES OF GHEE (COW)

(Basis : NSS data)

<i>Region</i>	<i>Fourth round</i>	<i>Fifth round</i>	<i>Sixth round</i>	<i>Seventh round</i>
<i>Urban Areas</i>				
All-India	1.16	0.86	1.18	1.14
All towns with population below 50,000	1.36	1.23	1.25	0.98
All towns with population between 50,000 and 100,000	...	...	0.90	0.63
All cities with population above 100,000	0.96	0.39	0.28	...
All cities	1.00	0.66	1.35	0.95
Madras	1.59	...	1.56	...
Calcutta	0.75	0.08	1.59	...
<i>Rural Areas</i>				
Madhya Pradesh	1.05	1.31	1.24	1.17
Uttar Pradesh	0.69	0.65	0.52	...
Orissa	1.33	...	...	...
Saurashtra	0.20	...	...	...
Bihar	1.22	0.71	...	0.95
West Bengal	1.43	...	...	...
Mysore	0.24	1.23	...	...
Madras	1.73	1.33	...	...
Rajasthan	0.80	0.79	...	...
Hyderabad	1.42	1.39	...	...
Bombay	...	0.63	...	0.71
Punjab	0.83	...	...	...
Himachal Pradesh	...	1.58	...	...
North India	0.60	0.65	0.52	...
East India	1.01	0.71	1.55	1.01
South India	1.48	0.65	1.25	...
West India	0.14	0.17	...	0.70
Central India	0.81	1.15	1.44	0.94
North-west India	0.53	0.39	0.83	...
All-India	0.87	0.88	1.08	0.79

TABLE XIV
EXPENDITURE ELASTICITIES OF GHEE (BUFFALO)

(Basis : NSS data)

Region	Fourth round	Fifth round	Sixth round	Seventh round
<i>Urban Areas</i>				
All-India	0.82	0.56	1.05	0.80
All towns with population below 50,000	0.75	0.16	1.33	1.00
All towns with population between 50,000 and 100,000	0.71	0.81	0.62	0.73
All cities with population above 100,000	0.71	0.81	0.62	0.73
All cities	0.27	0.50	1.05	0.91
Delhi	0.63	0.94	0.66	0.24
Madras	1.62	0.44	...	...
Calcutta	1.01	1.25	0.94	0.90
<i>Rural Areas</i>				
Uttar Pradesh	0.83	0.91	1.07	0.67
Bombay	1.23	1.07	1.52	1.16
Saurashtra	0.80	0.82	...	1.37
Pepsu	1.14	0.68	0.75	0.79
Madhya Pradesh	0.16	1.37	2.11	...
Hyderabad	1.18	1.26	...	0.54
Mysore	1.05	0.98	...	...
Rajasthan	0.89	1.00	1.13	0.82
Bihar	0.40	1.34	1.60	1.35
Madras	1.67	1.87	1.97	2.15
Punjab	...	0.57	1.97	2.15
Delhi	0.70	...	...	...
Bhopal	1.85	1.37	...	...
North India	0.83	0.91	1.07	0.67
East India	1.32	1.49	1.64	1.35
South India	2.21	1.79	1.80	1.56
West India	1.18	1.04	1.55	1.14
Central India	1.31	1.64	1.83	0.98
North-west India	0.88	0.84	0.97	0.63
All-India	1.12	...	1.23	0.99

TABLE XV
EXPENDITURE ELASTICITIES OF VANASPATI

(Basis : NSS data)

Region	Fourth round	Fifth round	Sixth round	Seventh round
<i>Urban Areas</i>				
All-India	0.72	0.92	0.71	0.71
All towns with population below 50,000	0.76	0.83	0.59	...
All towns with population between 50,000 and 100,000	...	...	...	1.12
All cities with population above 100,000	0.69	0.98	0.55	...
All cities	0.81	0.59	0.82	0.72
Delhi	0.08	0.69	0.76	0.13
Bombay	...	0.50	...	...
Calcutta	0.81	0.47	0.12	...
<i>Rural Areas</i>				
Uttar Pradesh	0.21	1.12	2.04	...
Punjab	-0.21	-0.06	...	0.30
Mysore	...	1.02	...	...
Bombay	0.70	0.61	1.00	...
Pepsu	0.69	...	...	...
Orissa	0.72	...	...	...
Madras	0.43	...	...	...
West Bengal	1.59	...	...	1.82
Delhi	0.38	...	...	...
North India	0.88	1.12	2.03	...
Central India	1.49	...	...	...
East India	0.60	1.10	...	0.77
South India	0.64	...	...	...
West India	0.68	0.63	0.46	...
North-west India	0.49	0.47	0.14	0.79
All-India	0.81	0.96	1.58	1.19

TABLE XVI
EXPENDITURE ELASTICITIES OF BUTTER

(Basis : NSS data)

