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**Market Life-cycle and Products Strategies for Emerging Markets:
Toward a New Age of Indian Automotive Market**

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[Summary]

With the current global financial instability, interest is returning to emerging nations. Every day the media present unsubstantiated stories of the great potential of emerging markets, with their high growth rates and low product penetration. While there is no shortage of rosy predictions relying only on the hope of future growth in these emerging markets, the debate is far from over regarding whether such high growth can truly be achieved.

Although penetration of automotive products needs to be considered on a country by country basis, there are some common characteristics. It is possible to compare these countries on certain criteria in relation to the phases of development undergone by each market. By focusing on general and emblematic areas and avoiding complicating surface issues, it is possible to identify not only the phases of development but also the orientation toward actual achievement of growth. This paper will examine the TATA “NANO,” and will discuss the necessity of creating product strategies that fit the phases of development of the market.

[Keywords]

market life-cycle, emerging markets, products strategy, automotive industry, TATA Nano

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【Summary】

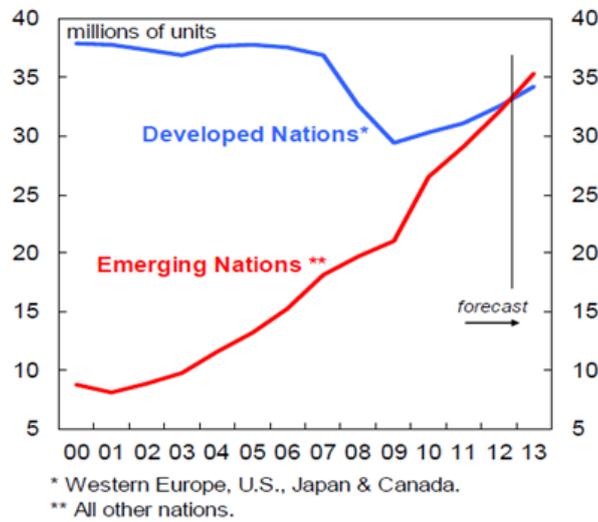
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Although penetration of automotive products needs to be considered on a country by country basis, there are some common characteristics. It is possible to compare these countries on certain criteria in relation to the phases of development undergone by each market. By focusing on general and emblematic areas and avoiding complicating surface issues, it is possible to identify not only the phases of development but also the orientation toward actual achievement of growth. This paper will examine the TATA “NANO,” and will discuss the necessity of creating product strategies that fit the phases of development of the market.

1. Introduction: What is the Essence of Growth?

In 2001, Jim O’Neill, Chief Economist of US Investment Bank Goldman Sachs, issued a report called “Building Better Global Economic BRICs.” This report pointed out the medium to long-term possibilities of non-G7 economies for the global economy, bringing considerable attention to the business opportunities presented by emerging economies. Indeed, the term “BRICs” (**B**razil, **R**ussia, **I**ndia, and **C**hina) has become synonymous with countries that have emerged¹ after the countries for which the term was coined. The original BRIC nations have entered the top 10 world economies on a scale comparable to the G7. Furthermore, while financial turmoil continues in the wake of the collapse of Lehman Brothers, with advanced economies unable to dispel concerns over the prospects of a “double dip,” expectations for these emerging markets increase even more every day.

Figure 1: Growing new car markets of BRICs after 2000



Souse: Scotiabank Group (2011).

The same expectations are true for emerging markets in the automotive industry as they become increasingly prominent in this industry. Figure 1 shows the transformation in the structure of global demand since 2000. In 2000, markets in Europe, North America (not including Mexico), and Japan were the three pillars of global demand, accounting for 80% of total demand. At the same time, markets in these emerging BRIC nations were only getting started in 2002; by 2007 they still had reached only half the scale of developed markets. This suggested that once they had built up their competitive advantage in developed markets, Japanese automotive manufacturers still felt that there was room for them to maintain corporate strategies that focused on developed nations. However, since 2007, the financial turmoil that had engulfed these developed nations has completely transformed the market, significantly depressing demand. Because the impact of this financial crisis on emerging nations has been comparatively small, and with the expectations surrounding economic growth in these regions, they have been gaining traction as investment destinations for companies.

Furthermore, since 2008, as demand has continued to contract, automobile markets in emerging nations have grown to a size comparable to new car markets in developed nations, making them markets that automotive manufacturers can no longer ignore. For example, while new car sales in China in 2000 were only 2.1 million units, domestic sales reached 18.347 million units by 2010, including net automobile imports. This shattered the previous US record of 17.812 million units, making China the world's number one market for automobiles. Annual sales in Brazil around 2000 were only 1.5 million units; this grew to 3.5 million units by 2010. Brazil thus overtook Germany to become the 4th largest automotive market in the world, following China, the US, and Japan. Similarly, the size of the Indian market around 2000 was only 820,000 units. This reached 3.2 million units in 2010, thus India outpacing

France, Britain, and Italy to become the 6th largest market in the world. Particularly, since India has a large population but the number of automobiles per 1,000 people is only around 20, many have suggested that after China, India has the greatest potential for automotive market growth.

Prior to the financial crisis, some stories suggested Russia was poised to surpass Germany to become the largest automotive market in Europe. However, due to the financial crisis, by 2009 the manufacture and sale of automobiles in Russia had collapsed to just half of its peak level in 2008. By 2010 the automotive market in Russia had recovered somewhat, but still remains at about 1.91 million units, or about 70% of its peak level. Debate continues as to when Russia will achieve a level of 3 million units.

