Tata's Nano: A Small Car with Large Consumer Surplus?

Prerequisite Conceptual Understanding


Synopsis of the Case Study

This case studies the concept of consumer surplus in the backdrop of the launching of Nano, the cheapest car in the world. This car from the stable of Tata is the cheapest only in terms of cost but not in features, owing to intelligent and imaginative innovations of Tata engineers. On the one hand, the affordable low price of the car has the great potential to bring a large number of people to become car owners; on the other hand, their satisfaction from car “consumption” no way seems less compared to any entry level car in existence. Even though the consumer is willing to fork out INR 2 lakh or thereabouts for an entry-level car, he is actually required to pay INR 1 lakh or thereabouts as far as Tata’s Nano is concerned. Thus, consumer surplus accrues to the tune of around INR 1 lakh. While there is hardly any doubt that, this concept must have prompted Ratan Tata to put on offer this mass-consumption car for car-starved Indians, the debate relates to the possible neutralisation of the perceived consumer surplus. The bare bone features of the car may drive away the likely consumer into the market for better featured second-hand cars. Besides, there is the larger issue of the adverse environmental consequences that a mass-owned car would potentially pose.

Pedagogical Objectives

• To understand the meaning of utility and its significance in business
• To analyse the concept of consumer surplus
• To explore the applications of consumer surplus.

Assignment Questions

I. What is meant by utility and how is it significant in decision-making process of the business?

This teaching note was written by Akshaya Kumar Jena IBSCDC. It is only an illustrative orchestration of the case study ‘Tata's Nano: A Small Car with Large Consumer Surplus?’. It is never meant to limit the learning outcomes.

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II. What do you mean by consumer surplus and why does it exist?

III. What are the various applications of consumer surplus?

Teaching Plan

Both the Teaching Note and the Structured Assignment follow a specific Teaching Plan [Annexure (TN)-I].

Case Analysis Flow

I. What is meant by utility and how is it significant in decision-making process of the business?

Utility means want satisfying power of a good. All the economic activities of people revolve around satisfaction of their wants. There are numerous, indeed limitless, wants. All the wants cannot be satisfied given the limited resources to produce the goods. However, a particular want for a good can be satisfied. This is because of the operation of the law of diminishing marginal utility.

As more and more units of a commodity are consumed, the intensity of desire for that commodity lessens and eventually when it reaches zero, the point of satiety is reached and there remains no want for that good [Exhibit (TN)-I].

But consumers don’t go on consuming until the point of satiety in all cases. Only when the good is a free good, like air or sunlight, people may go on consuming until the point when it gives zero utility. But in real world, barring a few, the goods are actually paid for. The consumer then compares the price he proffers for a good with the utility that he derives from the good at the margin. Thus, the consumer reaches equilibrium at Q, corresponding to which Marginal Utility (MU)= Price (P) [Exhibit (TN)-II].
I asked the students if utility can be measured. I hinted that utility is a subjective thing; it differs from person to person. Hence, interpersonal comparison of utility is not possible. However, a person can on his own perception compare one good with the other with regard to the utility he feels to have derived.

Critics argue that utility is a psychic concept. It can’t be quantified. But economists like Alfred Marshall and A.C. Pigou attempted to give cardinal numbers to utility. They measured utility in terms of money. According to them, utility of a unit of a good is the amount of money the consumer is prepared to pay rather than go without it. With increasing consumption of and diminishing intensity for the good, the consumer is willing to pay less and less price with every increment in his consumption. If the market price is above what the consumer is willing to pay, then his consumption of the good remains unfulfilled. For example, poor and lower middle classes of India are unable to afford INR 200,000 or above for a personal four wheeler. Therefore, possessing a car remains an unfulfilled desire for them [Exhibit (TN)-III].
Pragmatic business sense “prompted Ratan Tata to take initiative in building Nano” (page, para of the case study) to provide an all weather personal family transport at an endearing price of INR 1 lakh for the standard version. This would shift down $PP'$ line to $PP_1'$ and $Q_1$ number of cars would be ‘consumed’ corresponding to the consumer equilibrium point $E_1$ [Exhibit (TN)-III]. Thus, the concept of utility plays a significant role in making business decisions as regards production of the quantum of good that will be lapped up by the consumers.

II. What do you mean by consumer surplus and why does it exist?

After dilating upon the meaning and significance of utility, I wanted to tie this in with the concept of consumer surplus. When a consumer buys a product, he pays equivalent worth in the form of price. So there is no surplus and no loss to the consumer. If that is the case, why at all the consumer is embarking upon purchase of a good? – I asked the students. Not getting any proper answer from them, I brought in the concept of consumer surplus into discussion. Consumer surplus refers to the positive difference between what a consumer is willing to pay and what he actually does pay. What the consumer is willing to pay is equivalent to the amount of utility he derives from a unit of the good and the Marginal Utility (MU) curve represents what the consumer is willing to pay. What he actually pays is represented by the price line. Once the equilibrium price is determined, the said price level remains relevant for all the units of good consumed. But the price is equal to the MU of only the final unit of the good consumed, where the consumer is in equilibrium. For the pre-final units, the MU derived is obviously greater than the price paid, given the basic experience of the law of diminishing marginal utility. Thus, consumer receives a surplus with respect to pre-final units and, therefore, intends to purchase a good. His purchase will continue till he avails himself of the entire surplus that accrues. This happens until the MU comes down to level with price. Consumer surplus then represents the whole area between the MU curve and the price line [Exhibit (TN)-IV].