<i>Region</i>	<i>Fourth round</i>	<i>Fifth round</i>	<i>Sixth round</i>	<i>Seventh round</i>
<i>Urban Areas</i>				
All-India	1.71	1.16	1.80	1.23
All towns with population below 50,000	0.82	0.98	...	0.90
All cities with population above 100,000	1.02	...	...	...
All cities	1.81	1.38	...	...
Delhi	0.82	...	...	...
<i>Rural Areas</i>				
Punjab	0.79	1.38	...	0.66
Pepsu	1.08	0.99	...	...
Bombay	1.38	...	1.08	...
Madras	2.31	...	...	...
Mysore	0.49	0.28	0.98	0.72
Madhya Pradesh	0.98	...	...	...
Travancore-Cochin	0.45	...	...	...
East India	...	0.21	...	...
Central India	0.90	...	...	...
South India	1.68	1.06	1.00	1.13
West India	1.38	...	1.05	...
North-west India	1.79	1.71	...	...
All-India	1.52	1.79	1.66	1.37

TABLE XVII
EXPENDITURE ELASTICITIES OF OTHER MILK PRODUCTS

(Basis : NSS data)

Region	Fourth round	Fifth round	Sixth round	Seventh round
<i>Urban Areas</i>				
All-India	1.11	1.25	0.74	1.14
All towns with population below 50,000	1.16	0.73	...	...
All cities with population above 100,000	...	1.05	...	...
All cities	1.41	1.02	...	...
<i>Rural Areas</i>				
North India	0.77	...	...	...
East India	0.74	...	...	...
West India	...	...	...	...
South India	1.11	1.73	...	...
Central India	0.78	...	...	...
North-west India	0.78	...	...	...
All-India	0.79	0.17	0.69	0.41

TABLE XVIII
 FREQUENCY DISTRIBUTION OF EXPENDITURE ELASTICITIES
 (Basis : NSS data)

Class	Milk (Cow)		Milk (Buffalo)		Ghee (Cow)		Ghee (Buffalo)		Vanaspati		Butter		Other milk products	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
.001— .050		1												1
.051— .100					1				1	1				
.101— .150	1	1	1			1			2	1				
.151— .200		3		1		2	1							
.201— .250		1	1			1	1			1		1		
.251— .300		5		2	1		1			1		1		
.301— .350		1	1											
.351— .400		2		1	1	1		1		1				
.401— .450		1	2				1			1		1		1
.451— .500		6					1	1	2	3		1		
.501— .550	1	6	1	1		3		1	1					
.551— .600		1	6	2		1	1	2	2	1				
.601— .650	1	6	2	4	1	4	1	1		3				
.651— .700		7	2	3	1	2	1	4	2	2		1		1

-701—-750	2	4	3	2	1	3	3	1	4	1		1	2	2
-751—-800	1	6	1	3		3		2	2	3		1		3
-801—-850	2	4	2	1		3	3	5	4	1	2			
-851—-900	4	5	1	3	1	2	2	2		1	1	1		
-901—-950	3	8		3	1	2	3	2	1					
-951—1-000	5	4		4	4		1	5	1	2	1	4		
1-001—1-050	1	1	1	3		3	2	2		1	1	1	2	
1-051—1-100	2	2	1	4		1	1	4		1		3		
1-101—1-200	1	5		7	3	2		9	1	3	1		3	1
1-201—1-300	2	2		9	2	4	1	3			1		1	
1-301—1-400		1	1	5	2	4	1	8			1	5		
1-401—1-500	1					4		1		1			1	
1-501—1-600				1	3	2		4		2		1		
1-601—1-700		1		1			1	4				2		
1-701—1-800						1		2			2	3		1
1-801—1-900				1				3			1			
1-901—2-000				2				1						
2-001 and above								4		2		1		
TOTAL	27	64	26	63	22	49	26	72	23	33	11	28	9	10

TABLE XIX
PERCENTAGE INCREASES IN CONSUMER EXPENDITURE CORRESPONDING TO
15%, 20%, 25% AND 30% INCREASES IN INCOME

(Basis : NSS data)

MILK (COW)

Region	Fourth round				Fifth round				Sixth round				Seventh round			
	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%
Urban Areas																
All-India	12.2	16.3	20.2	24.0	14.5	19.3	24.2	29.0	13.2	17.6	22.0	26.3	16.0	21.3	26.7	31.8
All towns with population below 50,000	10.6	14.0	17.4	20.8	15.0	20.0	25.0	30.0	7.8	10.4	12.8	15.2	13.7	18.2	22.7	27.3
All towns with population between 50,000 and 100,000	...	...	...	...	...	...	...	...	16.2	21.7	27.3	33.0	2.2	2.8	3.4	4.0
All cities with population above 100,000	12.8	16.9	21.1	25.3	14.4	19.1	23.9	28.6	14.0	18.7	23.3	27.9	17.3	23.1	28.9	34.8
All cities	10.6	14.0	17.4	20.8	19.1	25.6	32.1	38.8	9.3	12.4	15.3	18.2	13.4	17.9	22.3	26.6
Delhi	18.6	24.9	31.3	37.7	...	...	...	...	...	...	...	...	...	...	...	...
Madras	14.4	19.1	23.9	28.6	22.0	29.6	37.3	45.1	11.5	15.3	19.1	22.7	12.7	16.8	20.9	24.9
Calcutta	12.8	16.9	21.1	25.3	13.9	18.5	23.0	27.7	14.4	19.1	23.9	28.6	15.3	20.4	25.5	30.7
Rural Areas																
Madras	17.6	23.6	29.5	35.5	16.1	21.5	27.0	32.4	...	...	...	...	10.0	13.2	16.2	19.5
Mysore	6.9	8.9	11.0	13.1	6.9	9.1	11.3	13.4	11.5	15.3	19.1	22.7	3.0	3.9	4.8	5.6