Thus, these so-called emerging nations have in fact shown considerable growth. However, the question remains as to why until now, most discussions of automotive markets in emerging markets have focused on the issue of consistent growth and have lacked critical thinking regarding the inevitability of growth. In other words, discussions seem to have focused the inevitability of increased GDP, the achievement of certain levels of car ownership, and the development of markets. However, they have largely ignored such social and environmental constraints as national differences in market structures and whether continued growth in a nation's automotive industry is necessary for the promotion of social ends.

Therefore, in addition to gaining an understanding of changes in production, transportation, and consumption through the development of automotive industries in emerging nations, this paper will examine social reforms that have changed lifestyles of the people of these countries. In other words, this paper will seek to reveal the existence of common historical traits in the different phases of the development of automobile markets as a country moves toward motorization i.e., social spread of automobiles.

This paper will then consider a cross-sectional examination of the BRIC nations to explore the factors that have led to their economic growth in the 2000s, with an attempt to reveal the specific characteristics and market structure of the Indian automobile market in particular.

Finally, we will investigate the case of the TATA "NANO" small car, which has gained popularity because of its extremely low price. This is an example of destructive innovation. This paper will investigate measures intended to promote this kind of innovation through destructive technology and those that fit the development phases of the market.

2. Presence of Market Development Phases: Lessons from the History of Motorization in Japan

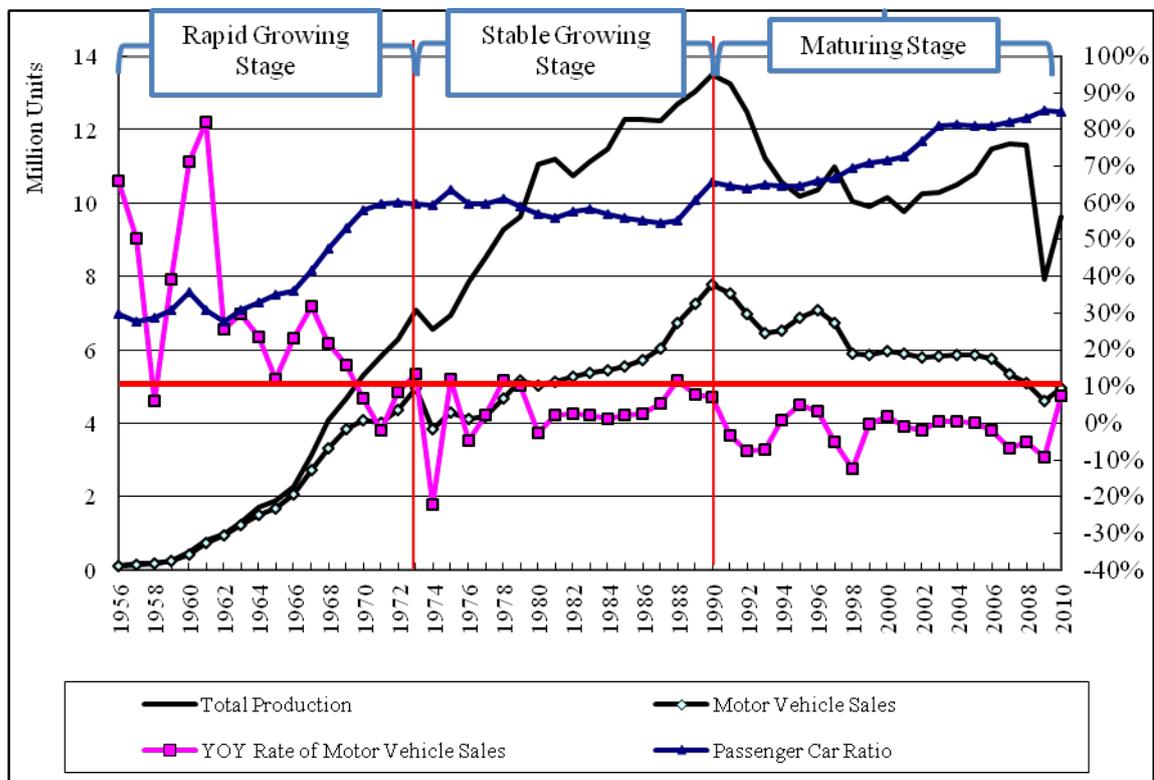
Since 2000, emerging nations have garnered attention because of the rapid growth of their markets. Why this growth occurred and how much further these markets can grow in a stable and sustainable way are vital questions that cannot be avoided by any company that seeks to develop a market or conduct product planning. In terms of the automotive industry, the motorization of Japan is a helpful case study for considering these issues. Within the motorization of Japan that began in the 1960s, as the overall

market for automobiles expanded, a shift from demand for commercial vehicles to that for passenger vehicles occurred. In addition, the demand for passenger vehicles changed in terms of use, such as from luxury items for the wealthy or other applications such as rentals and taxis, to being a household necessity or consumer good. This was the so-called “my car” boom.

The purchase of first cars by consumers at this time resulted in massive demand characterized by a long period of continuous high growth. An increase in the overall ratio of car ownership also occurred. Comparing annual sales volume to previous years with the ratio of passenger vehicle sales as a proportion of the annual automobile sales volume, it is possible to quantify and compare the social phenomenon of motorization. In this paper, the latter will define the “passenger vehicle rate.”

