

Future Prospects Of Indian Automobiles With Special Reference To Two-Wheeler & Motorcycle Segment

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INTRODUCTION

The automobile industry in India is the eleventh largest in the world, with an annual production of approximately 2 million units. India's motorcycle market is also the second largest in the world with annual sales of about 5 million units. India is the second largest producer of two-wheelers in the world. In the last few years, the Indian two-wheeler industry has seen a spectacular growth. The country stands next to China and Japan in terms of production and sales respectively. It accounts for 60% of the domestic market. Indians prefer the two wheelers because of their small manageable size, low maintenance, and pricing and easy loan repayments. Indian streets are full of people of all age groups riding a two-wheeler.

Majority of Indians, especially the youngsters, prefer motorbikes rather than cars. Capturing a large share in the two-wheeler industry, bikes and scooters cover a major segment. Bikes are considered to be the favorite among the youth, as they help in easy commutation. Large variety of motorcycles are available in the market, known for their latest technology and enhanced mileage. Indian bikes represent style and class for both men and women in India. Marketing strategies employed by a growing industry are usually strikingly different than those of a mature industry. Motor Cycles industry in India is quite in a phase of rapid expansion, while at the same time, it has existed as long as 55 years to be mature enough.

The paper tries to identify the Segmentation, Targeting, Positioning, and the four P's in this industry by studying varied industry practices, constituent company characteristics, and their strategies for distribution, communication and promotions. Today, when we ask any youngster about his desire, the first thing that he demands is a bike. Bikes, or generally two wheelers, have come a long way from the days of Enfield and Rajdooth's dominating the market till today with Pulsar and Karizma racing in the same streets. The perception and the positioning of the industry might have changed, but the basic desire remained the same all throughout the years.¹

MOTORCYCLE COMPANIES IN INDIA²

There are a number of motor cycle companies in India that produce vehicles of extremely high standard. Some of the leading motorcycle manufacturers in India are Bajaj Auto, TVS Motor, Suzuki Motor Corporation, Royal Enfield Motors India, Hero Honda Motors, Yamaha Motor India. Many of the motorcycles manufactured by these companies are exported to countries in South East Asia, Africa and South America. Motorcycles are usually priced higher than scooters and mopeds. They are even equipped with more features for faster travel. Based upon the engine displacements and power capacity, motorcycles are further classified as: road bikes, trail bikes, racing bikes and touring bikes. Most of the motorcycles in India come with engine capacity of about 100 cc to 250 cc. The engine capacity of scooters usually vary between 100 cc to 150 cc. Mopeds have small engine capacity ranging between 50cc to 100 cc. Most of the automobile companies in this segment are always coming up with newer variants of different models of two wheelers. To be in the long run, these companies are even adding more number of features to these vehicles. Bike models become popular when they are as good in appearance as in the performance. Motorcycle models in India also get popular when they are in good price range and have other attractive features.

The motor cycle manufacturers in India are, at present, doing good business. Especially in the past few years, the motor cycle manufacturers have witnessed intense growth in this sector. As per the survey, it has been seen that the total number of the two wheelers and three wheelers produced in India in the period around 2006 - 07 were around 9 million.

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The sales record was 7,857,548- a growth of 11.41 %. During the same time period, the motorcycle exports from India were 321,321 units.

✿ **Bajaj Auto Limited:** In collaboration with Kawasaki Heavy Industries of Japan, this company is the largest exporter of two and three wheelers in India. It was established in the year 1926 by Jamnalal Bajaj. The popular brands of this company are Pulsar and Discover DTSi. In 2005, the Discover DTS-i was chosen as the Bike of the Year for its superb design by Overdrive Awards. In the same year ,Bajaj Avenger and Bajaj Wave were launched.

✿ **Hero Honda Motors:** It is the World's No.1 two-wheeler manufacturing company. The company, in collaboration with Hero Cycles of India and Honda Motor of Japan, is known for some popular brands like Achiever, CBZ, CD Dawn, Karizma, Passion, Pleasure and Splendor. Founded by Munjal Brothers, this group was established in the year 1984 (The Hero Group was established in 1956). In 2006, Hero Honda Achiever won NDTV Profit Car India & Bike India Awards for the Motorcycle of the Year and Bike up to 150 cc of the year.

✿ **Suzuki Motorcycles:** This is a subsidiary of Suzuki Motor Corporation in Japan. The Manufacturing plant was installed in Gurgaon (Haryana) with annual capacity of 1, 75,000 units.

