CHAPTER 4
4. CONSUMPTION BEHAVIOR IN THE CONTEXT OF ECONOMIC REFORMS - A CASE OF INDIAN AUTOMOBILE INDUSTRY

The study of consumption behavior occupies a pre-eminent position in economic science, as consumption is perhaps the most fundamental aspect of any economic activity. India has been adopted policy reform measures since 1991. The market oriented growth model that is pursued now is changing the economic environment and market structure under which the Indian industrial sector operated earlier. In contrast to the planned growth regime of the past, the New Economic Policies aim at integrating the Indian economy with international market. This model has brought significant changes not only in supply side but also in demand side of the industry. As a result there are, we can observe, considerable changes in consumption behavior or demand pattern of the industry. The consumer attitude and preference has been changing at a faster pace along with the domestic and global economic changes. Now consumers have more choice, freedom and good knowledge to reveal their preference. Along with this, consumers are having good incentives to increase their consumption expenditure. As a consequent of this the market forces, especially changing consumption behavior have become the determinant variables of growth, development, structure, conduct and performance of an industry. At the same time the determinants or factors influencing consumption behaviour also undergone significant changes due to macro-economic reforms. The supply side determinants of consumption behavior like increased product differentiation, price discrimination, advertisement intensity, technology up gradation, new products, introduction of good quality products, relaxation of tax structure along with the demand side determinants like increase in disposable income, financial facilities, demonstration effect, changing
tastes and preference, have paved the way for dramatic change in the consumption behavior. In addition to supply side reform measures, government has also initiated demand side reforms to enable the consumers to adjust their attitudes towards changing business environment. The important one, for example, is financial sector reform. Owing to the government's heavy involvement in credit allocation and its full ownership, public sector banks in India- accounting for about 90 percent of total deposits before the 1991 reforms- did not have sufficient incentives to engage in relationship lending. Indian banks, particularly public sector banks, were insensitive to various risks (particularly, credit risk) and were short of incentives to develop skills, to collect, analyze and process private information about their borrowers and monitor their performance. The private financial institutions had no role in economic activities. The government launched a comprehensive set of financial sector reforms in 1991. These reforms included interest rate decontrols, cuts in reserve and liquidity requirements, an overhaul of priority-sector lending, deregulation of entry barriers, etc. These reform programmes have encouraged existing public-sector banks to become more concerned with various risks and their performance than the past. The entry of new private and foreign banks, financial institutions that are better capitalized and more technologically advanced has also put competitive pressure on the whole banking sector. The banks and financial institutions have increased exposure to market forces. As a result consumers can get cheap and easily available personal finance particularly to purchase vehicles. Another most important factor, which added good turn for consumption behaviour, is increase in disposable income. Thus demand side reforms along with the supply side reforms have given good thrust for the dramatic change in the consumption behavior. In this chapter we examine the changes
in the consumption behavior and their determinants taking the case of car and two wheeler manufacturing segments, the most pivotal segments of Indian automobile industry. More concretely it identifies the economic and political processes by which the market was reconfigured in terms of consumption behavior. The chapter has been organized as follows: Sections 2 shows theoretical background linking demand and its determinants. In the empirical version, section 3 deals with an econometric analysis of field study to identify the changes in consumption behavior and its determinants. Section 4 presents the demand condition in the car and two-wheeler market at macro-level to support the field survey analysis.

4.2 Theoretical Background and Empirical Evidence

It is obvious that the individual family or household or consumer is of crucial importance in the economic system. The consumption behavior, in terms of, preference or choice, tastes, fashion, income, price of the specific and other commodities, substitution, etc determine the trend of the market. This section reviews some of the economic theories and relationships used in their basic approach to consumer behavior. The standard economic theories of consumer behavior have dealt primarily with consumer purchases in response to various economic variables.

4.2.1 Consumption Functions

There are, we can classify, four approaches to the consumption function. 1) Absolute Income Hypotheses (Keynes), 2) Relative Income Hypothesis (James Duesenberry), 3) Permanent Income Hypothesis (Friedman), 4) Life Cycle Hypothesis (Ando & Modigliani). Theories 3 and 4 are most compatible with Neo-classical economics. According to absolute income hypothesis the current level of consumption is a straightforward function, driven by the current level of income. This implies that
people adapt instantaneously to income changes. The major argument is there are rapid adaptation to income changes and the elasticity of consumption to current income changes. We can explain this argument through the following formula.

\[ C^D = a + bY_t \]

On the other hand, the Duesenberry approach says that people are not just concerned about absolute levels of possession. They are in fact concerned about their possessions relative to others. People are not necessarily happier if they have more money. They do however report higher happiness if they have more relative to others. In brief, Duesenberry argues that we have a greater tendency to resist spending decreases relative to falls in income than we do to increase expenditure relative to increases of income. The reason is that, according to theory, we don’t want to alter our standard of living downward.

\[ C_T = a + bY_T + cY^X \]

\( Y^X \) is the previous peak level of income (this keeps expenditure from falling in the face of income drops). It is also known as the Drag Effect. A shift in expenditures relative to a previous level of income is known as the Ratchet Effect. A long-run consumption function can be drawn, assuming that there is a growth trend. If this is true, previous peak income would have been that of last year and thus would give a consumption function that looks like it depends on current income.