Since the rate of private automobile ownership generally increases during the process of motorization, this data can be used to verify the passenger vehicle rate. Motorization is a complex social phenomenon that occurs against a historical background which includes the specific constraints of resources and legal systems within the country, making overall comparisons difficult. However, examining the typically associated general and broad phenomena can be useful in assessing the development phases of various countries.

Figure 2: Growing stage of Japanese automobile industry



Note: Passenger Car Ratio = Annual Passenger Car Sales / Annual Motor Vehicle Sales

Source: JAMA.

Figure 2 shows the postwar development of the Japanese automotive industry in three phases. These are the “motorization or high growth period” (1955–1973), the “stable growth period” (1974–1990) and “maturity” (1991–present). During the “motorization or high growth period,” 1) as the market expands, 2) the “passenger vehicle rate” typically describes an increasing curve. Further, 3) the ratio of passenger vehicles as a proportion of total vehicle ownership also increases, showing a structural change whereby passenger vehicles become mainstream. In addition, 4) individual demand as a proportion of total demand for vehicles increases. We will now verify this using data. Between 1955 and 1973, annual registrations of new vehicles in Japan increased from 64,530 vehicles per year to 4,949,078 vehicles per year. With the exception of the effects of the dollar and oil shocks in the early 1970s, most years saw double-digit growth. At the same time, the “passenger vehicle rate” increased from around 30% to around 60%, confirming a typical “motorization” shift of demand from commercial vehicle to passenger vehicles. Similar shift can be seen from the changes to the proportion of passenger vehicles owned to total automobile ownership. Around 1950, the number of passenger vehicles as a portion of total automobiles was only 18.89%. This increased to 57.90% by 1973, signaling the existence of a boom in passenger vehicles. The demand for individual vehicles as a proportion of total demand for automobiles was only 14% in 1962, but this reached 39% in 1967 and 50.6% in 1970².

The characteristics of the “stable growth period” include 1) stable market expansion while achieving its peak, and 2) at the same time, stable “passenger vehicle rates” at a certain level. These two points are markedly different from the “motorization” phase. Figure 2 shows that between 1974 and 1990, the passenger vehicle rate in Japan remained consistent at around 60%. The stable “passenger vehicle rate” in contrast to the demand for “popular entry level vehicles” during the period of “motorization” shows that there has been a shift in alternative demand as the market competes for replacement or additional purchases. As a result, while the total market grows more slowly than during the motorization phase, the domestic market approaches its maximum scale.

During the period of “maturity,” 1) the market begins to shrink, and 2) the “passenger vehicle rate” once again increases. The effects of various population, environmental, and economic issues in Japan have caused the market to shrink. The resulting slump in demand for commercial vehicles conversely has pushed the “passenger vehicle rate” upwards. Since its peak of 21,323,397 vehicles in 1991, truck ownership in Japan has been decreasing through 2010, at a negative compound average growth rate (CAGR) of 1.65%. Similarly, bus ownership has decreased from a peak of 248,624 vehicles in 1992, with a negative CAGR of 0.47% through 2010. Conversely, the passenger vehicle category has seen annual growth rate of 2.47%, from 34,924,172 vehicles in 1990 to 58,347,929 vehicles in 2010. This is the background behind the increased passenger vehicle rate.

3. Development Phases in Emerging Nations: How to View Growth in the 2000s

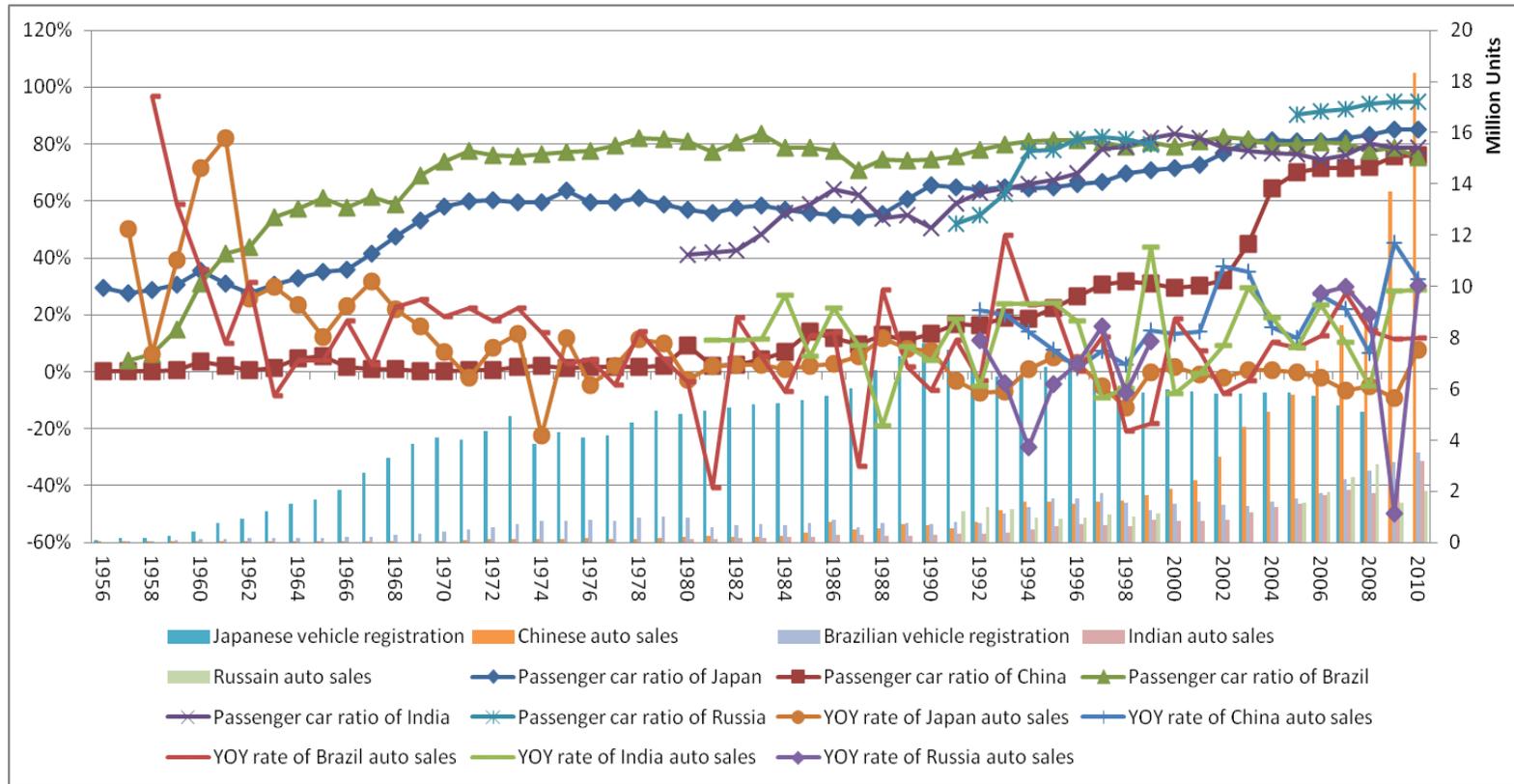
Based on the heuristics for development phases of the Japanese automotive market presented in the previous section, this section will identify the development phases of emerging markets.