✿ **TVS Motor Company:** Founded by T V Sundaram Iyengar, this company was established in August 1980 (TVS Group in 1911). It is the third largest two-wheeler manufacturer in India and ranks among the top ten among all the two wheelers manufacturers in the world.

EVOLUTION OF THE MOTORCYCLE INDUSTRY IN INDIA ³

The motorcycle segment is one of the most important components of the automobile sector that has undergone significant changes due to shift in policy environment. The two-wheeler industry has been in existence in the country since 1955. It consists of three segments viz. scooters, motorcycles and mopeds. According to the figures published by SIAM, the share of two-wheelers in the automobile sector in terms of units sold was about 80 per cent during 2003-04. This high figure itself is suggestive of the importance of the sector. In the initial years, entry of firms, capacity expansion, choice of products including capacity mix and technology, all critical areas of functioning of an industry, were effectively controlled by the state machinery. The lapses in the system had invited fresh policy options that came into being in late sixties. Amongst these policies, Monopolies and Restrictive Trade Practices (MRTP) and Foreign Exchange Regulation Act (FERA) were aimed at regulating monopoly and foreign investment respectively. This controlling mechanism over the industry resulted in-

- ✿ Several firms operating below minimum scale of efficiency.
- ✿ Under-utilization of capacity.
- ✿ Usage of outdated technology.

Recognition of the damaging effects of licensing and fettering policies led to initiation of reforms, which ultimately took a more prominent shape with the introduction of the New Economic Policy (NEP) in 1985. However, the major set of reforms was launched in the year 1991 in response to the major macroeconomic crisis faced by the economy. The industrial policies shifted from a regime of regulation and tight control to a more liberalized and competitive era. Two major results of policy changes during these years in two-wheeler industry were that the weaker players died out giving way to the new entrants and superior products and a sizeable increase in number of brands entered the market that compelled the firms to compete on the basis of product attributes. Finally, the two-wheeler industry in the country has been able to witness a proliferation of brands with introduction of new technology as well as an increase in number of players. However, with various policy measures undertaken in order to increase the competition, though the degree of concentration has been lessened over time, deregulation of the industry has not really resulted in higher level of competition. Indian automobile industry witnessed a growth of 25.29% in motorcycle segment. Indian motorcycle segment includes a range of brands, such as Bajaj Pulsar, Bajaj Discover, Bajaj CBZ, LML Freedom, TVS Victor, TVS Star, etc. The manufacturers are in the process of launching new models. Bajaj, TVS and Hero Honda, Yamaha, Suzuki, etc. are leaders in the Indian motorcycle segment. All the segments in the motorcycle market, specifically the high-growth mid-segment were characterized by intense competition. In terms of market share in 1999-00, Hero Honda was the leader (43%), followed by Bajaj Auto (24%), TVS-Suzuki (19%), Yamaha (14%) and Royal Enfield (1%) (Refer To Table No. -4).

Table 1: Market Shares (1999-2000)

Company	Market share (in %) - Motorcycle
Bajaj Auto Ltd.	24
TVS Suzuki Ltd.	18
Hero Honda Motors Ltd.	43
Escorts Yamaha Motors	14
Royal Enfield	1
Total (No. of Units)	1,796,734
Total (%)	100

Source: ICMR, May 31, 2000

The present economic situation of the country makes the scenario brighter for short-term demand. Real GDP growth was at a high level of 7.4 per cent during the first quarter of 2004. Both industry and the service sectors have shown high growth during this period at the rates of 8.0 and 9.5 percent respectively. Taking into account all these factors along with other leading indicators including government spending, foreign investment, inflation and export growth, NCAER has projected an average growth of GDP at 6.7 percent during the tenth five-year plan. Its mid-term forecast suggests an expected growth of 7.4 percent in GDP during 2004-05 to 2008-09. Very recently, IMF has portrayed a sustained global recovery in the World Economic Outlook. A significant shift has also been observed in Indian households from the lower income group to the middle income group in recent years. The finance companies are also more aggressive in their marketing compared to previous years. Combining all these factors, one may visualize a higher growth rate in two-wheeler demand than presented in Table 1, particularly for the motorcycle segment.

INDUSTRY STRUCTURE

Indians prefer motorcycles because of their small manageable size, low maintenance, and pricing and easy loan repayments. Indian streets are full of people of all age groups riding a motor cycle. The populace sees motorized motor cycle as a symbol of status.