Uttar Pradesh	8.0	10.6	13.1	15.5	...	...	...	...	3.8	4.8	5.9	7.0	11.5	15.3	19.1	22.7
Bihar	13.1	17.4	21.7	26.0	13.4	17.9	22.3	26.6	16.9	22.7	28.3	34.2	13.7	18.2	22.7	27.3
West Bengal	14.0	18.7	23.3	27.9	10.3	13.5	16.7	20.2	10.7	14.1	17.6	21.1	9.0	11.0	14.8	17.7
Assam	7.6	10.2	12.6	14.9	6.9	9.1	11.3	13.4	7.6	10.2	12.6	14.9	...	...	...	...
Madhya Bharat	8.0	10.6	13.1	15.5	2.4	3.1	3.9	4.6	...	...	...	...	...	...	...	...
Bombay	2.2	2.8	3.6	4.2	12.7	16.8	20.9	24.9	11.2	14.9	18.5	22.1	6.9	9.9	11.0	13.1
Punjab	5.2	6.8	8.3	9.9	14.0	18.7	23.3	27.9	20.4	27.5	34.6	41.8	2.4	3.1	3.9	4.6
Travancore- Cochin	17.8	23.8	29.8	35.9	16.2	21.7	27.3	33.0	10.0	13.2	16.3	19.5	25.6	34.6	43.8	53.3
Saurashtra	0.1	0.2	0.2	0.3	2.2	2.8	3.4	4.0	18.8	25.1	31.6	38.0	5.2	6.8	8.3	9.9
Hyderabad	10.6	14.0	17.4	20.8	9.6	12.8	15.9	19.0	9.3	12.4	15.3	18.2	13.9	18.5	23.0	27.7
Pepsu	12.8	16.9	21.1	25.3	3.8	4.8	5.9	7.0	...	...	...	...	...	...	...	...
Rajasthan	12.0	16.1	19.8	23.7	13.6	18.0	22.6	27.0	10.0	13.2	16.2	19.5	...	...	...	...
Bhopal	9.5	12.1	15.1	18.0	...	...	...	...	...	...	...	...	...	...	...	...
Orissa	18.0	24.0	30.1	36.2	...	...	...	...	13.7	28.2	22.7	27.3	...	...	...	...
Madhya Pradesh	9.5	12.6	15.6	18.6	...	...	...	...	...	...	...	...	...	...	...	...
Vindhya Pradesh	9.5	12.6	15.6	18.6	...	...	...	...	...	...	...	...	...	...	...	...
Kutch	...	...	...	...	...	...	...	...	...	...	...	...	4.1	5.4	6.7	7.9
North India	8.0	10.6	13.1	15.5	7.1	9.3	11.5	13.7	3.8	4.8	5.9	7.0	9.5	12.6	15.8	18.6
East India	14.0	18.7	23.3	27.9	13.6	18.0	22.6	27.0	11.5	15.3	19.1	22.7	13.4	17.8	22.3	26.4
South India	15.0	20.0	25.0	30.0	14.8	19.8	24.8	29.6	15.0	20.0	25.0	30.0	11.3	14.8	18.8	22.4
West India	2.2	3.0	3.6	4.2	10.4	13.8	17.2	20.4	8.7	11.5	14.3	17.0	6.9	8.9	11.0	13.1
Central India	7.5	10.0	12.3	14.7	4.8	6.4	7.9	9.3	18.1	24.3	30.4	36.7	10.3	13.5	16.7	20.2
North-west India	9.6	12.8	15.9	19.0	10.6	14.0	17.4	20.8	19.6	26.3	33.0	39.9	6.2	8.1	10.1	11.9
All-India	12.5	16.8	20.6	24.7	12.7	16.8	20.9	24.9	14.5	19.3	24.2	28.9	11.3	14.8	18.8	22.4

TABLE XX
 PERCENTAGE INCREASES IN CONSUMER EXPENDITURE CORRESPONDING TO
 15%, 20%, 25% AND 30% INCREASES IN INCOME

(Basis: NSS data)

MILK (BUFFALO)

Region	Fourth round				Fifth round				Sixth round				Seventh round			
	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%
<i>Urban Areas</i>																
All-India	11.0	14.7	18.2	21.7	8.7	11.5	14.3	17.0	12.5	16.8	20.0	24.7	8.2	10.0	13.6	16.1
All towns with population below 50,000	10.1	13.0	16.1	19.2	3.3	4.3	5.3	6.2	9.5	12.0	15.0	18.0	11.8	15.0	18.5	23.4
All towns with population between 50,000 and 100,000	...	...	...	...	...	...	...	...	13.1	17.4	21.7	26.0	10.9	14.5	18.0	21.4
All cities with population above 100,000	8.4	11.1	13.9	16.4	9.1	12.1	15.1	18.0	2.0	2.6	3.1	3.7	...	...	...	...
All cities	15.1	20.2	25.3	30.3	10.3	13.5	16.7	20.2	16.0	21.3	26.7	32.7	8.6	11.4	14.1	16.8
Delhi	6.2	8.1	10.1	11.9	12.5	16.8	20.6	24.7	8.4	11.1	13.9	16.4	6.5	8.5	10.6	12.6
Bombay	11.0	14.7	18.2	21.7	5.1	6.6	8.1	9.6	...	...	...	...	...	...	...	...
Madras	21.6	29.1	36.7	44.4	...	...	...	...	7.4	9.7	12.0	14.3	...	...	...	...