The failure of the above theories led to the development of alternative theories of the consumption function. One of which is the Permanent Income Hypothesis or 'PIH'. The central idea of the permanent-income hypothesis, proposed by Milton Friedman\(^1\), is that people base consumption on what they consider their "normal"

\(^1\) Milton Friedman\(^1\) (1957)
income. In doing this, they attempt to maintain a fairly constant standard of living even though their incomes may vary considerably from month to month or from year to year. As a result, increases and decreases in income that people see as temporary have little effect on their consumption spending. The idea behind the permanent-income hypothesis is that consumption depends on what people expect to earn over a considerable period of time. As in the life-cycle hypothesis, people smooth out fluctuations in income so that they save during periods of unusually high income and dis-save during periods of unusually low income. In order to test the theory, Friedman assumed that on the average people would base their idea of normal or permanent income on what had happened over the past several years. Thus if they computed permanent income as the average of the past four years, and income had been $13,000, $10,000, $15,000, and $8,000, they would consider their permanent income as $11,500. Both the permanent-income and life cycle hypotheses loosen the relationship between consumption and income so that an exogenous change in investment may not have a constant multiplier effect. This is more clearly seen in the permanent-income hypothesis, which suggests that people will try to decide whether or not a change of income is temporary. If they decide that it is, it has a small effect on their spending. Only when they become convinced that it is permanent then they will change consumption by a sizable amount. As is the case with all economic theory, this theory does not describe any particular household, but only what happens on the average.

The permanent-income hypothesis introduces lags into the consumption function. An increase in income should not immediately increase consumption spending by very much, but with time it should have a greater and greater effect.
Behavior that introduces a lag into the relationship between income and consumption will generate the sort of momentum that business-cycle theories saw. A change in spending changes income, but people only slowly adjust to it. As they do, their extra spending changes income further. An initial increase in spending tends to have effects that take a long time to completely unfold. The existence of lags also makes government attempts to control the economy more difficult. The policies taken do not have their full effect immediately, but only gradually. By the time they have their full effect, the problems that they were designed to attack may have disappeared.

The PIH begins to explain consumption behavior by first redefining measures of income. Observed values of aggregate income, $'Y'$ can be divided up into two separate components: $'Y^p$ Permanent (or projected levels of) Income and $'Y^T$ Transitory (or unexpected changes in) Income. Thus:

$$Y = Y^p + Y^T$$

The transitory component has an expected value of zero ($E [Y^T] = 0$) reflecting the notion that over time transitory gains are offset by future transitory losses and vice-versa. Thus in the long run observed levels of income $'Y'$ are equal to permanent income $'Y^p$. Finally, according to the PIH consumption expenditure is proportional to permanent income:

$$C = kY^p$$

such that the parameter $'k'$, a constant, represents both the average propensity to consume and the marginal propensity to consume.

The relationship between consumption and income is arguably one of the most important in macroeconomics. The most influential and perhaps most widely tested view of this relationship is the Permanent Income Hypothesis (PIH) (see, e.g. Hall,
1978, 1989). According to this theory, consumption and income should be related in the long run and standard econometric techniques have been used to test this hypothesis using cointegrated models. These two variables were analyzed from an error correction point of view in Davidson, Hendry, Srba and Yeo, (DHSY, 1978) and from a time series viewpoint in Hall (1978) and others. In the first of these studies, evidence was presented for the error correction model of consumption behaviour from both theoretical and empirical points of view: consumers make plans which may be frustrated; they adjust next period’s plans to recoup a portion of the error between consumption and income. Hall (1978) found evidence that US consumption was a random walk and that past values of income had no explanatory power, which implied that income and consumption were not cointegrated. Neither of these studies modeled income itself and it was taken as exogenous in DHSY (1978). Engle and Granger (1987) performed first tests of Fuller (1976) and Dickey and Fuller (1979) to check if both individual variables were in fact I (1). Then, they performed several cointegration tests, concluding that they were cointegrated, though income may be exogenous in view of the error correction representation. Using the same dataset, DeJong (1992) used a Bayesian approach to analyse the cointegration inference in these two variables and his conclusions were mixed.

Thus the permanent income hypothesis is more relevant in explaining the demand for car and two-wheelers, especially in the context of economic reforms and increasing disposable income. We sum up the five years permanent income, since 1998 to 2003, of the car and two-wheeler consumers and attempted to find out the influence of this in determining the demand for personal vehicles. This is because one year permanent income, it seems, is not sufficient enough to influence the demand.
4.2.2 The Demand Function: Determinants of Demand

We can define demand as follows: The demand for a commodity at a given price is the amount of it, which will be bought per unit of time at that price. If we consider the demand for a commodity from an individual’s point of view we find that there are five major determinants of demand. This statement can be expressed in symbolic form in the following manner:

\[ D_n = f(P_n, P_1, P_2, P_3, \ldots, Y, T, E, S) \]

This is known as demand function. It shows that the demand for ‘commodity n’ depends upon the price of that commodity \( P_n \); the prices of various related goods; \( P_n, P_1, P_2, P_3 \ldots, P_{n-1} \); income of the consumer \( Y \); tastes of consumer \( T \) and consumer’s expectations about the future \( E \); substitutes available in the market \( S \) and the symbol for indicating the functional relationship \( f \). Apart from the factors mentioned above, the government policy—restricted or liberalized policies, expectations, level of knowledge and availability of product information, advertisement, demonstration effect etc., also exercise the influence of individual’s demand.

(A) Income Effect

Income effect shows the effect on consumer’s equilibrium position of a change in income, prices remaining constant. In such a situation, the consumer’s satisfaction will either increase or decrease according to whether he has a larger or smaller income to spend. Given constant prices and a constant preference pattern, a normal good is a good that the consumer will buy more of with a higher income and less of with a lower income at equilibrium. As against this, given constant price and a
constant preference pattern, an inferior good is a good that the consumer will buy less of with a higher income and more of with a lower income.

(B) Substitution Effect

The substitution of one commodity to another commodity due to a change in relative prices in order to maintain the original standard of living is known as the substitution effect. According to Hicks, a substitution effect occurs when the relative prices of goods change but the consumer’s money income is altered in such a way that he is neither better off nor worse off than before, i.e., his real income remains constant and he continues to remain on the same indifference curve. Slutsky presents the second interpretation of ‘original standard of living’. In this interpretation, original standard of living means the original combination of goods, i.e., the real income is kept constant by changing money income in such a way that the consumer is able to buy the original combination of goods. Thus whereas Hicks keeps real income constant by keeping the consumer on the same indifference curve, Slutsky keeps real income constant in the sense that the consumer could purchase the original combination of goods after change in price ratio.

