Do Soaring Price and Mounting Demand in Indian Gold Market Speak of a Paradox?

Prerequisite Conceptual Understanding


Synopsis of the Case Study

India is the largest consumer of gold in the world. Gold occupies a very prominent place in Indian tradition and culture. Demand for gold is high in India, especially during marriage season and festivals. A major chunk of gold demand in India is met through imports. Out of many factors influencing the demand for gold in India, income seems to be the most important one besides price. Rise in income happens to have increased the demand for gold in India. Generally, Indians see investment in gold as a safe haven. When the recession hit the countries world over in the late 2008, Indian investors increased the investment demand for gold. The future expectation that the gold price will rise further has propelled the investors to buy gold at high price. Thus, a situation has arisen wherein the demand for gold as well as the price of gold are going up together. But the high gold price is deterring jewellery demand in India, which constitutes 75% of the total demand for gold. The months of February and March 2009 saw zero gold imports in India. Some analysts feel the paradox of high gold prices and high gold demand will not last long, for investment demand for gold as a safe haven asset will eventually die out since monetary system is now nowhere based on gold.
Pedagogical Objectives

- To understand the concept of demand
- To analyse the shape of demand curve
- To understand the difference between change in quantity demanded and shift in demand.

Assignment Questions

I. Analyse the demand for gold in India.
II. Discuss the shape of the demand curve of gold during various years in India.
III. Explain the difference between change in quantity demanded of gold and change in gold demand.

Teaching Plan

The Teaching Note and Structured Assignment of the case study follow a specific Teaching Plan. [Annexure (TN)-I].

Case Analysis

I. Analyse the concept of demand with reference to the demand for gold in India.

The concept of demand is one of the most important concepts in microeconomic theory. I started the class by asking the students the meaning of demand. After listening to the students’ answers, I defined demand as the amount of good that will be bought at a particular price. Thus, demand is not a standalone single variable but has a reference to price. It refers to the quantity of the product that the buyers will be willing to buy at a certain price. The amount that will be bought at a given price is called the ‘quantity demanded’. Demand is not simply desire. A mere desire for a good does not constitute demand for it. Demand must be backed by ability as well as willingness to pay. For instance, a poor man, who finds it very difficult to make ends meet, desires to buy a very expensive and beautiful gold chain. But his desire for a gold chain won’t constitute demand for gold, as he lacks the ability to pay for the chain. In Economics, demand should be always backed by the ability to pay. Even if both desire and ability to pay exist, still it will not constitute demand if willingness is not there. For example, a wealthy miser does not put forth much demand in the market for any good. Though demand is often loosely referred to what economists term as quantity demanded, its precise economic meaning captures the whole price-demand relationship depicted by a demand schedule or demand curve.

The relationship between price and quantity demanded is called the law of demand. While the law of demand assumes other things constant to show the effect of only price on the quantity demanded, in the real life situation other things are actually not constant. Therefore, we have to study the data more closely to explore the price-demand relationship as well as influence of non-price factors on demand.

After explaining the meaning of the demand and the law of demand, I discussed the price-demand relationship with reference to gold in India. I asked the students: What are the factors that they will take into consideration before buying gold? After the discussion, the most important factor that emerged was the price of the gold. Most of the students said, if the price of the gold is less, they will demand more of it and if the price is more they will cut short their demand for gold. Some girls in the class said that irrespective of the gold prices, on occasions like weddings or festivals like Diwali, gold is bought, thus they argued that more than price, it is the cultural factors that influence the demand for gold in India. Before addressing the argument, I first explained
Do Soaring Price and Mounting Demand in Indian Gold Market...

the gold demand and its relationship with price in India across different years by referring to the case. In the years 1992–1993, 1996–1999 and 2000–2003, relationship between gold price and Indian gold demand was negative (Exhibit I of the case study). In the period 1992–1993, as the gold prices increased, the demand for gold decreased. When the gold prices fell during 1996–1999, there was an increase in gold demand. Again in 2000–2003, the demand for gold started falling as gold prices rose. However, during 1991–1992, 1993–1996 and 2003–2005, the rise in gold price was accompanied by rise in the demand for gold. During most of the periods mentioned above, price and demand for gold moved in reverse direction, while in a few cases, they moved in the same direction. The former is called the law of demand while the latter may be called the exception to the law. But before confirming whether the reason behind the rise in gold demand during these years (i.e., 1991–1992, 1993–1996 and 2003–2005) was the result of rise in price, rise in income of the people and change in other non-price factors may be discussed.