Table 2: Motor Cycle Industry In India

Hero Honda Motors	TVS Motor Co.	Suzuki Motors
Hero Motors	Yamaha Motor	Royal Enfield
Bajaj Auto Ltd.	Honda Motors Co. Ltd.	Kinetic Motor Co. Ltd.

Source: ICMR, May 31, 2006.

The motor cycle manufacturing business is capital-intensive, and requires facilities for making engines, body fabrication and assembly. Huge investments are required to increase capacity or set up new manufacturing facilities. The cost of setting up a full-fledged motorcycle manufacturing line with a capacity of 0.4 million units, is estimated at ₹ 2.5-3.0 billion. A motorcycle assembly line of the same capacity costs around ₹ 750 million. A scooter manufacturing line of 0.1 million units costs around ₹ 2 billion. Hero Honda, Bajaj Auto, TVS Motor have been the main players of the two wheeler industry. While Hero Honda operates dominantly in the motorcycle segment, a modest entry has been made in the scooterettes segment by launching Hero Honda Pleasure. Bajaj Auto and TVS Motor ride in all the three segments - motorcycle, scooter and moped. The other players in the industry have been LML, Kinetic Motor, Kinetic Engineering, Yamaha and Royal Enfield. Hero Honda's overall sales raced much above industry growth and registered a CAGR of 28% between 1999-00 and 2004-05. Bajaj Auto and TVS Motor followed with CAGR growth of 10.5% and 8.4% respectively. Other than Royal Enfield Motors, who registered a CAGR growth of 3% during the said period, all other players registered a negative growth in the period under review. Thus, if overall two wheeler market is considered, Hero Honda commands a 40% share in the market, followed by Bajaj Auto at 24% and TVS Motor at 17.8%. Honda Motorcycle & Scooters entered the Indian scooter market during 2001-02 and made its foray into the motorcycle market in 2004-05. In a span of 4 years, the company today has 8.4% share in the overall Indian two wheeler market.

Table 3: Two - Wheelers: Player - Wise Market Share

Percentage (%)	1990-00	2000-01	2001-02	2002-03	2003-04	2004-05
Hero Honda	22.0	28.8	33.1	33.2	36.8	39.9
Bajaj Auto	28.0	24.9	27.8	24.8	22.9	24.4
TVS Motor	22.5	24.2	20.1	22.1	20.4	17.8
Honda Motorcycle	0.0	0.0	1.3	3.3	6.1	8.4
Yamaha Motors	7.3	4.8	5.4	6.0	4.7	3.8
LML	8.2	5.8	4.0	3.8	3.7	1.6
Kinetic Motor	3.5	3.6	2.9	2.6	2.2	1.6
Kinetic Engineering	4.7	4.3	2.9	2.0	1.4	1.1
Majestic Auto	3.2	3.1	1.9	1.6	1.3	1.0
Royal Enfield Motors	0.7	0.6	0.6	0.6	0.5	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Sector Outlook: Two-wheeler Industry, CAPITALINE-Corporate Database on Capital Market Publishers India Pvt. Ltd.

MOTORCYCLES IN INDIA

In 1955, the Indian government needed sturdy and reliable motorcycles for its Army and police to patrol the rugged border highways. The first batch of 350cc Bullet from the Royal Enfield Company of UK were received and assembled at Chennai. The four stroke engine of the motorcycles is fuel efficient and is the main reason for the growth of motorcycle segment in India. The motorcycle market share is about 81.5% of the total two wheeler market in India. Three-fourths of the total exports in the two wheeler automobile industry are made in the motorcycle segment. Exports are made mainly to South East Asian and SAARC nations.

INDIAN MOTORCYCLE INDUSTRY AND OPERATING CHARACTERISTICS ⁴

- ✿ 2nd largest in the world.
- ✿ 90% are less than 125 cc.
- ✿ Maximum operating speed range from 50-70 km/h.
- ✿ Designed to be fuel efficient and low emission compliant.
- ✿ Designed for slow speed maneuverability.
- ✿ Used for commuting from residence to place of work.
- ✿ Common means of transport in rural, town and cities and not intended for expressways.
- ✿ Two wheeler markets in India is highly price sensitive.