Since the MU curve is nothing but the demand curve, we may also say that consumer surplus is the area between the demand curve and the price. I explained that the MU curve coincides with the demand curve because at a particular quantity whatever level of utility in money terms a consumer is getting, at that level of price he is prepared to purchase that particular quantity. The only functional difference is that while quantity consumed is an independent variable in the MU curve, it becomes a dependent variable in the demand curve. Symbolically speaking, in the case of MU curve, $MU=f(Q)$ and in the case of demand curve, $Q=f(P)$, where $f$ stands for ‘function of’ and $Q$ stands for Quantity demanded.
In comparison to the extant entry-level car Maruti 800, Tata Nano “is 8% smaller on outside but 21% larger inside”. (page, para of the case study). It is not only the lowest-priced car of the world (Exhibit II of the case study), it has also some features not available in Suzuki’s Maruti 800 and Alto or even Hyundai’s Santro (Exhibit II of the case study). These two aspects of Nano have the great promise to beget huge consumer surplus. As the price line sits at a low level thanks to Nano’s ultra low price and the MU curve (or demand curve) shifts up owing to new innovative features of Nano, the area between the price line and the MU curve would enlarge, signifying large consumer surplus.

III. What are the various applications of consumer surplus?

Since the consumer surplus is the area between the demand curve and the price line, consumer surplus will vary as the shape of the demand curve varies. When the demand for a good is perfectly elastic, the price line and the demand curve coincide on all points and there is zero consumer surplus [Exhibit (TN)-V].

The price OP (=OD) is determined corresponding to the intersection of demand curve and supply curve. Since PP’ price coincides with DD’ demand curve, there is no consumer surplus. It can also be proved that relatively inelastic demand curve leads to greater consumer surplus compared to relatively elastic demand curve, other things remaining the same [Exhibit (TN)-VI].

Producers often take advantage of the variations in elasticity of demand that lead to variations in consumer surplus. The more there is price inelasticity, the more there is accrual of consumer surplus because of willingness to pay more. Hence the producers or sellers exploit the situation by engaging in price discrimination, charging more on those who derive more consumer surplus. Nano is intended to take advantage of this with respect to its luxury variants, whose potential buyers’ demand for cars is supposed to be less elastic compared to buyers of standard version. The fact that the price differential is, proportionately more than the feature differential, therefore, does not matter much.
The concept consumer surplus helps examine whether it is justified to tax or subsidise certain industries. If the industries experience constant cost, consumer surplus will be reduced post-taxation as well as post-subsidisation. In case of taxation, the revenue or tax receipt earned by the society is equal to the area $STE_2F$ whereas the consumer surplus lost is the area $STE_2E_1$. The net loss to the society is $FE_2E_1$ [Exhibit (TN)-VII]
However, government may levy taxes on commodities produced under increasing cost conditions and divert a part of the tax proceeds to subsidise commodities produced under decreasing cost conditions to increase social welfare. In the case of the first instance, the tax proceeds gained is $\text{CA}_2\text{F}$ which is greater than the consumer surplus lost, i.e., $\text{BA}_2\text{E}_1$ [Exhibit (TN)-IX].

In case of subsidisation, the subsidies incurred are equal to the area $\text{RSFE}_2$, whereas the consumer surplus gained is the area $\text{RSE}_1\text{E}_2$. The net loss to the society is $\text{E}_1\text{FE}_2$ [Exhibit (TN)-VIII].
In the case of the second instance, the subsidy spent is $BCE_2F$ which is smaller than the consumer surplus gained, i.e., $ACE_2E_1$ [Exhibit (TN)-X].

The concept of consumer surplus helps in evaluating the cost and benefit of the provision of public goods which are free to all and fetch no revenue. Here the total consumer surplus is to be weighed against the total cost and if the former exceeds the latter, the provisioning of public goods is to be taken up.

I wrapped up my discussion on the concept of consumer surplus by pointing to the importance of society in engendering enormous privilege enjoyed by us. I quoted the noted British sociologist L.B. Hobhouse, who hammered home this humbling thought: “Take away the whole social factor and we [are] but... savages living on roots, berries, and vermin.”

**Final Thoughts**

The end goal of the economic man is maximisation of utility. This is achieved when the consumer goes on consuming until the marginal utility of the last unit of a good equals the price he pays for it. Since the price he pays is equal for all the units he consumes and the marginal utility of each of the units preceding the last unit is increasingly greater thanks to the operation of the law of diminishing marginal utility, a situation arises where the consumer reaps a surplus. Whether Tata’s Nano can gain from its low price a swelling client base by ensuring enormous consumer surplus awaits the unfolding of the imminent future.

**Additional Readings**


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Exhibit (TN)-X
Subsidy is Called for under Decreasing Cost Conductions

![Exhibit (TN)-X](image)

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**Additional Readings**


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Annexure (TN)-I
Teaching Plan

The Big Picture
Will Tata's Nano drive the car-starved low income families crazy by conjuring up loads of consumer surplus?

<table>
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<tr>
<th>Sl. No.</th>
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- Meaning of utility  
- Measurement of utility  
- Marginal utility and Total utility  
- Law of diminishing marginal utility  
- Consumer’s equilibrium. | Concept of consumer surplus | 30 |
| 2       | Concept of Consumer Surplus |  
- Price consumer is willing to pay  
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| 3       | Applications of Consumer Surplus. |  
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Prepared by the author