

ISAS Brief

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469A Bukit Timah Road
#07-01 Tower Block, Singapore 259770
Tel: 6516 6179 / 6516 4239
Fax: 6776 7505 / 6314 5447
Email: isasijie@nus.edu.sg
Website: www.isas.nus.edu.sg



Urban Transport in India: The “Nano” Effect

Shreekant Gupta¹

Nano, the new low cost car unveiled by Tata Motors at the Auto India Expo at Delhi last month, has set the country abuzz. There has been considerable hype surrounding the car. Some commentators have declared the advent of this car as a transportation revolution, an event as significant as the launch of the Model T by Henry Ford. Others have argued the Nano will democratise car ownership, and even a happening that may upturn the brahminical order in the country. On the technology front, the Nano certainly epitomises India’s progress in innovation, packed as it is with several firsts. Tata Motors has filed over 34 patents for the car. In particular, a great deal of innovation has gone into the drive train and its placement and half the patents filed pertain to the drive train alone. One of the key patents is the introduction of a balancer shaft to iron out the vibrations typical for a twin-cylinder engine. According to the company, the Nano also meets all emission and safety norms, including (frontal) crash test norms in India. Its fuel efficiency is expected to be in the range of 18-20 kilometres per litre.

Dubbed as a ‘people’s car’ with a 623cc, two-cylinder MPFI engine delivering 33bhp, this rear drive vehicle is slated to cost Rs100,000 or approximately US\$2,500 at current exchange rates. The car will be available in three variants – one basic version and two deluxe versions. The on-road price of the basic model (with manual transmission and without air-conditioning, electric windows and power steering) after registration, taxes and insurance will be around Rs125,000 whereas the deluxe models will cost around Rs150,000. Thus, the round figure of Rs100,000(++) is symbolic and the price tag is ostensibly meant to get India’s two-wheeler segment into motorcars. Mr. Ratan Tata is quoted as having said he was motivated to develop an inexpensive car when he saw, “the father (riding) the scooter, his young kid standing in front of him, his wife seated behind him holding a little baby.” The Nano is expected to hit the roads in late October this year at the time of the festival of Diwali. It will be manufactured at the Tata Motors plant at Singur in West Bengal with an annual production capacity of 250,000 units. Given the ongoing local unrest, however (apparently due to the manner of land allotment to Tata Motors by the West Bengal government), the company may have to relocate production to other locations. If this were to happen there could be a delay in the delivery schedule.²

¹ Dr Shreekant Gupta is a Visiting Senior Research Fellow at the Institute of South Asian Studies, an autonomous research institute within the National University of Singapore. He can be reached at ecsgs@nus.edu.sg.

² Tata Motors MD Mr. Ravi Kant on Teheika.com: ...Kant made it clear that the Nano was no Houdini magic and agreed that its success would revolve around speedy production, an issue that currently hangs fire because of continued on-ground protests at the site of the newly created plant in Singur, West Bengal. “A car

This brief focuses on the economics of owning and operating a Nano and its impact on automobilisation in the country. Issues related to impact on air quality and congestion are addressed in a companion ISAS brief.

The implication of the impending advent of an inexpensive passenger car such as the Nano on urban transport in India has to be seen in the context of overall trends in motorisation in the country. Auto sales (passenger and commercial vehicles, three-wheelers and two-wheelers) in India almost doubled in five years from about 5.23 million units in 2001-02 to 10.11 million units in 2006-07 (see Table 1). During the last financial year (2006-07) alone, sales of passenger cars grew at a scorching rate of 22 percent. Over the same period, sales of two-wheelers went up by about 11.5 percent. Thus, merits of the case aside, it is evident that the country is rapidly motorising. And with incomes rising in an economy growing at a rate of eight percent or more annually, there is no sign of this abating. But it is also true that the vast majority of vehicles sold in India are two-wheelers which currently comprise 77 percent of market share – close to eight million two-wheelers were sold in 2006-07 (see Tables 1 and 2). It is, therefore, moot to what extent the Nano, *per se*, will displace this segment in the near-term.

Table 1. Automobile Domestic Sales Trends (Number of Vehicles)

Category	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Passenger Cars	509088	541491	696153	820179	882208	1076408
Utility Vehicles	104253	113620	146388	176360	194502	220199
MPVs	61775	52087	59555	65033	66366	83091
Total Passenger Vehicles	675116	707198	902096	1061572	1143076	1379698
M&HCVs	89999	115711	161395	198506	207472	275600
LCVs	56672	74971	98719	119924	143569	192282
Total Commercial Vehicles	146671	190682	260114	318430	351041	467882
Three Wheelers	200276	231529	284078	307862	359920	403909
Scooters	908268	825648	886295	922428	909051	940673
Motorcycles	2887194	3647493	4170445	4964753	5810599	6553664
Mopeds	408263	338985	307509	322584	332741	355870
Electric Two-wheelers	-	-	-	-	-	7341
Total Two Wheelers	4203725	4812126	5364249	6209765	7052391	7857548
Grand Total	5225788	5941535	6810537	7897629	8906428	10109037