THE INDIA ADVANTAGE

India has the potential to become one of the top 5 automotive economies by 2025 based on its present growth potential. Steered here by the country's high engineering skills, established production lines, a thriving domestic motorcycle industry and competitive costs, global auto majors are rapidly ramping up the value of components they source from India. The industry is poised to jump from exports of US\$ 1.8 billion in 2004-05 to US\$ 5.9 billion in 2008-09.

According to the Automotive Component Manufacturers Association of India, more than a third (36 per cent) of Indian auto component exports head for Europe, with North America a close second at 26 percent. In 2006, components worth US\$ 2 billion were exported by Indian companies; 75 per cent of which were bought directly by car companies. The original equipment manufacturers (OEMs) include firms like Hero Honda, Bajaj, Yamaha, Suzuki, and Enfield. Over 20 OEMs have set up their International Purchase Offices (IPOs) in India to the components. This number is expected to double by the year 2010. India enjoys a cost advantage with regard to castings and forgings. The manufacturing costs in India are 25 to 30 percent lower than its western counterparts. India's competitive advantage does not come from costs alone, but from its full service supply capability. The below points gives weightage to India's advantage on exports-

- ✿ Low Cost Manufacturing.

- ✿ Politically and Economically stable market.
- ✿ Exponentially growing automotive industry.
- ✿ Manufacturing and imports free from Licensing and approvals.
- ✿ 100% foreign investment allowed in Automobile sector.
- ✿ No Local content regulation in Automobile industry.
- ✿ Foreign Exchange convertible on capital account.

DEMAND DRIVERS⁵

The demand for motor cycle has been influenced by a number of factors over the past five years. The key demand drivers for the growth of the motorcycle industry are as follows:

- ✿ Inadequate public transportation system, especially in the semi-urban and rural areas.
- ✿ Increased availability of cheap consumer financing in the past 3-4 years.
- ✿ Increasing availability of fuel-efficient and low-maintenance models.
- ✿ Increasing urbanization, which creates a need for personal transportation.
- ✿ Changes in the demographic profile.
- ✿ Difference between motorcycle and passenger car prices, which makes motorcycles the entry level vehicle.
- ✿ Steady increase in per capita income over the past five years.
- ✿ Increasing number of models with different features to satisfy diverse consumer needs.

While the demand drivers listed here operate at the broad level, segmental demand is influenced by segment-specific factors.

RECENT INDIAN MOTOR CYCLE TRENDS NEWS⁶

1. New Bike From Bajaj Auto: XCD 135 DTS-Si : On January 21st, Bajaj Auto introduced a new variant of the XCD motorcycle, the XCD 135 DT-Si. The new bike comes with a detuned version of the 134cc four stroke, single-cylinder, air-cooled engine found in the Discover 135 and features Bajaj XCD 135 DT-Si Bajaj's proprietary Digital Twin Spark-Swirl induction (DTS-Si) technology. Them XCD 135, which has been priced at INR 45,000 (€712), also features a five-speed gearbox, an auto choke, gas-filled rear shock absorbers, a digital speedometer, an LED tail light, electric start and a front disc brake. While the bike will initially be produced at Bajaj's Aurangabad plant in Maharashtra, production will later be shifted to the company's Pantnagar facility in Uttarakhand. Bajaj Auto is planning to supplement the XCD 135 with two new bikes in the 125-135cc category, in addition to three new models in the 150+cc class. Bajaj is also looking at a gearless scooter of 100-150cc, which has been tentatively named 'Blend', sometime in 2010.

2. Bajaj To Launch Kawasaki, KTM Bikes :Motorcycle manufacturer Bajaj is preparing to launch models from KTM and Kawasaki's international ranges in India within the next 12-18 months. The onslaught is expected to begin with the Kawasaki Ninja 250R, followed by the KTM Duke and RR. While the Ninja will be imported as a completely-built unit (CBU), the KTM models may be assembled at Bajaj Auto's facility in Chakan, in the state of Maharashtra. Bajaj is currently also developing its own 250-300 cc motorcycle in collaboration with an unnamed European bike design firm and KTM, in which the Indian company has a 30% stake.

3. Electrotherm Unveils YO Electron : Indian electric bike manufacturer Electrotherm has unveiled a new model called the YO Electron for the domestic market. Featuring a new quick-charge battery which requires 3-4 hours to get completely topped up, the YO Electron will be produced at the company's new manufacturing facility in Kutch, in the state of Gujarat. The plant, which involved an investment of INR 600 million (€9.5 million), has an installed capacity of 288,000 units. Electrotherm has so far sold around 60,000 ebikes in the Indian market, primarily in Gujarat.