Rural Areas

Madhya Bharat	31.9	43.5	55.5	68.1	19.1	25.6	32.1	38.8	4.0	5.3	6.5	7.6	2.7	3.5	4.38	5.1
Bombay	10.1	13.0	16.1	19.2	8.7	11.5	14.3	17.0	8.2	10.9	13.6	16.1	10.7	14.1	17.6	21.1
Bihar	19.2	25.8	32.4	39.2	12.6	16.9	21.1	25.3	21.6	29.1	36.7	44.4	15.1	20.2	25.3	30.3
Mysore	11.8	15.9	19.5	23.4	4.2	5.5	6.8	7.9	...	...	...	...	...	...	...	...
Hyderabad	12.0	16.1	19.8	23.7	...	...	...	...	15.1	20.2	25.3	30.3	...	...	...	...
Saurashtra	5.2	6.8	8.3	9.9	...	...	...	...	29.7	40.4	51.5	68.1	...	...	...	...
Madhya Pradesh	16.0	22.7	28.3	34.2	...	...	...	...	...	...	...	...	9.5	12.6	15.6	18.6
Pepsu	14.8	19.8	24.8	29.6	17.1	22.8	28.6	34.5	...	...	...	...	24.0	32.4	41.0	49.7
Punjab	13.6	18.0	22.6	27.0	9.9	12.8	15.9	18.8	14.7	19.0	24.5	29.3	9.3	12.4	15.3	18.2
Rajasthan	18.6	24.9	31.3	37.7	32.2	44.0	56.3	69.0	19.9	26.8	33.7	40.6	17.8	23.8	29.8	35.9
Madras	19.6	26.3	33.0	39.9	21.3	28.6	36.0	43.6	21.3	28.6	26.0	43.6	11.8	15.9	19.5	23.4
North India	14.0	18.7	23.3	27.9	14.8	19.8	24.8	29.6	18.2	24.5	30.7	37.0	13.2	17.6	22.0	26.3
East India	21.2	28.3	35.7	43.2	14.0	18.7	23.3	27.9	25.6	34.6	43.8	53.3	16.1	21.5	27.0	32.4
South India	18.8	25.1	31.6	38.0	19.2	25.8	32.4	39.2	17.6	23.6	29.5	35.5	11.2	14.9	18.5	22.1
West India	10.3	13.7	16.9	20.5	9.0	11.9	14.8	17.7	9.3	12.4	15.3	18.2	10.6	14.0	17.4	20.8
Central India	19.6	26.3	33.0	39.9	20.9	28.1	35.5	42.9	12.8	16.9	21.1	25.3	7.5	10.0	12.3	14.7
North-west India	17.3	23.1	28.9	34.8	15.8	21.3	26.7	30.0	15.8	21.3	26.7	30.0	18.4	24.7	31.0	37.4
All-India	16.8	22.5	28.0	33.8	16.1	21.5	27.0	32.4	15.8	21.2	26.4	31.7	15.0	20.0	25.0	30.0

TABLE XXI

PERCENTAGE INCREASES IN CONSUMER EXPENDITURE CORRESPONDING TO 15%, 20%, 25% AND 30%
INCREASES IN INCOME

(Basis : NSS data)

GHEE (COW)

Region	Fourth round				Fifth round				Sixth round				Seventh round			
	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%
<i>Urban Areas</i>																
All-India	17.6	23.6	29.5	35.5	12.8	16.9	21.1	25.3	18.0	24.0	30.1	36.2	17.3	23.1	28.9	34.8
All towns with population below 50,000	20.9	28.1	35.5	42.9	18.8	25.1	31.6	38.0	19.1	25.6	32.1	38.8	14.7	19.6	24.5	29.3
All towns with population 50,000—100,000	...	...	...	...	...	...	...	...	14.4	19.1	23.9	28.6	9.1	12.1	15.1	18.0
All cities with population above 100,000	14.4	19.1	23.9	28.6	5.5	7.2	9.1	10.5	4.0	5.3	6.5	7.6	...	...	...	...
All cities	15.0	20.0	25.0	30.0	9.9	12.8	15.9	18.8	20.8	27.9	35.2	42.5	14.2	19.0	23.6	28.3
Calcutta	11.0	14.7	18.2	21.7	1.1	1.5	1.8	2.1	24.8	33.7	42.6	51.7	...	...	...	...
Madras	24.8	33.7	42.6	51.7	...	...	...	...	24.4	32.9	41.7	50.5	...	...	...	...