Figure 3 summarizes the annual sales of new vehicles or new vehicle registrations, and the comparative passenger vehicle rates year on year for BRICs nations.

First, looking at the increase in the passenger vehicle rate, Brazil experienced motorization at about the same time as Japan (1957–1971). In 1957, annual registrations for new vehicles in Brazil were only 30,977 vehicles, for a passenger vehicle rate of 3.78%. By 1971, annual registrations for new vehicles were at 509,623 vehicles, a passenger vehicle rate of 77.56%. The annual CAGR during this period was 20.53%, accomplishing high growth along with the progress of motorization. Affected by a debt crisis, the Brazilian economy entered a period of long term instability in 1971, producing a prolonged slump in the market for automobiles. Still, in the 2000s, the passenger vehicle rate had been stable at 80%, showing that the domestic market is once again in a cycle of expansion. In other words, despite reduced demand due to economic cycles, the stable growth period in recent years has basically been characterized by an expanding trend.

The passenger vehicle rate in China also increased from 29.54% in 2000 to 76.17% in 2010. During this period, annual sales of automobiles have rapidly expanded from 2,106,402 to 18,346,516 vehicles. In terms of automobile ownership, in 1990, 5.54 million vehicles were owned publicly in China, with only 820,000 under private ownership. Freight vehicles were 520,000, or more than half of the privately owned vehicles, implying that only 240,000 vehicles were used for transporting people. The vast majority of privately owned passenger vehicles were commercial vehicles such as buses and minivans; this meant that there were virtually no privately owned family vehicles. By 2000, automobile ownership in China was at 16,089,100 vehicles, of which 38.87%, or 6,253,300 vehicles, were privately owned. Even at this time, privately owned passenger vehicles had increased to 3,650,900 vehicles, only 22.69% of all vehicles³. But by 2009, private automobile ownership in China had expanded to 62,806,086 vehicles, a rate of individual ownership of 72.84%. In addition, the number of individually owned passenger vehicles increased to 37,396,495 vehicles, or 59.54% of the total. The market boom for private vehicle ownership in China began in 1990, and continued in earnest through the 2000s. In other words, consumer demand has become a major force with the rise of motorization in China since 2000. In recent years, the passenger vehicle rate in China has continued to show an increasing trend, suggesting that China is still in the midst of the motorization phase.

Figure 3: Market Life-cycle of BRICs' Automobile Markets (1956 ~ 2010)



Note:

- 1, Passenger car ratio means the share of passenger car in annual auto sales
- 2, YOY rate means year-over-year growth rate
- 3, Chinese auto sales (Until 1994) = Chinese auto production + auto import - auto export

Source: JAMA, CATARC, ANFAVEA, SIMA, AEB, WardsAuto.com, OICA, Ireland, et al. (2006).

Furthermore, from the 1990s to 2000s, the passenger vehicle rate in Russia was observed to increase. Although insufficiencies in data make complete analysis difficult, the reason for the increase in the passenger vehicle rate in the 1990s was an observed decrease in the number of new car sales, precluding the possibility that this was a period of motorization. With the breakup of the Soviet Union in December 1991, the new Russia entered a period of long-term economic instability. With stagnating economic activity, demand for capital goods such as commercial vehicles immediately began to follow a downward trend. The market for new cars decreased from 1,375,047 vehicles in 1992 to 951,038 vehicles in 1996, while the passenger vehicle rate increased from 55.16% to 81.72%. This increase was believed to be due to the apparent increase in demand for passenger vehicles compared with the decrease in demand for commercial vehicles.