4. Hero Honda Ups Capacity At Haridwar Facility :At a time when most manufacturers are downsizing their staff and production capacity, Indian two-wheeler market leader Hero Honda is in expansion mode, with the company increasing production at its facility in Haridwar, in the state of Uttarakhand, from 2,000 units per day to 3,000 units. The company is optimistic about the market in 2009, in spite of the fact that December saw a 10% decline in sales over the same period in 2007, at 215,931 units.

5. Bike Sales Plummet In December : The last month of 2008 saw overall two-wheeler sales in India nose-diving 15.4% to 461,302 units, compared with 545,485 units in the same period last year. The slide was stemmed to an extent by scooter sales - the motorcycle segment slipped 22.9% with only 335,820 units sold, as against 435,925 units in the year-ago period. Market leader Hero Honda's slipped 10% to 215,931 units, while the biggest drop was recorded by Bajaj Auto, whose sales were down 33% to 119,000 units.

6. Bajaj Plans To Launch 9 Models In 9 Months ⁷: Undeterred by the slowdown in the auto market, Bajaj Auto plans to launch nine models in the next nine months and looks to make a turnaround in sales growth. How the industry fares this year will depend on individual companies.

CURRENT SCENARIO

- ✿ India represents one of the largest two-wheeler markets in the world, with an estimated size of 5.4 million units a year.
- ✿ India is the two-wheeler capital of Asia with an average of 27 two-wheelers per thousand people, compared to China's 8 two-wheelers per thousand people.
- ✿ India became the fastest growing car market in the world in 2004, a growth rate of 20%.
- ✿ It is expected that the Indian automobile industry will achieve mass motorization status by 2014.

INDIAN AUTOMOBILE POLICY - KEY FEATURES ⁸

- ✿ Fully liberalized, de-licensed industry with 100 percent foreign direct investment (FDI) permitted.
- ✿ Progressively reducing fiscal burden.
- ✿ Fiscal incentives for R&D expenditures.
- ✿ Tightening safety and performance regulations.
- ✿ Export promotion, encouragement to “brand” India.
- ✿ Policy Aims to-
 - (i) Establish a globally competitive automotive market,
 - (ii) Double its contribution to the economy by 2010, and
 - (iii) Make India a global hub of automotive manufacturing in India.

AUTOMOTIVE MISSION PLAN 2016 ⁹

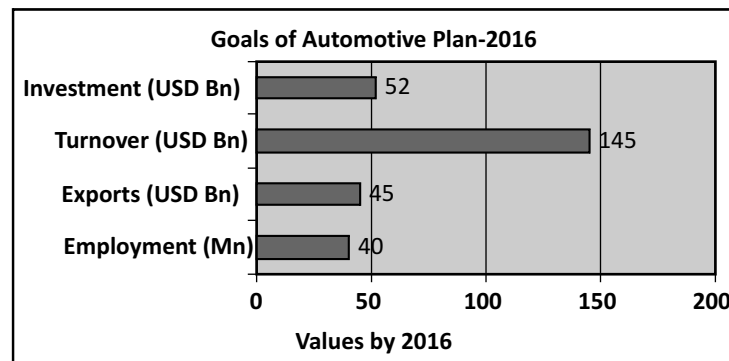
- ✿ US\$145 billion turnover by 2016.
- ✿ Ten percent contribution to GDP.
- ✿ Create 25 million additional employments.
- ✿ Focused action plan on -
 - (i) Demand creation, brand building & infrastructure.
 - (ii) International trade.
 - (iii) Competitiveness in manufacturing and technology.
 - (iv) Human resource development.
 - (v) Environment and safety.

COMPANIES RAISING CAPACITY TO MEET THE GROWING DEMAND

All the major two-wheeler manufacturers, viz. Bajaj Auto, HHML, TYS, HMSI and others, have increased their manufacturing capacities in the recent past. The total capacity of these players stood at 7.8 million units per annum (FY2005) as against total market sales of 3.8 million units in FY2004. Most of the players have either expanded capacity, or converted their existing capacities for scooters and mopeds into those for manufacturing motorcycles. The move has been prompted by the rapid growth reported by the motorcycles segment since FY1997. HHML increased the capacity of its plants from 1.8 million units in FY2003 to 2.25 million in FY2004 and has been able to achieve 92% capacity utilization. In light of the increase in demand for motorcycles, the company plans to set up a new plant. Since its entry in the Indian market during FY2002, HMSI has aggressively expanded its capacity.