(C) Price Effect

The decomposition price effect in to income effect and substitution effect helps us to distinguish normal goods, inferior goods, and Giffen goods. The sign of the price effect therefore depends on the sign of the income effect and the relative strengths of the income effect and the substitution effect.

Thus the income, price, and substitution effects are very prominent in influencing the demand for consumer durables. Even automobile consumers have undergone for these effect during the reforms period. The difference possibilities of
income, price, and substitution effect according to earlier demand theories have been depicted in the table below.

<table>
<thead>
<tr>
<th>Effects / Kinds of Commodity</th>
<th>Normal</th>
<th>Inferior</th>
<th>Giffen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substitution Effect</td>
<td>Negative</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>Income Effect</td>
<td>Positive</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>Total Effect on Quantity of a Fall in Price</td>
<td>Increase</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
</tbody>
</table>

In the case of most of inferior goods, the inverse relationship between the demand and price of a commodity continues to hold as the income effect, though negative, fails to outweigh the substitution effect. In the case of Giffen goods (which are also inferior goods), there is a direct relationship between the demand and price of a commodity as the negative income effect outweighs the substitution effect. Thus Giffen goods are exception to the law of demand.

4.2.3 Consumer Surplus

The concept was originally devised by Alfred Marshall first in 1879 in his book *Pure Theories of Domestic Values* under the title ‘*Consumer’s Rent*’ and then in 1890 in his magnum opus ‘*Principles of Economics.*’ Since Marshall’s use of the concept of consumer surplus assumed cardinal measurement of utility, it was later rejected by number of economists. However, recognizing the importance of their concept in economic analysis, J.R. Hicks has tried to rehabilitate it with the aid of indifference curve techniques in a series of articles published in the *Review of Economic Studies.* The excess of the price, which a man would be willing to pay rather than to go without the thing, over that which he actually does pay, is the economic measure of this surplus satisfaction. It may be called consumer’s surplus.

We test this for car and two-wheeler consumers in the context of economic reforms.
4.2.4 Revealed Preference Theory

Paul A Samuelson has developed an alternative approach to consumer behavior. This approach does not require the consumer to supply any information about himself. It is based on his behavior in the market—behavior that is revealed through his purchases in the market.

This approach seems near to reality. In the case of indifference curve theory we used information about the consumer’s preference and budget constraints to determine his demand i.e., we were trying to determine what preference could tell us about people’s behavior. However, in real world preferences are not directly observable; we have to discover people’s preference by observing their actual behavior in the market. This is what the theory of revealed preference seeks to do. While the Marshallian utility analysis and Hicksian indifference curve analysis are introspective (the former introspective cardinalist and the latter introspective ordinalist), the revealed preference theory is behavioralist ordinalist. According to Samuelson, a consumer will decide to buy some particular set of item either because he likes them more than other goods that are available to him, or because they happen to cheap. More generally, ‘if a consumer buys some collection of goods A, rather than any one of the alternative collections B, C, D etc., and it turns out that more of the latter is more expensive than A, we may say that A has been revealed preferred to the others (or that the others have been revealed to be inferior to A)’. Samuelson’s revealed preference theory assumes rationality, consistency and transitivity in consumer behavior. The revealed preference theory can be used to prove the basic Marshallian proposition or the demand law that the demand of a good is inversely

\[ Tapas Majumdar, (1961) \]
\[ William J Baumol (1968) \]
related to its price. The latter, according to Samuelson, is the fundamental theorem of consumption theory. Its formal statement is as follows; any good (simple or composite) that is known always to increase in demand when money income alone rises must definitely shrink in demand when its price alone rises. The substitution effect (or the quasi – substitution effect) can never cause a reduction in purchase of the commodity whose price has fallen. The demand curve, which shows the quantity of X demanded at alternative prices of X, will slope downward to the right.

4.2.5 The Preference Hypothesis and Logic of Ordering

In 1956, J. R. Hicks brought out a revised version of the demand theory as presented initially in the first three chapters of his Value and Capital. The theory of demand aims to enquire about the ways in which consumers would be likely to react if variation in current prices and incomes were the only cause of changes in consumption. Hicks postulate that the behavior of an ideal consumer is governed by scale of preference. This is known as preference hypothesis. The meaning of ‘action’ according to a scale of preference is as under; “The ideal consumer (who is not affected by anything else than current market conditions) chooses that alternative, out of the various alternatives open to him, which he most prefers, or ranks most highly. In one set of market conditions he makes one choice, in others other choices; but the choices he makes always express the same ordering, and must therefore be consistent with one another”. In his revision of demand theory Hicks overcomes all the problems of indifference curve analysis by basing the demand theory upon the preference hypothesis in such a way that the former turns out to be nothing else but an

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4 Paul A. Samuelson (1953)
5 J.R. Hicks (1956)
6 Ibid., (1976)
economic application of the logical theory of ordering. For this purpose, Hicks starts by distinguishing between two kinds of ordering – strong ordering and weak ordering. In the case of strong ordering each item has place of its own in the orders; it could, in principle, be given a number, and to each number there would be one item, and only one item, which would correspond. Weak ordering, on the other hand, allows for the possibility that some items may be incapable of being arranged in front of one another. Thus, a weak ordering consists of division in to groups, in which the sequence of groups is strongly ordered, but in which there is no ordering within the groups.

4.2.6 Lancaster's Approach to Consumer theory

The theory of consumer behavior that we have discussed so far in this section treats commodities as objects of choice. In an important paper titled "A New Approach to Consumer Theory" published in Journal of Political Economy in 1966, Kelvin J. Lancaster argued that people purchase commodities for certain attributes or characteristics they embody and not for the commodities per se. He expanded his ideas considerably in his book Consumer Demand: A New Approach published in 1971. His approach to consumer theory is known as the 'characteristic approach' or the 'attribute approach' to consumer theory. This theory is relevant to the automobile industry as the personal vehicles in particular have the features of attributes.