Finally, we now look at India. The passenger vehicle rate in India increased between 1980 and 2000. Full analysis of India’s automotive industry before 1980 is not possible because of data limitations, but over the 20 years between 1980 and 2000, the passenger vehicle rate increased from 41.23% to 83.49%, while sales of new vehicles in India increased at an average annual rate of 9.30%, growing from 127,763 to 827,145. Thus, motorization progressed in India through the 1980s and 1990s, and is considered to have entered a stable growth period since the 2000s⁴.

Table 1 shows preliminary results with reference to the historical experience of motorization in Japan as a guide to the development phases of automobile markets in BRICs markets since 2000. From this table, we can compare the automobile markets in BRICs nations across their phases of development, even the position of India. On the basis of this, we will examine the Indian automobile market in greater detail in the following section.

Table 1: Growing stage of BRICs’ automobile markets, basing on Japanese experience (2000~)

		Passenger Car Ratio	
		Rapid increasing	Stable
Market Extending	Two digits growing mainly	Rapid Growing (Motorization) Stage (China)	—
	One digits growing mainly	—	Stable Growing Stage (Brazil, India)
	Minus growing	—	Maturing Stage (Japan)

Note: Due to the lack of Russian data needed, we keep the classification of Russia in above table.

Source: Author.

4. Market Structure of the Indian Automotive Market in the Stable Growth Period

4.1 Analysis of Market Growth Factors since 2000

Population of India in 2009 was 1.155 billion, making it the second most populated country in the world after China. Under economic reforms between 1960 and 1990, import substitution industrialization policy has resulted in an average annual economic growth rate of 7.22%. In 1991, triggered by an earlier balance of payments crisis, India shifted to a New Economic Policy that implemented economic reforms focused mainly on deregulation and foreign investment. As a result, India experienced high growth, achieving an average annual growth rate of 9% through 2009. In particular, between the late 1980s and 2002, India experienced an era of economic growth fueled by the IT services industry. From 2003, growth was generated by the “double engine” of IT services and manufacturing industries, in two separate stages of growth⁵. Indeed, compared to the figure of 5.48% achieved in the period driven by IT services (1991–2002), the annual average growth rate in GDP was 12%⁶. The largest factor behind these economic growth factors has been the rise of the middle class in Indian society.

Based on prices and exchange rates in 2001, the middle class was defined as households with an annual income of 200,000 to 1 million rupees (USD\$4,000–\$21,000). The proportion of households in this class was 2.7% in 1995, and increased to 5.7% in 2001 before jumping to 13% in 2009, representing about 150 million people.

Most of India’s middle class are in their 30s and 40s; many have degrees or MBAs and are professionals earning monthly salaries of between 30,000 and 50,000 rupees. In addition, with well-developed financial products in India, it is possible to buy a car with a 6 year loan. Small cars can be purchased for 300,000–400,000 rupees, permitting an increasing number of new buyers⁷.

Sixty percent of passenger vehicle and air conditioner sales and 25% of TV, refrigerator, and motorcycle sales in the Indian market today are made to the middle class⁸. It is no exaggeration to suggest that growth in the Indian automobile market after 2000 has been mainly because of the middle class.

4.2 Competitive Market Structure

Figure 4 shows the competitive structure of the Indian automotive market in 2010. In the Indian passenger vehicle market, the segment for economy vehicles costing less than 5 Lakh, or 500,000 rupees (about 810,000 yen) makes up about 80% of the total market. As mentioned above, there has been a significant rise in the middle class, but as can be seen from the definition of middle class, their purchasing power is around the \$10,000 mark, implying that compact economy cars have become mainstream within the market structure. The presence of Maruti Suzuki, which has a share of around 45%, is enormous. But the existence of Hyundai cannot be ignored either as they closely follow Maruti Suzuki. The top three companies, including TATA Motors, combine to make up 70% of total vehicle

sales. Although the number of vehicles sold is the smallest among BRICs nations, a characteristic oligopolistic market structure has been formed. Another feature is that in the volume zone of 500,000 rupees or below, the presence of Japanese vehicles other than Suzuki is at the highest level among the BRICs nations. The Nissan Micra and Toyota Etios have both successfully entered the market, showing a pattern in India of a strategy for entry into emerging markets. The Etios in particular was introduced specifically in 2010 as an entry level model for emerging nations, and as a measure to address the middle class in India together with the rest of Toyota's global product lineup. Expectations are high as this progress extends to the overall product strategies of Japanese automakers in emerging markets.

5. Analysis of the TATA “NANO” Market Strategy: Who is Buying the “NANO”?⁹

5.1 NANO Development Process: Challenging the Great Dream

The development of the “NANO” resulted from a project inaugurated by the strong leadership of Mr. Ratan Tata, Chairman of the Tata Group. This was said to have begun with Mr. Tata witnessing a scene of “a family of four riding on a single motorcycle in the rain.”¹⁰ After this, based on a vision built on the keywords “people’s car,” “affordable,” and “basic safety requirements” (an affordable car for the people, with basic safety performance), surveys were conducted on 1500–1600 people of various income groups from various regions in order to extract clear customer needs. Some of the key areas were 1) safety (ensure all-weather visibility, monocoque construction), 2) comfort (ensure head and foot room, instrument panel placed in the center of the dashboard), 3) environmental performance (less emissions compared with those of motorcycles), and 4) cost (low initial costs, fuel economy, low maintenance costs). All this was to achieve the dream of the One-Lakh Car (or 100,000 rupee).