Source: Society of Indian Automobile Manufacturers (SIAM)
<http://www.siamindia.com/scripts/domestic-sales-trend.aspx>

plant generates economic boom in its surroundings. If people do not want jobs in Singur, it would not only be sad but also unfortunate. Visit our Pantnagar plant in Uttaranchal and see what it has done to the city and its people. *But if trouble lingers, we will have no option but to shift base,*” (emphasis added)
http://tehelka.com/story_main37.asp?filename=Bu190108a_miracle.asp

Table 2. Domestic Market Share for 2006-07

CVs	5
Total Passenger Vehicles	14
Total Two Wheelers	77
Three Wheelers	4

Source: Society of Indian Automobile Manufacturers (SIAM)

<http://www.siamindia.com/scripts/market-share.aspx>

The demand for any product, including vehicles, is driven by two main factors – its price and the income of the buyer. The responsiveness of demand to each of these is known as price- and income-elasticity respectively. For most goods as incomes go up, demand goes up (these are known as ‘normal’ goods in economic jargon). Vehicles certainly come under this category. Therefore, it is inevitable as incomes go up households move up the vehicle ladder graduating from bicycles to two-wheelers and from two-wheelers to motor cars. This happens, *ceteris paribus*, (that is, other things being equal such as the price of vehicles). In addition, however, if the price were to decrease, demand undoubtedly would get a further fillip. But for an expensive product like a car, the strength of income-elasticity far outweighs that of price-elasticity, especially for marginal changes in price. The impact of the Nano on automobile demand can be viewed within this analytical framework. It has been argued that the low price of the Nano will galvanise demand. Is this true? One must bear in mind that the real price of any vehicle is its capital cost plus running costs, namely, fuel, insurance, service and maintenance. These are examined below, respectively, for the Nano.

First, it is evident that the actual sale price of Nano will certainly exceed Rs125,000 or Rs150,000 depending on the variant purchased. The reason is simple: demand will outstrip supply (at best 15-20,000 units per month) and the car will be sold at a premium officially or in the black market. When the first ‘people’s car’ the Maruti Suzuki 800 was launched in India in the early 1980s, a similar phenomenon was observed. The car was sold against bookings made and a lottery determined who could buy it. Thus, while the price of the car was around Rs60,000, letters of allotment were sold at a premium of up to Rs30,000. This, in effect, validates another fundamental principle of economics: given the demand curve for a product one can either fix the quantity or the price, but not both. Given that production capacity is fixed, at least in the short- to medium-term, price has to give way since we cannot operate off the demand curve. In the case of the Nano, a likely scenario is that the car will be sold at an (unofficial) price of well over Rs125,000 and is likely to command a premium of at least Rs30,000. The ‘choke price’, that is, the price at which demand is choked off will be set by the next most expensive option available, such as the Maruti 800 (now wholly owned by Japan’s Suzuki) which costs about Rs215,000 on-the-road for a basic model. Thus, the premium for the Nano is likely to be bounded upward by this price and will perhaps stabilise at around Rs30-40,000. What this means in effect is that we are looking at a price in the range of Rs155,000 to Rs165,000.

Two other factors that are likely to cause an upward drift in the price of the Nano are cost escalation and production uncertainties. The latter has already been mentioned. With regard to the former, in a general inflationary scenario with a rise in the price of inputs such as steel, it is moot to what extent Tata Motors will be able to hold the ex-factory price at Rs100,000, despite the appeal of this round figure.

More important, however, are the running costs of the car (or any car for that matter). According to Professor Dinesh Mohan, a transport expert at IIT Delhi, for an active commuter driving a small car in Delhi, expenditure on petrol is about Rs3,000 a month and insurance and other expenses are a minimum of Rs1,000 a month.³ Also, according to him the typical monthly payment for a loan of Rs150,000 (for a Nano) will be about Rs2,700 whereas that for a Rs200,000 Maruti is about Rs3,400. In sum, it would cost a total of Rs6,700 a month for owning and operating a Nano and Rs7,400 a month for a Maruti 800, a saving of about 10 percent per month which is not enormous. Professor Mohan, therefore, concludes, “A middle class family generally cannot spend more than 15 percent of its income on transport. To spend about Rs 6,000 a month on the Nano, your income should be more than Rs40,000 a month. In Delhi, the richest city of India, only 30 percent families earn more than about Rs25,000 a month. Clearly, even with cheap cars available, less than 20 percent of the families can own a car in Delhi and much fewer in other cities. That is why the motorcycle with its low maintenance and running costs will not get displaced by cheap cars.” Another point this statement substantiates is that it is growing incomes rather than lower prices that more strongly impact on the demand for a car.

Finally, another point against the price-elasticity view is that used cars in good condition are even now available for less than Rs100,000. It does not appear, therefore, that breaching this symbolic barrier is the key to increasing car ownership and in getting people off scooters and into cars (even if that were a desirable policy objective).

In sum, it does not appear that the Nano will lead to a spurt in car ownership in India. The symbolic price tag of Rs100,000 is just that. The real cost of owning and operating it is likely to remain high enough for it to not be a ‘people’s car’ in the true sense of the term in a country where two-thirds of the population still lives on US\$2 a day or less.

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³ “The Nano confusion” Business Standard, New Delhi, January 20, 2008.