4.2.6.1 Attribute Analysis of Consumer Behavior

According to Lancaster, consumers derive utility not from the goods themselves, but from the characteristics or attributes possessed by the goods. Accordingly, consumption is an activity in which goods, singly or in combination, are
inputs and in which the output is a collection of characteristics\(^7\). For example, an automobile is desired not for its physical composition of nuts, bolts, steel, plastics, etc., but for the services it provides - transportation, comfort, convenience, prestige, security etc. The demand for goods is thus derivative demand in the sense that it is derived from the attributes or characteristics possessed by them. Lancaster’s approach is to examine the consumer demand for the attributes directly rather than indirectly as in the goods approach. Therefore instead of ‘products space’ what we now have is ‘attribute space’. Utility or preference orderings are assumed to rank collection of characteristics and only to rank collections of goods indirectly through the characteristics that they possess. Thus, given the set of desired attributes and the goods that provide these attributes, the consumer seeks to choose that combination of attributes that maximizes his utility.

4.2.6.2 The Budget Constraint and the Efficiency Frontier

The efficiency frontier is the outer boundary of the attainable combinations of the two attributes given the budget constraint. It is called efficient because a rational consumer will prefer a combination of attributes on the frontier rather than any combination inside the frontier\(^8\).

4.2.6.3 Maximizing Utility from Attributes

The consumer maximizes his utility at the point where the efficiency frontier in attribute space is tangent to an indifference curve between combinations of those attributes. As noted by Evan J. Douglas, the attribute approach to consumer demand ‘bridges the gap’ between the economic theory of consumer behavior and marketing analysis of the phenomena.

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\(^7\) Kelvin J. Lancaster (1966)  
\(^8\) Evan J Douglas (1982)
4.2.6.4 Attribute Approach to Consumer Behavior: An Analysis

Given the set of desired attributes and products that provide these attributes, we can, in principle, choose the combination of attributes that maximizes the consumer utility. The marketing applications of the theory follow from this: if we can ascertain the attributes consumers want and how they perceive our product (and competitor’s products) in terms of the attributes provided, we can begin to explain and predict how market shares might be expected to change if we improve our product by adding or augmenting the attributes that consumers desire.

4.2.6.5 Introduction of New Product

In the traditional theory, the consumer’s indifference curves are given in terms of the original set of goods. If a new good is introduced in the market, we have to redefine a whole new set of indifference curves and all the information on the preferences about the old set of goods has to be discarded. However, in the characteristics approach, a new product can be represented either just by an extension of some product ray or the construction of a new product ray. This is as should be, because the so-called new goods are often the same as the old goods with the characteristics in different proportions. For example, a new automobile is not exactly the same as an old model but does fundamentally differ from the old either. Similar is the case of color televisions, refrigerators, washing machines and many other goods.

To illustrate the introduction of a new product with the help of the attribute approach, consider Figure 4.2. The two attributes considered in this figure are fuel efficiency and comfort. The three existing small cars are Zen (product ray OA), Santro (product ray OB) and Matiz (product ray OC), the efficiency frontier is EFG which is tangent to the indifference curve $I_1$ at point F on the product ray OB of...
Santro. Thus, the consumer purchases Santro. Let us know suppose that a new small car Alto is introduced in the market, which offers a different ratio of attributes given by product ray OD (between the rays of Santro and Matiz). Alto is so priced that efficiency frontier is extended to EFHG. It can be seen from the figure that the consumer is now able to reach a higher indifference curve I₂ by shifting to Alto — the new product in the market.

![Figure 4.1: Effect of Introduction of New Product](image)

In the above illustration, we have assumed that the new product in the market provided the attributes — fuel efficiency and comfort — in a different ratio as compare with the existing products. However, it is also possible that the new product offers attributes in the same ratio as one of the existing products. In that case, the product ray of this new product will overlap the product ray of that existing product. If, however, the new product offers more quantities of the attributes per rupee as compared with the existing product, the new product will push the efficiency frontier outward in such a way that it will eclipse that existing product. Since the new product offers more utility per rupee than the old product, the consumer will stop buying that old product.
4.2.6.6 Change in Product Quality

Let us now consider the case of an improvement in product quality. The two attributes taken into account are, as in the above case, fuel efficiency and comfort taken on the X-axis and Y-axis respectively in Figure 4.2. The three existing cars under consideration in this figure are Santro (product ray OA), Zen (product ray OB), and Matiz (product ray OC). Given the prices and consumer's budget constraint, the efficiency frontier is EFG. The efficiency frontier touches the indifference curve I₁ at point G. Therefore, the consumer purchases Matiz. Let us now suppose that Zen opts for the multi-point fuel injection (MPFI) system in place of the earlier carburetor system in an effort to compete with its competitors, Santro and Matiz. We assume that this improvement in product quality is done without going in for a change in price, i.e., the price of Zen remains unchanged. We also assume that as a result of the MPFI system, the fuel efficiency of Zen increases while the level of comfort remains the same as before.

The above figure presents the effect of change in quality on consumers' utility. In terms of Figure 4.2, the consumer gets an extra \( X_2 - X_1 \) units of fuel efficiency in the new model of Zen. Thus the product ray of Zen shifts from OB to OB₁ and the new efficiency frontier becomes EF₁G. Because of the change in efficiency frontier due to improvement in Zen's quality, the consumer can now reach a higher
indifference curve $I_2$ by switching over from Matiz to Zen. Thus an improvement in the quality of a product can wean away customers from its competitive products.

4.2.6.7 Substitutes and Complementary Goods

The attribute approach to consumer behavior is able to explain the concept of substitutes and complementary goods in a better way than the traditional theory. Substitutes are those goods, which possess common attributes. Commodities that have no common attributes are unrelated. As against this, complementary goods are those goods whose attributes can be obtained by combing two or more goods.