Because of the large number of innovative design goals, 500 young employees (average age of 30–32 years) were gathered together in the development department in order to leave behind any past baggage, and teams were formed around the keywords of the “Purist” team (pursuing precision and accuracy), the “Scale” team (planning activities), and the “Empowerment” team (granting authority). With the idea that past experience would lead backwards, a 36-year-old engineer was appointed as project leader, prejudices were dispelled, and a youthful development atmosphere was established where change was accepted. Furthermore, with a spirit of no fear of failure, flexible communication was urged in order to go beyond the boundaries of teams and challenge each other.

An Italian design company was commissioned to create the exterior design. Once the design was confirmed in 2006, most other structural design work, including simulations, was performed in house. Meanwhile, Chief Executive Mr. Tata visited the development sites every two weeks, showing strong interest in the development process and always checking to ensure that they were heading toward the realization of the dream. Members of the development team later said that his support had been an essential element in the success of the project.

Moreover, from the first stage of the concept study, many suppliers were involved in the development project. The performance of joint simulations was another important factor in the successful development of the NANO. In addition, the requirements of multiple suppliers were included in the setting of goals at the concept stage. Some suppliers came up with good ideas to resolve legal issues, and others had good ideas on cost reduction. TATA also called these suppliers together for direct discussions. Parts were then ordered by presenting final proposals that summarized the proposals of various suppliers themselves. About 100 suppliers were involved in the overall development of the NANO, with about 90% of these being local Indian suppliers. Naturally, important parts had a two-company ordering system, with other parts generally ordered from only one company. For TATA, which had little experience in successfully incorporating tacit knowledge and external resources into development

projects for vehicle design, this heavy supplier involvement played a complementary role in terms of organizational capability that was lacking in vehicle development. At the same time, the united force of the industry that involved a large number of local suppliers saying that “if TATA is going to move ahead, we will provide our unconditional support,” is another major factor that cannot be dismissed in terms of the successful development of the NANO.

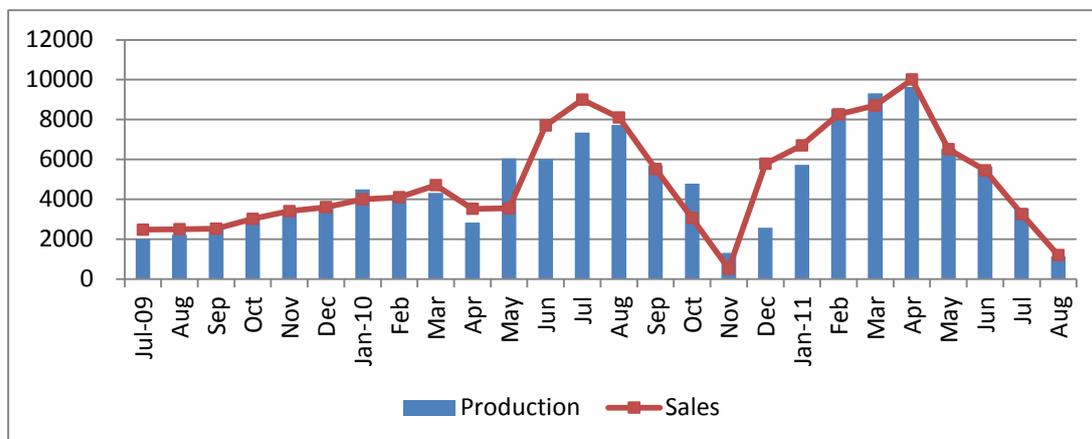
The development of the NANO design built on the “INDICA” design experience, including the two years’ freeze from design completion to the first unit coming off the production line. The NANO added two years to this. The NANO was radical from a product design perspective, and the development of the production line was also radical in terms of its zero-base design. With the need to select people qualified for these processes, it took a total of four years from development to production preparation.

The final product placed high emphasis on costs, with its egg-shaped body and two-cylinder, 624-cc aluminum installed engine, but its light body was designed to bring out power. This size of car typically weighs 1000 kg. However, utilizing all available knowledge achieved a weight of 600 kg. The number of parts was also reduced by about 15% compared with that of the “INDICA.”

The total length of 3,099 mm is relatively short compared to other small cars of the same grade, but by placing the engine above the rear wheel the NANO achieves a cabin space as large as the “INDICA,” the largest in this segment. In terms of emission standards, the framework has been established for future fuel competitiveness, with Bharat Stage (BS) II through Bharat Stage (BS) IV specifications available. In addition, to be prepared for diverse needs, STD (for BSII, BSIII, and BSIV), CX (for BSII, BSIII, and BSIV, with air conditioner), and LX (for BSIII and BSIV with air conditioning and power windows) specifications (6 color, 3 specs) also were prepared.

Clearly defined customers, the identification of potential needs thoroughly reflected throughout the development process, a “simple and stupid” approach that looked at things from the perspective of children, the three pillars of strong leadership, a strong team, and strong support to realize the development, were the factors of success for this low-cost innovation. In this sense, the NANO is itself a great dream, and also a great “innovation.”

Figure 5: Production and Sales of TATA 「NANO」 (Units)



Source: ACMA.