National Council of Applied Economic Research (NCAER) had forecast two-wheeler demand during the period 2002-

Chart No. : 1



03 through 2011-12. The forecasts had been made using econometric techniques along with inputs obtained from a primary survey conducted at 14 prime cities in the country. Estimations were based on Panel Regression, which takes into account both time series and cross section variation in data. A panel data of 16 major states over a period of 5 years ending 1999 was used for the estimation of parameters. The models considered a large number of macro-economic, demographic and socio-economic variables to arrive at the best estimations for different two-wheeler segments. The projections have been made at all India and regional levels. Different scenarios have been presented based on different assumptions regarding the demand drivers of the two-wheeler industry. The most likely scenario assumed annual growth rate of Gross Domestic Product (GDP) to be 5.5 per cent during 2002-03 and was anticipated to increase gradually to 6.5 per cent during 2011-12. The all-India and region-wise projected growth trends for the motorcycles and scooters are presented in Table 1. The demand for mopeds is not presented in this analysis due to its already shrinking status compared to motorcycles and scooters. It is important to remember that the above-mentioned forecast presents a long-term growth for a period of 10 years. The high growth rate in motorcycle segment at present will stabilize after a certain point beyond which, a condition of equilibrium will set the growth path. Another important thing to keep in mind while interpreting these growth rates is that the forecast could consider the trend till 1999 and the model could not capture the recent developments that have taken place in last few years. However, this will not alter the regional distribution to a significant extent.

Table 4 suggests two important dimensions for the two-wheelers industry. The region-wise numbers of motorcycles and scooters suggest the future market for these segments. At the all India level, the demand for motorcycles will be almost 10 times of that of the scooters. The same in the western region will be almost 20 times. It is also evident from the table that motorcycle will find its major market in the western region of the country, which will account for more than 40 per cent of its total demand. The south and the north-central region will follow this. The demand for scooters will be the maximum in the northern region, which will account for more than 50 per cent of the demand for scooters in 2011-12.

Table 4: Demand Forecast For Motorcycles And Scooters For 2011-12

Motor cycle segment	Regions				
	South	West	North Central	East & North-East	All India
Demand Forecast (in Units)	2835	4327	2624	883	10669
Demand Forecast (in Percentage)	(12.9)	(16.8)	(12.5)	(11.1)	(14.0)

Source: ICMR

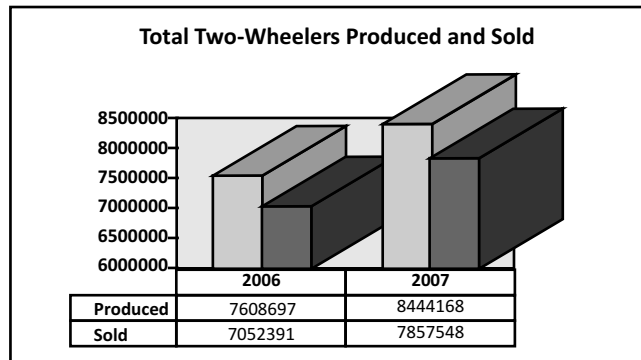
Note: Compound Annual Rate of Growth during 2002-03 and 2011-12 is presented in parenthesis

TWO-WHEELERS PURCHASE TREND

- ✿ Growing working population.
- ✿ Increased access to credit and lower interest loans.
- ✿ Increased consumer embrace of financial products.
- ✿ Upward migration of household income levels.
- ✿ Fast paced urbanization to rise from 28% to 40% by 2020.

- ☼ Middle class expanding by 30 - 40 million every year.

Chart 2: Sales Of Motorcycles In India Are Likely To Touch The 10 Million Mark By 2010!