Thus these theories give us the fundamental aspects of economic behavior of consumer and its determinants. They bring casual relationship between demand or consumption behavior and their determinants. But they have failed to bring light on new aspects like impact of reforms, financial facilities to purchase commodities in determining demand. We have adopted the permanent income hypothesis for our analysis. The demand functions and attribute approaches have been used as background for field study analysis. The field study analysis has been done based on demand function. We have find out people's preference by observing their actual behavior in the market based on revealed preference hypothesis. Along with this, we have adopted recent developments like financial facilities, rate of interest, and economic reforms in our analysis.
4.3 The Empirical Analysis

The decade of the 1990s was an eventful one in terms of policy changes, at national as well as international level. Since the beginning of the 1990s, policy changes have been taking place at three different levels – global, national and sectoral—that have influence, on demand side also i.e., on the growth and variability of consumption behavior. The days when passenger cars and two wheelers were treated as luxury items have gone. With the increasing urbanization and the continuance of the poor public transportation system, the car and two wheelers have become a necessary rather than a luxury. The underlying driving force behind the growth in this segment is the huge middle-class population of the country. The income growth process in emerging countries, like India, has been swelling the number of households in the middle-income group. All these changes have to be viewed along with the process of economic reforms launched by the Indian government. The car and two wheeler manufacturing segments are flooded with new models from new and existing players, a visible shift from a constrained supply situation of only few players to the plenty of players. The market being witnessing not only more choice of models but also more competition. The availability of cheap financing, low cost of maintenance and spares, better fuel efficiency and easy maneuverability in cities are some of the other advantages enjoyed from the purchase of car and two-wheelers. This has resulted in considerable freedom for both enterprises and consumers. For enterprises, both domestical as well as foreign, to enter, expand or diversify their investment in Indian automobile industry while for consumers to have more choice with advanced model for consumption. Thus economic reforms have seen two major outcomes; 

firstly freedom to enterprises and secondly freedom to consumers. In the empirical
analysis we have attempted to co-integrate consumers’ permanent income along the
with consumption expenditure. We have also added the most important variable
vehicle finance and interest rate as influential factors for consumption expenditure.
The field survey has been conducted to study the consumption behavior for car and
two wheeler-manufacturing segments. Lack of data did not permit us to conduct
macro level study.

4.3.1 The Field Study on Consumption Behavior and its Determinants

The demand for car and two-wheelers is dependent on a number of factors.
i.e., of both the demand and supply side factors. The key variables like increasing
permanent income, vehicle-financing schemes, demonstration effect, macro-economic
reforms have positive role in demand side while in the supply side, decrease in price,
competition, introduction of new models, advertisement effect and liberal government
policies including globalisation have positive role in creating demand. But high
incidence of duties and taxes, fuel cost, cost of car and two-wheelers’ finance, poor
road conditions have an inverse relationship. At the same time, exogenous factors like
exchange rate depreciation, demand condition of international market, changes in
export-import policies, removal of tariff and non tariff barriers etc., have an important
role in increasing export of car and two wheeler segments (Chugen.P.K 1998). So we
have attempted to analyse the same using the micro-level data obtained form the field
survey. The information of the sample structure and location has been presented in the
methodology section in first chapter. We have classified the cars based on price as
economy (below 3 lakhs), semi-luxury (3-4 lakhs) luxury (4 and above lakhs). But
we have classified the two wheelers based on the pattern of vehicle as mopeds,
scooters and motorcycles.
The following tables present the result of field study analysis conducted to find out the consumption behavior and its determinants for car and two-wheelers in the year 2003. We have estimated the model through Ordinary Least Square Estimation Method (for more details see the table of methodology section in the first chapter). We have found out the consumer pattern and its determinants observing his behavior in the market. An attempt has been made to observe the effect of income, price, substitution, advertisement, consumer preference and tastes on demand. The nature of demand is different for each category and segment based on consumer preference, profile, features of vehicles and efficiency. The consumers have well preference for more efficient, fancy, low maintenance cost and good performance vehicles in both car and two-wheeler manufacturing segments. Along with this, they have influenced by demonstration and advertisement effect. The consumers have also undergone to price effect, substitution effect, and income effect in the market. Our results show that consumers are changing their attitude along with the changes in business environment. They have shifted their demand towards new and modern vehicles. Cars and two-wheelers have become necessary to them as against to luxury in the pre-reform period. Our results support the view that the consumers are in the age of choice, freedom and incentives. As a consequence, consumer surplus has been increased drastically. Increases in income along increased financial facilities are the major responsible factors for dramatic increase in demand. Along with demand side factors the supply side factors have also contributed for this. We have attempted to support our case study results giving evidence of macro-level factors in the next section. But the unspecific and lack of data did not permit us to analyse the consumption behavior and its determinants at macro-level using the above variables.
Table 4.2.1: The Field Study Analysis for Demand Pattern of Car