Coming back to the argument raised by the few girls, I cited the movement between price of gold and its quantity demanded during the festival of Diwali in 2007 and 2008 to prove the inverse relationship between price and quantity demanded of gold. When the gold prices were very high at $800 per oz. during the Diwali festival of 2007, the demand for gold decreased during that time. Conversely, when the gold price fell from $900 per oz. to $712 during Diwali 2008, the demand for gold increased as Indians rose to the opportunity and took advantage of the price situation by demanding more of gold. Thus, beyond doubt, price is the most important determinant of demand. The higher the price, the lower the demand; and the lower the price, the higher the demand.

After explaining the gold demand in India, I went on to explain the demand schedule.

II. Discuss the shape of the demand curve of gold during various years in India.

Demand schedule is a table, which depicts the various price levels of a good and the various quantities that would be demanded at those price levels. The demand schedule does not tell what the price is, but it only tells how much quantity of a good is bought by a consumer at various price levels. For example, the demand schedule for gold (Exhibit II of the case study) shows the amount of gold bought at different gold prices.

In the years 1992–1993, 1996–1999 and 2000–2003, the relationship between gold price and quantity demanded of gold was negative. For example, during 1992–1993, as the price increased from INR 9,629 to INR 11,481, the demand for gold decreased from 371 tonnes to 314 tonnes. During the period 1996–1998, as price decreased from INR 13,333 to INR 12,222 to INR 12,000, quantity demanded of gold rose from 556 tonnes to 771 tonnes to 871 tonnes. Again when price increased from INR 12,000 to INR 12,222 during 1998–1999, the quantity demanded fell from 871 tonnes to 813 tonnes. During the period spanning from 2000–2003, as the gold prices continued to rise from INR 12,592 to INR 13, 703 to INR 15,925 to INR 17,777, the quantity demanded of gold continued to fall from 813 tonnes to 800 tonnes to 628 tonnes to 600 tonnes.

From the above mentioned information of the demand schedule, I drew four demand curves which were downward sloping [Exhibits (TN)-I (a), (TN)-I (b), (TN)-I (c) and (TN)-I (d)]. The vertical axis was used to measure the price of gold in rupees and the horizontal axis was used to represent the quantity of gold in tonnes.
**Exhibit (TN)-I (a)**

**Demand Curve for Gold (1992–1993)**

<table>
<thead>
<tr>
<th>Price (INR)</th>
<th>Qty. demanded of gold (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,481</td>
<td>314</td>
</tr>
<tr>
<td>9,629</td>
<td>371</td>
</tr>
</tbody>
</table>

Prepared by the author from Exhibit II of the case study

**Exhibit (TN)-I (b)**

**Demand Curve for Gold (1996–1998)**

<table>
<thead>
<tr>
<th>Price (INR)</th>
<th>Qty. demanded of gold (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13,333</td>
<td>556</td>
</tr>
<tr>
<td>12,222</td>
<td>771</td>
</tr>
<tr>
<td>12,000</td>
<td>871</td>
</tr>
</tbody>
</table>

Prepared by the author from Exhibit II of the case study
Exhibit (TN)-I (c)

Prepared by the author from Exhibit II of the case study

Exhibit (TN)-I (d)

Prepared by the author from Exhibit II of the case study
All the above four demand curves have negative slopes indicating inverse relationship between price of gold and quantity demanded of gold. However, during the periods 1991–1992, 1993–1996 and 2003–2005, the perceived relationship between price and quantity demanded concerning gold was not inverse (Exhibit II of the case study). A rise in gold prices was accompanied by a rise in gold demand. Whether this represents a movement along an upward sloping demand curve or a shift in the demand curve owing to non-price factors was discussed.

The other factors are like tastes and preferences of the consumer, his/her income, prices of substitutes/complements, future expectations and size of the population (Exhibit III of the case study), which are assumed to be constant, lie behind the demand curve. If any change occurs in the factors mentioned above, there will be a shift in the demand curve and a new demand curve is drawn. How the shift in demand curve can also associate increase in quantity demanded with increase in price is shown by shifting the demand curve for gold presented at Exhibit (TN)-I (a). When price increases from INR 9,629 to INR 11,481, the quantity demanded of gold instead of falling from 371 tonnes to 314 tonnes may actually exceed 371 tonnes, if demand curve for gold shifts to the right because of the non-price factors [Exhibit (TN)-II].