Rural Areas

Madhya Pradesh	15.8	21.2	26.4	31.7	20.0	27.0	34.0	41.0	10.0	25.1	31.8	38.5	17.8	23.8	29.8	35.9
Uttar Pradesh	10.3	13.5	16.7	20.2	9.5	12.6	15.6	18.6	7.4	10.0	12.3	14.5	...	...	...	...
Orissa	20.4	27.5	34.6	41.8	...	...	...	...	...	...	...	...	...	...	...	...
Saurashtra	2.8	3.7	4.6	5.4	...	...	...	...	...	...	...	...	...	...	...	...
Bihar	18.6	24.9	31.3	37.7	10.5	13.9	17.3	20.4	...	...	...	...	14.2	19.0	23.6	28.3
West Bengal	22.1	29.8	37.6	45.5	...	...	...	...	...	...	...	...	...	...	...	...
Mysore	3.4	4.5	5.5	6.5	18.8	25.1	31.6	38.0	...	...	...	...	...	...	...	...
Madras	27.4	37.1	47.1	57.4	20.4	27.5	34.6	41.8	...	...	...	...	...	...	...	...
Rajasthan	11.8	15.9	19.5	23.4	11.7	15.5	19.3	23.1	...	...	...	...	...	...	...	...
Hyderabad	22.0	29.6	37.3	45.1	21.4	28.8	36.3	44.0	...	...	...	...	...	...	...	...
Bombay	...	...	...	...	9.1	12.1	15.1	18.0	...	...	...	...	10.5	13.9	17.3	20.4
Punjab	12.3	16.3	20.3	24.3	...	...	...	...	...	...	...	...	...	...	...	...
Himachal Pradesh	...	...	...	...	24.7	33.4	42.2	51.4	...	...	...	...	...	...	...	...
North India	8.7	11.5	14.3	17.0	9.5	12.6	15.6	18.6	7.5	10.0	12.3	14.7	...	...	...	...
East India	15.1	20.2	25.3	30.3	10.4	13.8	17.2	20.4	24.3	32.7	41.3	50.0	15.1	20.2	25.3	30.3
South India	22.9	31.0	39.1	47.4	9.5	12.6	15.6	18.6	19.1	25.6	32.1	38.8	...	...	...	...
West India	2.0	2.6	3.1	3.7	2.4	3.1	3.9	4.6	...	...	...	...	10.3	13.7	16.9	20.5
Central India	12.0	16.1	19.8	23.7	1.74	23.4	28.7	35.1	22.4	30.1	37.9	45.8	14.0	18.7	23.3	27.9
North-west India	7.6	10.2	12.6	14.9	5.5	7.2	9.1	10.5	12.3	16.3	20.3	24.3	...	...	...	...
All-India	13.1	17.2	21.4	25.7	13.1	17.4	21.7	26.0	16.2	21.7	27.3	33.0	11.7	15.5	19.3	23.1

TABLE XXII
 PERCENTAGE INCREASES IN CONSUMER EXPENDITURE CORRESPONDING TO 15%, 20%, 25%
 AND 30% INCREASES IN INCOME

(Basis : NSS data)

GHEE (BUFFALO)

Region	Fourth round				Fifth round				Sixth round				Seventh round			
	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%
<i>Urban Areas</i>																
All-India	12.2	16.3	20.2	24.0	8.0	10.7	13.0	15.8	15.8	21.2	26.4	31.7	13.2	17.6	22.0	26.3
All towns with population below 50,000	11.0	14.7	18.2	21.7	2.2	2.8	3.6	4.2	20.4	27.5	34.6	45.5	15.0	20.0	25.0	30.0
All cities with population above 100,000	10.4	13.8	17.2	20.4	12.0	16.1	19.8	23.7	9.0	11.9	14.9	17.7	10.8	14.2	17.6	21.2
All cities	3.9	5.1	6.3	7.4	7.2	9.5	11.7	14.0	15.8	21.2	26.4	31.7	13.6	18.0	22.6	27.0
Calcutta	15.1	20.2	25.3	30.3	19.1	25.5	32.1	38.8	14.0	18.7	23.3	27.9	13.4	17.9	22.3	26.6
Delhi	12.3	16.3	20.3	24.3	14.0	18.7	23.3	27.9	9.9	12.8	15.9	18.8	3.4	4.5	5.5	6.5
Madras	25.4	34.4	43.5	53.0	6.4	8.3	10.4	12.2	...	...	...	...	...	...	...	...
<i>Rural Areas</i>																
Uttar Pradesh	12.3	16.3	20.3	24.3	13.6	18.0	22.6	27.0	16.1	21.5	27.0	32.4	10.1	13.0	16.1	19.2
Bombay	18.8	25.1	31.6	38.0	16.1	21.5	27.0	32.4	23.7	31.9	40.4	48.9	17.6	23.6	29.5	35.5