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Economy Segment (&lt; Rs.3 lakhs)</th>
<th>(Semi-luxury Segment) Rs. 3 - 4 lakh</th>
<th>(Luxury Segment) Rs. 4 lakhs plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of Market (percent)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(In the Total Sample)</td>
<td>40</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Buyer Profile</td>
<td>Households Mainly</td>
<td>Households Mainly</td>
<td>Households and Corporates</td>
</tr>
<tr>
<td>(Small businessmen, Corporate executives Middle Income Group)</td>
<td>(Government and Private Sector Employees)</td>
<td>(Business People, Higher Income Group Employees, Politicians)</td>
<td></td>
</tr>
<tr>
<td>Income Group (lakhs) (Disposable Income)</td>
<td>&lt; Rs.3 lakhs</td>
<td>3-5 lakhs</td>
<td>5 lakhs &lt;</td>
</tr>
<tr>
<td>Key attributes of model choice</td>
<td>Price, Operating costs, Driving ease, Low Maintenance charge.</td>
<td>Power, Comfort</td>
<td>Safety, Comfort, Styling</td>
</tr>
<tr>
<td>Model Types</td>
<td>Mainly two box</td>
<td>Large/spacious, Powerful</td>
<td>State of the art, Powerful, Comfortable</td>
</tr>
<tr>
<td>Major Demand drivers</td>
<td>Household incomes New products Necessity</td>
<td>Status Symbol, New models Finance, Demonstration Effect</td>
<td>Rising affluence, Advertisement Effect</td>
</tr>
<tr>
<td>Consumer Surplus (Percent)</td>
<td>34</td>
<td>46</td>
<td>53</td>
</tr>
<tr>
<td>Basis of competition</td>
<td>Product features, Prices, Distribution Network, Manufacturing expertise,</td>
<td>Product features, Finance schemes Technological expertise</td>
<td>Model selection, Spares network Positioning</td>
</tr>
<tr>
<td>Mean Percentage of Credit</td>
<td>Income, Saving</td>
<td>Finance, Income and Saving</td>
<td>Finance Income and Saving</td>
</tr>
<tr>
<td>Mean Percentage of Credit</td>
<td>40</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>Credit Benefits</td>
<td>Low Interest Rate</td>
<td>Low Interest Rate</td>
<td>Low Interest Rate</td>
</tr>
<tr>
<td>Price Effect</td>
<td>Inferior Good</td>
<td>Substitution</td>
<td>Low Effect</td>
</tr>
</tbody>
</table>

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**Table 4.2.2: The Field Study Analysis for Demand Pattern of Two-Wheelers**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Mopeds</th>
<th>Scooters</th>
<th>Motorbikes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of Market (percent) (In Sample)</td>
<td>18</td>
<td>24</td>
<td>58</td>
</tr>
<tr>
<td>Major Players &amp; Models</td>
<td>TVS, MAL, Kinetic Luna,</td>
<td>TVS, Bajaj, KML, KEL, MAL, LML</td>
<td>Hero Honda, Bajaj, TVS, Yamaha</td>
</tr>
<tr>
<td>Buyer Profile</td>
<td>Households Mainly (Low Income Group)</td>
<td>Households Mainly (Government Employees, Rural People)</td>
<td>Households (Business People, Middle and Higher Income Group Employees and People)</td>
</tr>
<tr>
<td>Income Group (lakhs) (Disposable)</td>
<td>&gt; 0.5 lakh</td>
<td>0.5-1 lakh</td>
<td>1 lakh &lt;</td>
</tr>
<tr>
<td>Key attributes of model choice</td>
<td>Price, Operating costs, Driving ease, Low, Maintenance charge.</td>
<td>Power, Comfort</td>
<td>Style, Safety, Comfort</td>
</tr>
<tr>
<td>Model Types</td>
<td>Mainly two box</td>
<td>Large/spacious Powerful</td>
<td>State of the art, Powerful, Comfortable</td>
</tr>
<tr>
<td>Major Demand drivers</td>
<td>Income, Saving, New products, Necessity</td>
<td>New models Financing schemes</td>
<td>Status Symbol, Financing schemes, Advertisement and Demonstration Effect</td>
</tr>
<tr>
<td>Consumer Preference</td>
<td>Fuel Efficiency, Low Maintenance Charges,</td>
<td>Fancy, Style, Fuel Efficiency</td>
<td>Social Status, Fuel and Technical Efficiency</td>
</tr>
<tr>
<td>Consumer Surplus (Percent)</td>
<td>24</td>
<td>29</td>
<td>45</td>
</tr>
<tr>
<td>Basis of competition</td>
<td>Manufacturing expertise Funding schemes</td>
<td>Product features, Finance schemes, Technological expertise</td>
<td>Model selection, Distribution Network Positioning Prices, Product features</td>
</tr>
<tr>
<td>Major Sources of Finance</td>
<td>Income, Saving</td>
<td>Finance, Income and Saving</td>
<td>Finance, Income and Saving</td>
</tr>
<tr>
<td>Mean Percentage of Credit</td>
<td>40</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Credit Benefits</td>
<td>Low Interest Rate</td>
<td>Low Interest Rate</td>
<td>Low Interest Rate</td>
</tr>
<tr>
<td>Price Effect</td>
<td>Inferior Good</td>
<td>Substitution</td>
<td>Low Effect</td>
</tr>
</tbody>
</table>
It is clear from the tables that the permanent income, credit and interest rate are significant in influencing the consumption behavior for car and two-wheeler manufacturing segments. The permanent income has been considered for last five years i.e., from 1998 to 2003, is positively and highly significant for both car and two-wheeler manufacturing segment. The increasing credit facilities have significantly influenced the demand for car and two-wheelers. The influence of interest rate is different for car and two-wheeler manufacturing segments. There is a negative relationship between demand for two wheelers and rate of interest. This is because two-wheeler consumers are very sensitive to interest rate as they come under low and medium income group and take huge amount of loan to purchase the vehicles. But car consumers are indifference to the rate of interest as they come under high-income group. The model is developed based on demand theories considering the demand conditions under different period and situations. It also considers income level of the
consumers as a major determinant of demand for vehicles, because two-wheelers may become inferior or Giffen Good for high-income group people. The classification of the samples based on the income range of the consumers has been given in the table 4.2.1 and 4.2.2.