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

After graphically explaining the demand curve, I asked the students why quantity demanded tends to fall as price rises and tends to rise when price falls. Some students said when there is a price rise of a particular good, people will demand less as they may not have sufficient money left, as the same good has become costlier. After analysing the students’ responses, I zeroed in on two reasons, namely the substitution effect and the income effect. Many economists consider substitution effect to be more important than income effect. When the price of a good rises, it becomes relatively costlier compared to similar goods. This results
in the consumer substituting the other similar goods, which are relatively cheaper now for the good whose price has risen. I used the case facts to explain the substitution effect. In the first 2 months of 2009, there was the manifestation of substitution effect, when due to high gold prices Indians started substituting platinum for gold. Indians are demanding more of platinum, as platinum has lost 30% of its value. A 10 gm ring, which used to cost INR 35,000 in 2008 was costing around INR 22,000 in early 2009. ‘When the gold prices were steeply climbing and the price of platinum was falling during the first 2 months of 2009, Indians started substituting platinum for gold due to near parity of prices between gold and platinum. The high gold price accompanied with declining platinum price made Indians dump gold and embrace platinum as reflected by the increase in the market share of platinum from previous 15%–40% as on January 2009.” (page 4, para 2 of the case study).

Marshall explained downward sloping demand curve with the help of substitution effect, while ignoring the income effect. He ignored the income effect because he measured utility in terms of money and assumed marginal utility of money to be constant. Thus, a lot of importance is given to substitution effect rather than income effect. But income effect can also play a significant role, claim some economists, especially J.R. Hicks and R.G.D. Allen. Income effect means that due to an increase in prices, people find themselves with less income and therefore demand less. The price effect is the combined effect of both substitution effect and income effect due to price change. Based on the consumer equilibrium condition, the demand curve is expected to be negative sloping. This can be proved mathematically [Annexure (TN)-II].

III. Explain the difference between change in quantity demanded of gold and change in gold demand.

Change in quantity demanded of gold denotes to moving along the demand curve from one point to the other, for example from point ‘a’ to point ‘b’ in the Exhibit (TN)-III. On the other hand, the change in gold demand means shift in demand curve due to non-price factors like level of income, prices of related goods (substitutes and complements), size of the population, special influences and consumer tastes and preferences. This is shown by the shift of the demand curve from $D_0$ to $D_1$, whereby the relevant point is ‘c’ instead of ‘b’.

In India, gold occupies a very prominent place. An increase in income of people results in increase in demand for gold. In 2004, it was reported that “Indians are enjoying a rapid acceleration in income growth, which is supporting discretionary spending on consumer goods, including gold (page 3, para 2 of the case study). According to a study by World Gold Council in 2006, due to increasing economic independence of women in developing countries, including India, gold has become a very desirable good. Thus working women in India, as a result of increase in their personal wealth, were demanding more of gold. As more and more women find employment, there are two breadwinners in a family, which ensure that there is more disposable income for discretionary spending like gold. Thus, a rise in the income of Indians has resulted in shifting of their demand curve for gold to the right.

The growing size of population in India also calls for increasing demand for gold. Another factor influencing demand for gold is tastes and preferences of consumers. Tastes and preferences represent a variety of cultural, religious and historical influences. India’s demand for gold has its roots in cultural and religious traditions. In India, gold is seen as a symbol of prosperity and it also plays a major role in a girl’s wedding. Gold has become more like a status symbol. The richer the parents, the more they buy gold for their daughter. Diwali and Akshaya Tritiya are very important occasions when Indians buy gold in large quantities, as it is considered very auspicious to buy gold on these days. Thus, demand for gold is associated with cultural and religious beliefs in India. Price of substitutes or complements of gold also affect the quantity demanded of gold. In February 2009, the fall in the price of platinum led people to dump gold and embrace platinum. Platinum’s prices have been steadily falling, a 10 gms ring costing INR 22,000 in 2009 was costing INR 35,000 in early 2008. This decreased the demand for gold and increased the demand for platinum. This results in shifting of the demand curve for gold to the left.
Expectations about future conditions also a play a role, often a major one, in influencing the purchase of gold. For instance, in India gold is considered as secured savings, which enable people to meet with uncertain economic conditions. As a result of global recession in 2008, investors all over the world found ‘safe haven’ in gold, as other financial assets were devalued. In February 2009, as gold crossed INR 15,000 mark, investors increased their demand for gold, because they expected the gold prices to go up to INR 20,000. This increased the demand for gold and kept the gold prices high.