Saurashtra	11.8	15.9	19.5	23.4	12.2	16.3	20.2	24.0	...	...	...	...	21.2	28.3	35.7	43.2
Pepsu	17.3	23.1	28.9	34.8	10.0	13.2	16.8	19.5	11.0	14.7	18.2	21.7	11.7	15.5	19.3	23.1
Madhya Pradesh	17.6	23.6	29.5	35.5	21.2	28.3	35.7	43.2	34.3	40.9	60.2	73.9	...	...	...	...
Madhya Bharat	18.0	24.0	30.1	36.2	19.2	25.8	32.4	39.2	...	...	...	...	7.8	10.4	12.8	15.2
Hyderabad	26.3	35.6	45.2	55.0	18.1	24.3	30.4	36.7	36.4	49.9	64.1	79.0	16.0	21.4	26.7	32.0
Mysore	15.8	21.2	26.4	31.7	14.7	19.6	24.5	29.3	...	...	...	...	...	...	...	...
Rajasthan	13.2	17.6	22.0	26.3	15.0	20.0	25.0	30.0	17.1	22.8	28.6	34.5	12.2	16.3	20.2	24.0
Bihar	5.7	7.5	9.4	11.1	21.2	28.3	35.7	43.2	25.0	33.9	42.9	52.2	20.8	27.9	35.2	42.5
Madras	26.3	35.6	45.2	55.0	29.9	40.6	51.8	63.3	31.7	43.2	55.2	67.7	35.1	48.0	61.5	75.8
Punjab	...	...	...	...	8.2	10.9	13.6	16.1	6.9	8.9	11.0	13.1	8.4	11.1	13.9	16.4
Delhi	10.3	13.7	16.9	20.5	...	...	...	...	...	...	...	...	...	...	...	...
Bhopal	29.5	40.2	51.1	62.5	21.2	28.3	35.7	43.2	...	...	...	...	...	...	...	...
North India	12.3	16.3	20.3	24.3	13.6	18.0	22.6	27.0	16.1	21.5	27.0	32.4	10.1	13.0	16.1	19.2
East India	20.2	27.3	34.3	41.4	23.1	31.2	39.4	47.8	25.9	34.9	44.0	53.6	20.8	27.9	35.2	42.5
South India	37.1	49.6	63.7	69.6	28.4	38.7	49.1	59.9	28.6	38.9	49.4	60.3	24.4	32.9	41.7	50.5
West India	18.0	24.0	30.1	36.2	15.6	20.9	26.1	31.4	24.3	32.6	41.3	50.0	17.3	23.1	28.9	34.8
Central India	20.0	27.0	34.0	41.0	25.9	34.8	44.0	53.5	29.3	39.6	50.0	61.5	14.7	10.6	24.5	29.3
North-west India	13.1	17.4	21.7	26.0	12.5	16.8	20.6	24.7	14.5	19.3	24.2	28.9	9.1	12.1	15.1	18.0
All-India	16.9	22.7	28.3	34.2	...	...	...	...	18.8	25.1	31.6	38.0	14.8	19.8	24.8	29.6

TABLE XXIII

PERCENTAGE INCREASES IN CONSUMER EXPENDITURE CORRESPONDING TO 15%, 20%, 25%
AND 30% INCREASES IN INCOME

(Basis : NSS data)

VANASPATI

Region	Fourth round				Fifth round				Sixth round				Seventh round			
	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%
<i>Urban Areas</i>																
All-India	10.6	14.0	17.4	20.8	13.7	18.2	22.7	27.3	10.5	13.9	17.3	20.4	10.5	13.9	17.3	20.4
All towns with population below 50,000	11.2	14.9	18.5	22.1	12.3	16.5	20.4	21.1	8.6	11.4	14.1	16.8	...	...	...	...
All towns with population 50,000 — 100,000	...	...	...	...	...	...	...	...	...	...	...	...	16.9	22.7	28.3	34.2
All cities with population above 100,000	10.1	13.4	16.6	19.9	14.7	19.6	21.5	29.3	8.0	10.6	13.1	15.5	...	...	...	...
All cities	12.0	16.1	19.8	23.7	8.6	11.4	14.1	16.8	12.2	16.3	20.2	24.0	10.6	14.0	17.4	20.8
Delhi	0.8	1.1	1.4	1.6	10.3	13.5	16.7	20.2	11.2	14.9	18.5	22.1	1.8	2.4	2.9	3.5
Calcutta	12.0	16.1	19.8	23.7	6.8	8.9	11.0	13.1	1.7	2.2	2.7	3.2	...	...	...	...
Bombay	...	...	...	...	7.2	9.5	11.7	14.0	...	...	...	...	...	...	...	...

Rural Areas

Uttar Pradesh	3.0	3.9	4.8	5.6	16.9	22.7	28.3	34.2	...	...	...	...	...	...	...	...
Punjab	...	...	...	...	...	...	...	...	...	...	...	...	5.4	5.6	7.2	10.4
Mysore	...	...	...	...	15.3	20.4	25.5	30.7	...	...	...	...	...	...	...	...
Bombay	10.3	13.7	16.9	20.5	8.9	11.8	14.6	17.3	15.0	20.0	25.0	30.0	...	...	...	...
Pepsu	10.3	13.5	16.7	20.2	...	...	...	...	...	...	...	...	...	...	...	...
Orissa	10.6	14.0	17.4	20.8	...	...	...	...	...	...	...	...	...	...	...	...
Madras	6.2	8.1	10.1	11.9	...	...	...	...	...	...	...	...	...	...	...	...
West Bengal	24.8	33.6	42.5	52.0	...	...	...	...	...	...	...	...	...	...	...	...
Madhya Pradesh	11.7	15.5	19.3	23.1	...	...	...	...	...	...	...	...	...	...	...	...
Delhi	5.4	7.1	8.8	10.3	...	...	...	...	...	...	...	...	...	...	...	...
North India	13.1	17.4	21.7	26.0	16.9	22.7	28.3	34.2	32.5	44.8	57.4	70.3	...	...	...	...
Central India	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
East India	8.7	11.5	14.3	17.0	16.6	22.2	27.8	33.5	...	...	...	...	11.3	14.8	18.8	22.4
South India	9.3	12.4	15.3	18.2	...	...	...	...	...	...	...	...	...	...	...	...
West India	10.9	13.2	16.8	19.5	9.1	12.1	15.1	18.0	6.6	8.7	10.9	12.8	...	...	...	...
North-west India	7.1	9.3	11.5	13.7	6.9	8.9	11.0	13.1	2.0	2.6	3.1	3.7	11.7	15.5	19.3	23.1
All-India	12.0	16.1	19.8	23.7	14.4	19.1	23.9	28.6	24.2	33.4	42.2	51.4	18.1	24.3	30.4	36.7