Source: Frost n Sullivan

THE FUTURE

Although the avalanche of motorcycles offered to Indian consumers offer them a wide variety of models to choose from, it also resulted in increased pressure on the companies to concentrate on cost-cuts, technology enhancements and up gradations and styling. Their margins came under pressure as marketing costs escalated. The companies were forced to reduce prices and offer discounts to survive the competition. Moreover, analysts were skeptical about the segment's ability to maintain the growth rate in the years to come. One of the major assumptions underlying the motorcycles rush was that if the market was considerably large and was growing at a constant pace, there was room for a profitable existence for all brands. In 2001, there were over 30 motorcycle brands in the market. However, with the top five brands accounting for more than 60% of the market, only 40% of the market was available for all other new brands put together. Despite the launch of more vehicles, the survival prospects of many of the individual brands were deemed to be rather bleak. Further, the growth in the motorcycle segment was dependant on continuing favorable market conditions. Considering the fast growing scooterettes segment, with high demand from female customers, followed by the moderately growing moped segment and the restructuring in the scooter segment with major national and foreign players reinforcing their presence, it was unlikely that the entire growth in the two-wheeler sector would be due to motorcycles.¹⁰

Analysts also commented that as the two-wheeler industry had grown steadily for eight years, stages in the product life cycle would apply to the field sooner, rather than later and the decline stage would invariably come some day. There was little differentiation between the brands being launched apart from styling as most companies had introduced their four-stroke vehicles. With the failure of the joint ventures, the expected introduction of cheaper Chinese brands, stringent emission norms and threat from major international players, the survival of indigenous brands looked uncertain. Constrained with the ruling price levels in the market place, limited infrastructure and lack of technological innovations when compared to their foreign counterparts, whether the Indian companies would succeed in generating the kind of volumes needed to sustain in the competitive motorcycle market remains to be seen.

INTERNATIONAL SCENARIO¹¹

A motorcycle is used as a personal / family vehicle or a goods carrier in the developing countries, whereas it is confined to sports/ racing (heavy motor cycles) or distance shopping in developed countries. The world motorcycle market is dominated by Japan. Japanese manufacturers account for around 65% of the total motorcycle production in the world. However, production within Japan has been declining due to lower domestic demand and shift in manufacturing base outside the country. Japan is also the world's largest exporter of the motorcycle in the world controlling around 75% of the world trade. Its major markets are China, USA and Europe. In terms of player positions, Honda Motors Corporation, Yamaha Motors and Suzuki Motors Corporation share the top three slots in the world motorcycle market.

TECHNOLOGY

Hitherto, technology transfer to the Indian two-wheeler industry took place mainly through: licensing and technical

collaboration (as in the case of Bajaj Auto and LML); and joint ventures (HHML). A third form - that is, the 100% owned subsidiary route - found favour in the early 2000s. A case in point is HMSI, a 100% subsidiary of Honda, Japan. Table 5 details the alliances of some major two-wheeler manufacturers in India. Besides the below mentioned technology alliances, Suzuki Motor Corporation has also followed the strategy of joint ventures (SMC reportedly acquired equity stake in Integra Overseas Limited for manufacturing and marketing Suzuki motorcycles in India). With increased competition, established automobile manufacturers in India are becoming more conscious about technology and quality. These companies are incorporating ISO 9000 certification and Total Quality Management as explicit corporate goals. R&D expenditure in Hero Honda, Bajaj, TVS Automobiles and Yamaha Motors -the four companies with over 95% of the market currently, is very low and in 1998-99, the combined budget of these four companies was \$1 million or 0.38% of sales. However, Hero Honda has been building product development capabilities in vehicles. It has plans to increase exports of these models.

Table 5 : Technological tie-ups of Selected Players

Company	Nature of Alliance	Company	Product
Bajaj Auto	Technological tie-up	Kawasaki Heavy Industries Ltd., Japan	Motorcycles
	Technological tie-up	Tokya R&D Co Ltd., Japan	Two-wheelers
	Technological tie-up	Kubota Corp, Japan	Diesel Engines
HHML	Joint Venture	Honda Motor Co, Japan	Motorcycles
KEL	Technological tie-up	Hyosung Motors & Machinery Inc	Motorcycles
KEL	Tie up for manufacturing and distribution	Italjet, Italy	Scooters
LML	Technological tie-up	Daelim Motor Co Ltd.	Motorcycles
Hero Motors	Technological tie-up	Aprilia of Italy	Scooters

Source: ACMA

'GOING GLOBAL' -BUILDING COMPETITIVENESS THROUGH INTERNATIONALIZATION

The Indo-Japanese joint ventures-Hero Honda, TVS Suzuki, Bajaj Kawasaki-adopted different strategies to become competitive. TVS Motors used cost reduction (value engineering, global sourcing, lean manufacturing, waste elimination and continuous reduction in cost) and securing product leadership (good brands, innovative package, IT, developing energy efficient technologies and market/product expansion) to become competitive. Bajaj Auto's strategy was to customize its products as per market needs. Hero Honda's plan for the domestic market was to manufacture fuel-efficient vehicles. Its global plan was to give the best product to customers by upgrading technologies and to view the world as one market.