To determine how well the students have understood the concept of change in demand and the factors influencing change in demand, I gave students some questions for exercise [Exhibit (TN)-III].

### Exhibit (TN)-III
**Exercise for Students on Change in Demand**

**Section 1**

Read the following real/hypothetical situations. Answer whether there will be a leftward or rightward shift in the gold demand curve.

1. Price of gold is expected to rise. There will be ______________ in the demand curve.
2. Millions of immigrants from Sri Lanka swell India’s population. There will be ______________ in the demand curve.
3. Platinum prices drop further, consumers buy more of platinum. There will be ______________ in the demand curve.
4. Analysts warn that gold may lose its investment value. There will be ______________ in the demand curve.
5. Real Income for Indians drops owing to the global recession. There will be ______________ in the demand curve.
6. Teenyboppers develop a newfound passion for silver. There will be ______________ in the silver demand curve.


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The faculty can conclude by saying, even though jewellery demand has fallen owing to high gold prices, the high investment demand for gold is propping up this high gold price. Interestingly the high gold price, in turn, reinforces high demand for gold because of high expectation about soaring gold price trend.

**Final Thoughts**

Demand is a basic building block to understand price mechanism. How it influences price and in turn, is being influenced by price is a study worth one’s while. However, to guard against the confusions regarding the cause and effect, care must be taken to disentangle the two concepts – change in quantity demanded and the change in demand, represented respectively through movement along the demand curve and the shift in the demand curve. The case study is such an attempt with reference to demand for gold in India.
### Additional Readings


### Annexure (TN)-I

#### Teaching Plan

**Big Picture**

In recent months beginning with February 2009, the high gold prices have intriguingly pushed up demand for gold in India. What factors possibly account for this aberration to the law of demand? Or is it really an aberration?

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Analysis Section</th>
<th>Expected Learning Objectives</th>
<th>Forward Linkage</th>
<th>Ideal Duration (mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Concept of Demand</td>
<td>• Demand vs desire  &lt;br&gt; • Demand referenced to price.</td>
<td>Shape of the demand curve</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Shape of the Demand Curve</td>
<td>• Demand schedule and its graphic representation  &lt;br&gt; • Downward sloping demand curve  &lt;br&gt; • Negative and positive price-demand relationship of gold for India at different periods  &lt;br&gt; • Substitution effect and income effect of price change on the quantity demanded.</td>
<td>Difference between change in quantity demanded and change in demand</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>Difference between Change in Quantity Demanded and Shift in Demand</td>
<td>• Change in quantity demanded of gold  &lt;br&gt; • Non-price factors and shift in the demand of gold.</td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

Prepared by the author
Annexure (TN)-II
Mathematical Derivation of Demand Curve from the Consumer Equilibrium Condition

Consumer equilibrium condition:
\[
\frac{\text{MU}_x}{P_x} = \frac{\text{MU}_y}{P_y} = \cdots = \frac{\text{MU}_n}{P} \]

Budget constraint:
\[Y = \sum_{i=1}^{n} P_i Q_i\]

Suppose there are only two commodities x and y,

Consumer equilibrium:
\[
\frac{\text{MU}_x}{P_x} = \frac{\text{MU}_y}{P_y} \quad \text{..............(1)}
\]

and the budget constraint:
\[Q_x P_x + Q_y P_y = Y \quad \text{..............(2)}
\]

and the total utility function is multiplicative of the form
\[U = \frac{1}{5} Q_x Q_y \]

or,
\[
\frac{\partial U}{\partial Q_x} = \frac{1}{5} Q_y \quad \text{..............(3)}
\]

Similarly
\[
\frac{\partial U}{\partial Q_y} = \frac{1}{5} Q_x \quad \text{..............(4)}
\]

Substituting (3) and (4) in (1),
\[\frac{1}{5} \frac{Q_y}{P_x} = \frac{1}{5} \frac{Q_x}{P_y} \]

or,
\[Q_y P_y = Q_x P_x \quad \text{..............(5)}
\]

Substituting (5) in (2),
\[Q_x P_x + Q_y P_y = Y \quad \text{..............(2)}
\]

or,
\[2P_x Q_x = Y \]

or
\[Q_x = \frac{1}{2P_x} Y \]

or \(Q_x\) varies inversely with \(P_x\) and positively with \(Y\)

Thus, demand for x is negatively related to its own price and positively to income.

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