Rural Areas

Punjab	11.7	15.5	19.3	23.1	21.3	28.6	36.0	43.6	...	...	...	...	9.9	12.8	15.9	18.8
Pepsu	16.2	21.7	27.3	33.0	14.8	19.8	24.8	29.6	...	...	...	...	...	...	...	...
Bombay	21.3	28.6	36.0	43.6	...	...	...	...	16.2	21.7	27.3	33.0	...	...	...	...
Madras	38.1	52.4	67.4	83.2	...	...	...	...	...	...	...	...	...	...	...	...
Mysore	7.1	9.3	11.5	13.5	4.0	5.3	6.5	7.6	14.7	19.6	24.5	29.3	10.6	14.0	17.4	20.8
Madhya Pradesh	14.7	19.6	24.5	29.3	...	...	...	...	...	...	...	...	...	...	...	...
Travancore-Cochin	6.5	8.5	10.6	12.6	...	...	...	...	...	...	...	...	...	...	...	...
East India	...	...	...	...	3.0	3.9	4.8	5.6	...	...	...	...	...	...	...	...
Central India	13.4	17.8	22.3	26.6	...	...	...	...	...	...	...	...	...	...	...	...
South India	26.6	35.8	45.5	55.3	15.8	21.3	26.7	32.0	15.0	20.0	25.0	30.0	20.4	27.5	34.6	41.8
North-west India	28.4	38.7	49.1	59.9	27.0	36.6	46.4	56.6	...	...	...	...	...	...	...	...
All-India	23.7	31.9	40.4	48.9	28.4	38.7	49.1	59.9	15.8	21.3	26.7	30.0	20.0	28.4	35.7	44.2

TABLE XXV
PERCENTAGE INCREASES IN CONSUMER EXPENDITURE CORRESPONDING TO 15%, 20%, 25%
AND 30% INCREASES IN INCOME

(Basis : NSS data)

OTHER MILK PRODUCTS

Region	Fourth round				Fifth round				Sixth round				Seventh round			
	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%	15%	20%	25%	30%
<i>Urban Areas</i>																
All-India	16.8	22.5	28.0	33.8	19.1	25.6	32.1	38.8	10.9	14.5	18.0	21.4	17.3	23.1	28.9	34.8
All towns with population below 50,000	17.6	23.6	29.5	35.5	10.8	14.2	17.6	21.2	...	...	...	...	...	...	...	...
All cities with population above 100,000	...	...	...	...	15.8	21.2	26.4	31.7	...	...	...	...	...	...	...	...
<i>Rural Areas</i>																
North India	11.3	14.8	18.8	22.4	...	...	...	...	...	...	...	...	...	...	...	...
East India	10.9	14.5	18.0	21.4	...	...	...	...	...	...	...	...	...	...	...	...
South India	16.8	22.5	28.0	33.8	27.4	37.1	47.1	57.4	...	...	...	...	...	...	...	...
Central India	10.7	14.1	17.6	21.1	...	...	...	...	...	...	...	...	...	...	...	...
North-west India	11.5	15.3	19.1	22.7	...	...	...	...	...	...	...	...	...	...	...	...
All-India	11.7	15.5	19.3	23.1	2.4	3.1	3.9	4.6	10.0	13.2	16.3	19.5	5.9	7.7	9.6	11.1

TABLE XXVI
 PRODUCTION OF MILK, GHEE AND BUTTER IN INDIA
 (in lakh tons)

<i>Year</i>	<i>Cow's milk</i>	<i>Buffalo's milk</i>	<i>Ghee</i>	<i>Butter</i>
1940	74.04	89.54	...	...
1945	75.82	96.31	...	...
1951	89.34	97.98	4.31	0.75
1956	76.15	93.82	3.89	0.73

SOURCE : Indian Livestock Census.

TABLE XXVII
VANASPATI PRODUCTION IN INDIA

(in tons)

<i>Year</i>	<i>H.L. Limited</i>	<i>All-India total</i>
1931	...	2,394
1932	2,066	3,296
1933	4,725	6,199
1934	10,213	15,345
1935	11,711	17,090
1936	14,060	19,372
1937	19,800	29,731
1938	25,813	37,346
1939	30,623	52,031
1940	36,177	65,658
1941	42,387	86,304
1942	30,720	75,766
1943	37,054	90,654
1944	41,013	1,13,030
1945	46,090	1,32,627
1946	43,832	1,42,838
1947	23,676	97,160
1948	37,789	1,27,604
1950	46,132	1,71,415
1951	49,505	1,71,451
1952	54,869	1,90,448
1953	53,184	2,09,310
1954	61,346	2,30,243
1955	61,079	2,60,330
1956	60,308	2,55,315

SOURCE : Messrs. Hindustan Lever Limited.