5.2 NANO Sales Status: Why has the Great Dream not quite Taken Off?

It was a long road from TATA Motors' first announcement of the "One-Lakh Car" in 2003 to the announcement of the NANO in January 2008 and through the eventual delivery of the vehicle in July 2009. Meanwhile the scale of the dream and the inexpensiveness surprised many, garnering significant expectations. Still, as shown in Figure 5, sales have not actually taken off since the car's release. First, a succession of combustion accidents after its release in 2010 deeply wounded the NANO's brand image, resulting in a serious slump in sales. To overcome this situation, TATA launched the "Tata Nano Happiness Guarantee" initiative in December 2010, whereby the company extended its manufacturer's warranty to four years or 60,000 km and provided a daily use maintenance service for 99 rupees per month.

In addition, special financial products have been made available for all TATA Group employees' use. Interest on loans was held at 2% until January 2011, before increasing to 5% from February 2011. Given that interest rates available externally are at 11%, these financial products are still attractive. The loans are structured in 3-, 4-, 5-, and 10-year plans. If 2% interest was applied to a 4-year loan, employees would pay a total of 6,000 rupees in interest, and for a 5-year loan, this figure would be only 8,000 rupees. For full-time TATA Motors employees whose average monthly salary is 25,000 rupees, this is an amount that they can afford to pay. At the Pune TATA dealer that the author investigated, low-interest-rate loans made it possible for the sale of 2,000 NANO cars during January 2011¹¹. This figure was equal to about a third of national NANO sales for the month. Of the 2,000 vehicles sold, about 1,400 were purchased by TATA Motors' employees, with the remaining 600 vehicles purchased by TATA Motors related groups. This gives a glimpse of the potential of low-interest-rate financial instruments.

Owing to management-initiated extended manufacturer warranties, new maintenance contracts, and the provision of low-interest-rate loans to group employees, NANO sales began to show some recovery from December 2010. However, after reaching a peak of 10,012 vehicles sales in April 2011, sales of the NANO have again decreased. Therefore, the question arises why has the NANO not taken off. This paper seeks to analyze this question in terms of compatibility between the product strategy and the development phase.

As can be seen in Table 2, the catchphrase of the “One-Lakh Car” in relation to the “NANO” certainly swept the world, but the actual delivery price is more than 1.5–2 times the initially envisioned price. According to the sales conditions at the first TATA Motors dealer at the home base in Pune, the proportion of NANO sales of the cheapest STD model without air conditioning was just 10%, the proportion of CX models with air conditioning was 20%, and the proportion of fully equipped LX models with features such as air conditioning, power windows, and central locking was 70%. Of course, the sales conditions of only a single dealer lack persuasive power, but there are several points that can help in the understanding of the NANO sales slump. While 80% of NANO purchasers at this store were end users and first-car buyers, the market reaction was such that the highest seller was not the cheapest STD model as expected, but the most expensive LX luxury model. Furthermore, those who purchased the LX model were not the “motorcycle families” as expected, but mostly middle class families. This sales situation is different from the great dream that had been entrusted to the NANO. This situation suggests that the products are being sold to a market different from that envisioned in the scenarios clearly defined in the product planning stages.

Table 2: NANO Price List as on 10.12.2010 (Unit: Rupee)

	METALIC COLOUR					NON METALIC COLOUR					
	With OCTROI (2%)										
	NANO-CX			NANO-LX		NANO-STD			NANO-CX		
	BS II	BSIII	BSIV	BSIII	BSIV	BS II	BSIII	BSIV	BS II	BSIII	BSIV
EX-Showroom Price	160060	172937	174546	196218	197975	131535	143546	144869	157000	169784	171363
Registration Charges	11879	12781	12893	13743	14533	10057	10057	10816	11893	11893	12670
Insurance Charges	4769	5064	5101	5598	5638	4114	4390	4420	4699	4992	5028
Logistic Charges	2330	2330	2330	2330	2330	2330	2330	2330	2330	2330	2330
On Road Price	179038	193112	194870	217889	<u>220476 (Highest)</u>	<u>148036 (Lowest)</u>	160323	162435	175922	188999	191391

Source: Pamphlet information at Tata Nano dealer.

Traditionally, in the automotive industry, when the prices of entry level cars reach the average annual income, vehicles begin to become mainstream. This was one aspect of the attempt to introduce the NANO at a level fitting the annual income of the motorcycle family. However, in the stable growth phase, where demand is led by replacement purchases and upgrades, there is an increase in demand for used cars of good quality and low price. For entry level cars there may be a shift from new cars to used cars. In this case the NANO STD and NANO CX are in the position of competing with foreign-made used cars. Compared with the motorization phase, where the need for ownership is growing, the stable growth phase, which is focused on buying for replacement or upgradation, sees the needs of the consumer diversify and advance. In this phase, the simpler design and cost reductions of the NANO STD and CX can be comparative disadvantages.

Furthermore, the NANO targets homes where motorcycles are used as family cars. But in these homes the motorcycle is an important possession that is maintained for life. In regular Indian homes, where things are treated as important possessions, the sense of “value for money” is strong; in many cases, they will not make a purchase simply because something is cheap. In the stable growth phase, there is a somewhat well-established market for used vehicles. The practice of evaluating products based on durability and the residual value of used cars becomes more established. In the used-car market, three-year-old Toyota products depreciate by about 30%–40%, while TATA products depreciate by 60%. In other words, word that TATA products hold only 40% of their value after they have been used for 3 years can inhibit purchases by families that value “value for money,” the NANO’s target market¹².