GLOBAL DEMAND TO RISE 5.4% ANNUALLY

Demand for motorcycles worldwide will rise 5.4 percent annually to 55.7 million units in 2011, with growth emanating from a mix of developed market incremental improvements and emerging market expansions. Demand for all categories of motorcycles is expected to remain healthy, despite the anticipated slowdown in key markets. China, for example, the largest motorcycle market and producer in unit terms, is rapidly transitioning away from motorcycles toward cars, and in the process, flooding the world market with motorcycle exports. In contrast, rising fuel prices and increasing restrictions on car use are favoring motorcycles in developed markets. The market for large and expensive high displacement motorcycles will remain strong through 2011, but concerns regarding demand have emerged due to the aging of the customer base and rising insurance costs, especially in the US and Western Europe. The Indian motor cycle industry has attracted worldwide attention over the last ten years. Probably, for the first time, Indian industry was seen as competitive when Hero Honda became the world's largest two-wheeler manufacturer. This was further reinforced when Hero Honda's motorcycle 'Splendor' became the largest selling model in the world. However, Hero Honda is not the only Indian two-wheeler manufacturer of international class. Both Bajaj Auto and TVS Motors are not lagging far behind. In fact, some of Bajaj Auto's products are superior to that of Hero Honda. There are also a number of other smaller two-wheeler manufacturers. These include Honda Motorcycles and Scooters India, Suzuki, Yamaha,

CONCLUSION

✿ **Government Policy Impact On Petrol Prices :** Petrol prices determine the running cost of motorcycle expressed in rupees per kilometer. Petrol prices are the highest in India as GOI subsidizes kerosene and diesel. But with the recent change in GOI policy to reduce the subsidy, the prices of petrol will remain constant at the current prices. This will have a positive effect on purchases on two/three wheelers. Improvement in disposable income: with the increase in salary levels, due to entry of multinationals following liberalization process and fifth pay commission, the disposable income has improved exponentially over the years. This is already witnessed in improved demand for 2-wheelers in FY2007 compared to a meager growth in FY2006.

✿ **Changes In Prices Of Second Hand Cars :** The second hand car prices of small cars have come down sharply in the recent past. This will shift the demand from higher end two-wheelers to cars and affect the demand for two-wheelers negatively. A further drop in second hand car prices will lead to pressure on the two-wheeler majors who plan to release higher end scooters and motorcycles.

✿ **Implementation Of Mass Transport System:** Many states have planned to implement mass transport systems in state capitals in the future. This will have negative impact on demand for two-wheelers in the long-run. But taking into account the delays involved in implementation of such large infrastructure projects; we expect the demand to be affected only five to seven years down the line.

✿ **Availability Of Credit For Vehicle Purchase:** The availability and cost of finance affects the demand for two and three-wheelers as the trend for increased credit purchase for consumer durables have increased over the years. Therefore, any change with respect to any of these two parameters as a result of change in RBI policy has to be closely watched to assess the demand for two and three wheelers.

ABBREVIATIONS

IPO's	-	International Purchase Offices
OEMs	-	Original equipment manufacturers
SIAM	-	Society of Indian Automobile Manufacturers
AAUI	-	Automobile Association of Upper India
ARAI	-	Automotive Research Association of India
AASI	-	Automobile Association of Southern India
ACMA	-	Automotive Component Manufacturers Association of India
HHML	-	Hero Honda Motors Limited
KEL	-	Kinetic Engineering Limited
ICMR	-	Indian Council for Market Research
M RTP	-	Monopolies and Restrictive Trade Practices
FERA	-	Foreign Exchange Regulation Act
NEP	-	New Economic Policy
NCAER	-	National Council of Applied Economic Research

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CONCLUSION

The land price at Sholinganallur is modeled using identified economic factors. From the analysis, it is concluded that nine out of thirteen factors are significant determinants on land price. The regression model, which accounts for ninety eight percent variations in the land price, is applied to determine the future land price. The annual factor model on land price with physical factors will help to justify the price of any parcel of land in the study area.

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