TABLE XXVIII
CONSUMER EXPENDITURE IN INDIA—1931-32 TO 1940-41 AT 1938-39 PRICES

(in million rupees)

	1931-2	1932-3	1933-4	1934-5	1935-6	1936-7	1937-8	1938-9	1939-40	1940-1
Vegetable oils	472	395	490	512	393	456	449	505	448	526
Butter	29	30	30	30	30	30	30	31	30	30
Ghee	1,070	1,021	973	953	953	943	980	972	961	963
Total consumer expenditure	24,458	24,425	24,516	24,756	25,035	25,853	25,663	25,852	25,593	26,389

SOURCE : R.C. Desai, *Standard of Living in India and Pakistan, 1931-32 to 1940-41*.

TABLE XXIX
EXPENDITURE AND TREND ELASTICITIES, 1931-40

(Basis : Desai estimates)

	Trend coefficient	Expenditure elasticity
Milk and milk products	2.14	0.07
Ghee	-0.73	0.16
Butter	0.24	0.26
Vegetable oils	1.01	0.02

TABLE XXX
MOVEMENTS IN NATIONAL INCOME AND VANASPATI OUTPUT
1948-56

Year	National Income	Vanaspati
1948	100.0	100.0
1949	102.0	121.2
1950	102.3	133.0
1951	105.2	133.1
1952	109.4	148.5
1953	116.0	163.3
1954	118.8	180.6
1955	120.5	203.1
1956	127.0	199.0

SOURCE : National Income Estimates (C.S.O.) and Messrs. Hindustan Lever Limited.

TABLE XXXI
SUNLIGHT AND LUX SOAPS — WHOLESALE PRICES

Period	Sunlight (per 3½ oz. cake)	Period	Lux (per 6 oz. cake)
	Rs. as. p.		Rs. as. p.
31-3-1947	0 4 3	15-11-1948	0 5 6
15-11-1948	0 4 9	1-9-1950	0 5 9
20-8-1950	0 5 3	17-2-1952	0 5 6
13-5-1951	0 5 6	4-1-1953	0 5 0
17-2-1952	0 5 0	15-3-1953	0 5 6
4-1-1953	0 4 6	5-10-1953	0 5 3
2-3-1954	0 4 9	2-3-1954	0 5 6
21-9-1954	0 4 8	2-9-1954	0 5 6
1-1-1955	0 4 8	1-1-1955	0 5 6

SOURCE : Messrs. Hindustan Lever Limited.

TABLE XXXII
RETAIL PRICES OF DALDA PER POUND, 1948-56

Date of price change	Price per lb.			Year	Average		
	Rs.	as.	p.		Rs.	as.	p.
1-12-1949	1	1	9	1948	1	1	9
1-3-1949	1	2	3				
5-7-1949	1	3	0	1949	1	2	6
1-5-1950	1	3	3				
1-7-1950	1	3	3				
3-8-1950	1	4	0	1950	1	3	6
1-3-1951	1	4	6				
1-5-1951	1	5	3				
1-9-1951	1	4	0				
1-12-1951	1	3	9	1951	1	4	6
1-1-1952	1	3	6				
1-6-1952	1	0	6				
16-9-1952	1	2	3				
2-12-1952	1	2	0	1952	1	2	4
2-2-1953	1	3	0				
23-2-1953	1	4	0				
16-3-1953	1	5	6				
11-5-1953	1	6	0				
17-7-1953	1	6	6				
7-9-1953	1	5	9				
27-10-1953	1	4	3	1953	1	5	0
23-1-1954	1	3	9				
28-2-1954	1	3	0				
17-4-1954	1	3	3				
7-6-1954	1	2	3				
28-7-1954	1	1	3				
19-8-1954	1	0	6				
27-12-1954	0	15	6	1954	1	2	1
4-7-1955	0	14	3				
29-8-1955	1	0	3				
12-9-1955	0	15	9				
19-12-1955	1	0	9				
26-12-1955	1	1	3	1955	0	15	0
23-1-1956	1	1	9				
20-2-1956	1	2	3				
12-31-1956	1	3	3				
2-4-1956	1	4	3				
19-11-1956	1	4	3	1956	1	3	6

SOURCE : Messrs. Hindustan Lever Limited.

TABLE XXXIII
INDEX OF PRICES OF MILK, GHEE AND BUTTER, 1949-56

<i>Milk</i>	<i>Butter</i>	<i>Ghee</i>
100	100	100
95	91	102
97	93	97
95	88	91
89	89	93
85	83	89
80	81	80
85	69	68

Source : Indian Livestock Statistics.

DEMAND FORECASTS FOR CONSUMER GOODS



THIS REPORT attempts at a forecast of the demand in India for certain consumer goods—toilet soap, washing soap, milk, ghee, butter, vanaspati and other milk products. These form part of a complex and worldwide market for oils and fats, vegetable and mineral.

The report describes the methods of calculation of elasticities of expenditure on such products in rural and urban areas. The elasticities thus arrived at have been applied to the anticipated growth of national income in the next few years. Other factors like substitutability of products in an interdependent market economy, secular changes in tastes, changing pattern of consumption etc. have also been taken into account.

Demand forecasts of various types of products are necessary for the planning of industrial investment. They are specially significant in a planned economy. Both private and public plans must be based upon market analyses, as rigorous and objective as can be made. The discussion of method, as well as the data, contained in this report will prove useful to students of research in the field of Demand Forecasting.



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