4.3.2 The Demand Condition at Macro-Level

The car and two wheeler-manufacturing segments are currently experiencing an unprecedented boom in demand for all types of vehicles. The car and two wheelers' ownership pattern has been changing at a faster phase along with the changes in the economic and social environment. The car and two wheeler penetration rate was very high due to low number of owners, led by low level of income, savings and lack of financial facilities and choice, in the pre-reform period (Ivan Antonio Pinheiro and Arun D Sinher 1999). The car and two wheelers’ penetration rate has been decreased with the significant increase in the number of car and two wheeler owners over the period of time. It is decreased from 14760 in 1980 to 4635 in 1990 and to 156 in 2000. The number of persons per car is 156, which is very large compared to other emerging markets like Korea and Brazil, which have about 12 persons per car. Even though the cars usage is still very low (7 per thousand, as compared to 559 in US & 326 in Japan), the Indian car-buyer’s attitude has been changed, in the wake of economic reforms. But it was very low during restricted policy regime. The car population has been increased from 1.70 in 1980 to 3.27 in 1990 and to 7.32 in 2000. This boom has been triggered primarily by both the demand side and supply side factors. The increases in disposable income, financial facilities and decreasing interest rate have become good incentives for consumers to change their attitude. Along with this, increasing advertisement intensity, demonstration
effect, decreasing tax, introduction of high quality, low cost, efficient vehicles have become an affluence in giving thrust to demand. We elaborate this as follows:

(A) Increase in Income

The purchasing power of both the rural and urban people has increased during the post reform period as a consequence of shift of people from lower income group to middle income group. The demand side factors like increase in disposable income and standard of living of middle class Indian families, which is estimated to be as many as four million in number, and high levels of latent unsatisfied demand promise enormous opportunities to the new firms. Over the last decade GDP has grown at an annual average rate of 6.0 percent. Most of the income growth has been swelled the size of the middle class located at the higher end of the consumer durable market. According to NCAER the proportion of lower income household has declined rapidly in the pre-reform period. In absolute term 10 million households graduated outside the lower income group. The proportion of households in the high-income group also went up.

<table>
<thead>
<tr>
<th>Annual Income (Rs)</th>
<th>Income Group</th>
<th>FY 90</th>
<th>FY 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25,000</td>
<td>Lower</td>
<td>37.1</td>
<td>27.9</td>
</tr>
<tr>
<td>25,001-50,000</td>
<td>Lower Middle</td>
<td>34.8</td>
<td>34.9</td>
</tr>
<tr>
<td>50,001-77,000</td>
<td>Middle</td>
<td>17.9</td>
<td>20.3</td>
</tr>
<tr>
<td>77,001-106,000</td>
<td>Upper Middle</td>
<td>6.5</td>
<td>9.6</td>
</tr>
<tr>
<td>More than 106,000</td>
<td>High</td>
<td>3.8</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Data Source: NCAER

The increased income has become an incentive to consumer to increase the demand for car and two-wheelers. The above table compares the distribution of

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9 Natarajan (1998)
households in various income groups under the pre reform and post reform periods. This made further changes in attitudes towards car and two-wheeler ownership. The middle class Indians, who would not have thought of buying a vehicle, is now tantalized by the prospects of owning one. The increase in permanent income has a positive and significant role in influencing the demand for both the car and two wheelers during reform period. Murali Patibandla (2002) argues that the rapid growth of income in emerging countries, which expands the consumer markets for more income elastic products. This tendency has influenced the Indian consumers towards increasing demand for the car and two wheelers with the increase in permanent income.

(B). Financial Sector Reforms

In addition to the increasing income another factor influencing demand is availability of easy and cheap financial facilities. Due to intense competition, the manufactures have invested heavily in retail marketing and auto-finance. All most all car and two-wheeler manufacturing firms are providing new loans or soft loans for buying vehicles as perks. The banking sector reforms launched in 1991 have helped to improve the credit system. These include; low interest to zero interest loans, waiver of guarantee and financing up to 100 per cent of the vehicle cost. As a result, financial companies as well as dealers have also introduced a host of attractive financing schemes. The commercial bank's and development bank's lending approach has also been changed in 1990's. The personal banking emerged as retail banking in financial sector. The vehicle loans are available with flexible terms and low interest rates. The stiff competition in financial sector has lead to move friendly to customers as compared to pre reforms period. In addition to banking sector, the non-financial
intermediaries have been expanded in post reform period. The market interest rate has been declining in post-reform period. In view of this trend the consumer’s surplus as well as purchasing power of the people has increased. At present, there are multiple finance options available for a car and two wheeler buyers. In some case, car and two manufacturers offer interest-free loan, if the installments are paid within a shorter period, say less than one year. At the same time financial companies have shifted their focus from metro to small towns and villages. At present, more than two-thirds i.e., more than 60 of cars are sold through this route. Further, most of the car and two wheeler manufacturers have set up financial companies and some of them in collaboration with global car and two wheeler finance players. Major Indian public sector banks have also started financing cars in a big way, making the vehicle finance market more attractive. Thus, with increasing vehicle-financing facilities, the purchasing decision of Indian car and two-wheelers’ buyer is executed earlier, which helps to boost the demand in the country. This has been a crucial catalyst for new-car and two wheeler demand in India. It is also the key to create a mass car and two-wheeler market.

(C) Consumer Surplus

The entry of multinationals has increased competition in the car and two-wheeler manufacturing segments. With rising inventories, the car and two-wheeler manufacturers began to introduce new offers for their models. These offers are of different types; higher discount and cheap finance; free gifts, prizes, discount coupons and warranty for 2-5 years to consumers; introduction of high quality and low cost vehicles. In the last decade or so, as many as 30 models have invaded the car market, making it a case of embarrassment of rich. Introduction of new models, product
differentiation, advertisement and supply of second hand cars, have led to severe
competition and thus to price and non-price war among the firms. This part car and
wheelers’ market has become the place for cross elasticity of demand. With this,
TNCs face larger price elasticity than incumbents. The government is improving the
infrastructure facilities, which personal vehicles need to perform well. These policies
certainly led to rapid increase in the demand for passenger cars. This made further
changes in attitudes towards car and two-wheeler ownership. The declining interest
rate has, in fact, increased the purchasing power drastically. The consumers need not
to pay more interest rate, as he had to pay in the pre-reform period. These tendencies,
in fact, together have increased the consumer surplus.