Finally, as automobiles become more widespread, income conditions become the only prerequisite for purchase. The condition of complementary goods for automobile products also can influence the overall spread of automobiles. For example, the price of gasoline can be a limiting factor. Gasoline in India as of January 2011 was 60 rupees per liter. The fuel efficiency of the NANO if used for regular city driving is about 4.55 liters per 100 km. Using one to commute 50 km per day would result in an annual gasoline cost of 49,000 rupees. For a home with an annual income of just 100,000 rupees, gasoline costs would make up about half of their annual income. So even if they could afford to buy a NANO, they might not be able to afford to operate it.

6. Conclusion: What is the Essence of Growth?

From the perspective of the experiences of countries with motorization, we can infer that the spread of automotive products has the power to not only contribute to economic growth but also to make fundamental changes to the social environment and lifestyles of people of a country. If the spread of automotive products has the power to change a country’s social environment and its people’s lifestyles, it also has the power to define them. The spread of automotive products is affected by both internal industry factors and external environmental factors. Studies thus far have not mentioned the defining aspect of market development phases, and in many cases seem to have focused on simple scenarios such

as increased income naturally leads to the spread of automobiles. This paper has investigated the correlation between the development phases of the automotive market and the spread of automobiles. It then has analyzed the market conditions of BRICs and the automotive market structure in India.

In addition, from this perspective, we have introduced and interpreted the TATA NANO project. The TATA NANO began with Mr. Ratan Tata's dream, and there is no doubt that customer needs were clearly defined from the beginning, knowledge was gathered domestically and from overseas, product planning and development techniques were established, and the Indian auto industry came together to create an innovative product. However, given the conditions two years after the launch, the scenario is different from that initially planned. The actual market conditions, where middle class buyers are acquiring their first cars and the wealthy are buying second cars, suggest that the market already is in a stable growth phase. This differs greatly from the original plans. Given the magnitude of population in India, the low automobile ownership rate, and the potential for high economic growth, it is easy to understand that the original market intentions, and thus, the needed growth cannot always be secured. Rather, what really relates to true business growth is an understanding of factors such as the differences in the developmental phases of markets, changes in the driving forces of economic growth, emergence of new demographics, input of resources that match the patterns of consumer behavior, and achievement of complementary goods. Since 2000, the Indian automotive market has moved from the motorization phase to the beginning of the stable growth phase. In the future, we expect many more twists and turns as the market grows toward saturation, following a sustainable expansion process. In the automotive market in Japan, the stable growth phase between 1974 and 1990 saw the domestic market almost double, and hence, we can infer that the growth rate in India over the stable growth phase will not be small. This will depend though on not being drawn in by surface issues, and will require product strategies that are appropriate for the development phase of the market. This is a point that needs to be considered by not only local Indian companies but also foreign corporations.

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¹ In recent years, discussions concerning "emerging nations" have still lacked a precise definition, with a mainly emotional recognition based on countries that showed a high growth rate. In this paper, to further these discussions, we will define emerging nations as nations or economic zones that have potential for economic growth and for a long-term sustained national economy, taking into account stability, the scale of population, and economic size, as well as modernization and industrialization. Here, the reason for equating industrialization with economic development is to focus on the transformation of economic structure and social change. This is to distinguish from resource-rich countries.

² See "The Advent of Motorization in Japan" (http://www.erca.go.jp/taiki/siryuu/pdf/W_A_007.pdf) for more details on increasing consumer demand. Other data is based on JAMA data as calculated by the author. All analyses are conducted by the author.

³ Statistics for 2000 calculates passenger vehicles and buses together as "customer vehicles." Thus, the figure of 3,650,900 includes large and medium-sized buses and other commercial vehicles. Hence, the actual rate for the private ownership of passenger vehicles would have been even lower than 22.69%.

⁴ At the same time, passenger cars as a proportion of vehicle ownership in India are at about 69% as of 2004, reaching a stable level. This figure was 41.92% in 2002, 62.36% in 2003, 68.02% in 2004, 70.58% in 2005, 69.51% in 2006, 69.95% in 2007, and 69.69% in 2008.

⁵ The annual ratio of service industry's value added and industrial value added increased from 1.63 times in 1989 to a peak of 2.01 times in 2003, before remaining steady at 1.8 times after that. In other words, from 2003, it is possible to observe the rise of the manufacturing industry within the Indian economic structure.

⁶ With a base of 100 in 1993, the manufacturing production index for 1994–2009 was at 109.1, 124.5, 133.6, 142.5, 148.8, 159.4, 167.9, 172.7, 183.1, 196.6 (2003), 214.6, 234.2, 263.5, 287.2, 295.1, and 327.3, suggesting that it has been strong since 2003. Data courtesy: The Ministry of Statistics and Programme Implementation.

⁷ According to interviews with Hyundai dealers in a survey conducted in February 2011 in India.

⁸ According to National Council of Applied Economic Research.

⁹ Unless otherwise specifically described in this section, this is based on interviews conducted by the author in February 2011 with TATA Motors, TATA Motors Engineering Research Centre, TATA Motors Dealers, TCS, TATA "NANO" Suppliers, Hyundai Motors (India), and Hyundai dealers. Analysis is of course by the author.

¹⁰ See Kevin et al. (2011) for details.

¹¹ This same dealer sold only 1,000 "NANO" for all of 2009, showing the effects of the low-interest-rate loans.

¹² Of course, to provide existing passenger vehicles such as "INDICA" and "NANO" a TATA dealer market must be constructed in urban areas, with the challenge of covering the potential buyers of the "NANO." Because of the limitation of the scope of this paper, this will be considered in a related study.