(D) Advertisement and Demonstration Effects

The advertisement and demonstration effects have become important aspects
of non-price rivalry among firms. Consumers are easily evolving for these effects
without much constrains. The advertisement expenditure made by the firms has
helped them to create a ‘stock of goodwill’ through which the firms have gained the
market share significantly. Even the advertisement expenditure has become a major
component of market investment of the firm. It has helped to create a monopoly
market share for some firms. Advertisement adds a plausible barrier to entry. The
flood of variations in existing and new models provides wide range of choice for the
customer. Also, these models will be able to carve a niche themselves in the crowded
market. All most all the consumers have influenced either by advertisement effect or
demonstration effect in both the car and two-wheeler manufacturing segment. The
increased advertisement expenditure also reflects the more product differentiation.

10 As Amsden and Kang (1995) note, government plays a key role in shaping the growth of the auto
industry, especially in shaping the consumer preference for the auto industry, in emerging economies.
(E) Tax paid

The perception of car as a luxury good lead to heavy excise duty on cars in the regulated period. The excise duty increased from 25 percent in FY 1987 to 56 percent in FY 1991. But the government no longer viewed passenger cars as a luxury product. This reflected in the continuous reduction of excise and custom duties for passenger cars, particularly on the economy models. With the onset of liberalization process in the early nineties, the government has continually rationalised the excise duty regime. Presently, there is a duty of 40 per cent on motor vehicles, designed for transport of more than six persons, but for the vehicles meant not more than the twelve persons, the duty is 32 per cent. Over and above the excise duty and cess by the government, states are now charging a uniform sales tax of 12 percent. The depreciation norms have also changed for different types of machineries. With this the companies are benefited from tax shelter provided by depreciation of 25 percent. In the 1980's, import duties varied between 150 to 200 percent based on the engine capacity of a car. The import duty on cars and components has come down in the last few years with general reduction in import tariffs. In the FY 1998 budget, the import duty on cars has also been further brought from 50 per cent to 40 per cent ad-valorem. The import duty on catalytic converters and parts thereof has been reduced from 25 to 5 per cent.

Thus both the demand side and supply side factors are responsible for changing and influencing the demand pattern for car and two-wheelers in the context of changing business environment. At the same time, consumer has also become rational in revealing his preference in changing nature of the market. He has come out of the ‘Dark Age’ and entered to the ‘Consumers’ Era’ as a consequence of macro-economic reforms.
4.4 Prospectus of the Market

All the above have become the prominent factors, which are positively influencing the demand for cars and two wheelers. The macro-economic reforms are prominently responsible for all these developments. Both the demand and supply side reforms have changed the business environment under which the Indian consumers operated earlier. There are 21 million two wheelers population in India, the owners of which predominantly belong to middle income group. A major portion of them is in the way to graduate themselves in to car owners, as consequence of increase in disposable income, financial facilities etc. Availability of safety and distance in working place to home, improving infrastructure facilities, good roads, urbanization etc, are also responsible for creating demand for cars and two wheelers. Even though growth rates are impressive, uncertainty about the extent of demand growth persists for several reasons. Of the total of 170 million families in India, effective purchasing power is estimated to be with 24 million families, which includes 4 million families which are in the top income bracket, and can buy luxury and premium cars. These figures are rising rapidly since the economy is growing steadily at 5 to 6 percent. In addition to this, income is rising rapidly and inflation seems to be under control. The car and two wheeler prices are also likely to remain fairly steady as companies indigenise component production. Excise duties are high at 40 per cent. If these are reduced, it is likely to spur growth. The rural income compared to urban income is lower, but a disposable income tends to increase. This even extends the market for personal vehicles. On the downside, infrastructure in India is very poor in the rural areas, and traffic congestion in many cities is very high. If roads are developed, then the car and two wheeler sales are likely to grow very fast in rural areas since these
areas have very low market penetration. It can be predict that passenger vehicle sales will triple in five years, and as the market grows and customer's purchasing abilities rise, there will be greater demand for higher-end models which currently constitute only a tiny fraction of the market. In sum, increasing disposable income in both urban and rural areas, rapid increase in financial facilities are widening the market for car and two wheelers manufacturers. Gradually, passenger car and two wheelers have become necessity personal vehicles, as a result of inefficient or deficient public transportation. There is, therefore, a very huge untapped market is there in India.

4.5 Findings

The reform measures have changed both demand and supply structure of the automobile industry. The consumption behavior has undergone significant changes during reform period. Several factors from both the demand and supply sides have been contributed for this revolutionary change in the behavior of automobile consumers. The flood entrants of new models in to the car and two-wheeler manufacturing segments as a consequence of macro-economic reforms have led to complete transformation of demand structure. These segments are flooded with new models from new and existing players, a visible shift from a constrained supply situation to a surplus. With the onset of liberalization and globalization, cars and two wheelers are gradually declassified as luxury items. Now they have become essential commodities. As a result, the demand for passenger cars and two wheelers has shot up rapidly. Thus consumer preference has been changing at a faster pace along with the changes in business environment. The power relationship between car and two wheeler manufacturing companies, dealers and customers is going to change substantially as the industry moves from a supply constrained sellers' market to a
demand driven buyers' market. The dealers and customers are going to acquire greater power. The following conclusion can be drawn from the above analysis.

- We reject our fourth hypothesis that the market dynamics reflecting supply side reforms have alone paved the for changes in the consumer behavior. The changes in the consumer behavior are related to both the demand and supply side factors consequent of the economic reforms.

- The result of the empirical analysis reveals that the consumer is the major beneficiary of the marketing war as they are able to get technologically better products at good terms and condition. But at the same time, the consumer has become little bit confused of this price war, competition, advertisement and demonstration effect.

- The macro-economic policy reforms have paved the way for consumer to become the king of the market forces who had no both choice and freedom to reveal his preference in pre- reform period. The consumer now has a plenty of choice as car and two-wheeler manufacturing segments are operating in an extremely competitive environment. The advent of international majors also meant that they have brought not only well-known brands, but also their well-established manufacturing techniques.

- The demand side factors like increase in permanent income, financial facilities, consumer surplus and decreasing interest rate have intensified the demand for car and two-wheelers while introduction of high quality, low cost, new technology, fuel efficient models have increased the demand for cars and two-wheelers.
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