

Student 4: High Achieved
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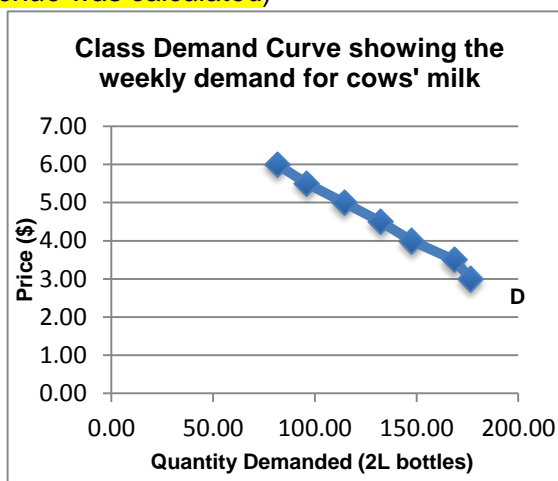
[The concept covered in this exemplar is elasticity of demand. The student also explained elasticity of supply, calculating and interpreting PES coefficients from published information, used the S/D model to illustrate the concept, and applied the concept to the domestic supply of fresh cow's milk.]

Elasticity of Demand

There are a number of factors to consider, and a range of different techniques used when determining the elasticity of cows' milk such as price elasticity, income elasticity and cross elasticity of demand. I will investigate these different aspects of elasticity of demand, and discuss whether cows' milk is elastic or inelastic, using the information from the consumers we surveyed.

Price elasticity of demand measures the extent of change in quantity demanded as a response to a change in price of the good. If cows' milk were elastic, an increase in its price would cause a proportionally larger decrease in quantity demanded. If cows' milk is said to be inelastic, then an increase in its price will lead to a proportionally smaller decrease in quantity demanded. Below is a table showing the price elasticity of cows' milk as price increases (derived using the midpoint method and total revenue was calculated)

Class Demand for cows' milk (2L bottle) per week			
Price (\$)	Quantity Demanded (2L)	Total Revenue (PxQ)	Price Elasticity
3.00	176.50	529.50	
3.50	168.50	589.75	-0.30
4.00	147.50	590.00	-0.99
4.50	132.50	596.25	-0.91
5.00	114.50	572.50	-1.38
5.50	96.00	528.00	-1.84
6.00	81.50	489.00	-1.87



According to the values I calculated for price elasticity of demand using the midpoint method, cows' milk starts relatively inelastic from \$3.00 to \$4.50 with values of price elasticity ranging from 0.30 to 0.99, and 0.91. According to economic theory, when the value of price elasticity (derived from the midpoint method) is less than one, the good or service is deemed inelastic. These values indicate that the increase in the price of cows' milk is proportionally more than the decrease in quantity demanded. However, when price exceeds \$4.50, cows' milk then becomes elastic, as the values for price elasticity are greater than one.

This means at the new prices (above \$4.50), the decrease in quantity demanded is proportionally more than the increase in price. This suggests that consumers will likely demand significantly less cows' milk as price increases from \$4.50 per 2L onwards.

Although the price elasticity of cows' milk starts out inelastic, the coefficients from \$3.50 to \$4.00 and \$4.00 to \$4.50 are both very close to one. Also seen by the slope of the demand curve above, I can conclude that cows' milk is relatively inelastic at lower prices, and becomes more elastic at higher prices.

In relation to Cross Elasticity of Demand, "Cross elasticity of demand measures the responsiveness of the demand for one good, as a result of a price change in another good." The coefficient of the calculation determines whether it is a substitute or complement good.

The cross elasticity of demand coefficient is calculated by, percentage change in quantity demanded of X divided by the percentage change in the price of Y. This calculation is relevant as it indicates that if milk increases in price and the quantity demanded of a substitute increases then the coefficient will be positive. Between \$3 and \$4.50 the QD of soymilk did not change, but when the price of milk increased from \$4.50 to \$5, QD for soymilk increased from 1 to 4 (XED = 24) and again at \$5.50 the QD for soy milk increased from 4 to 7 (XED = 7.5).

2

In the context of cows' milk, 54% of consumers surveyed said that they did not think cows' milk had many substitutes. This means that overall; milk has few substitutes and is a relatively inelastic good for most people. However, of the 46% of consumers who thought that milk did in fact have a number of substitutes (such as soy milk, milk powder, goats milk, almond milk, and water), 99% of them said that they would consider actually foregoing cows' milk for a cheaper substitute if the price of milk reached or exceeded \$5.00.

2

This means that although it is valid to say that cows' milk is relatively inelastic to a point, it still becomes relatively elastic at around the \$5.00 mark as consumers demand for cows' milk will decrease significantly as a response to an increase in price (above \$5.00) and potentially result in an increase in the demand for its substitutes.

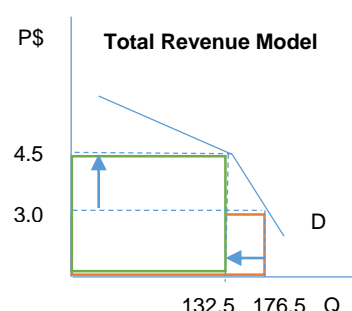
Income elasticity of demand measures the responsiveness of demand for a good or service (in this case cows' milk) relative to an income change.

1

Table showing the weekly demand for 2L milk of 50 respondents at varying prices

1

Price (\$)	Original QD	QD after a 10% income increase	Percentage change	Income elasticity
3.00	176.5	165.5	-6.23	-0.62
3.50	168.5	153.5	-8.90	-0.89
4.00	147.5	139.5	-5.42	-0.54
4.50	132.5	128.5	-3.01	-0.30
5.00	114.5	115.5	0.87	0.09
5.50	96.0	100.5	4.68	0.47
6.00	81.5	92.0	12.88	1.29



The YED co-efficients show us that at \$3.00 - \$4.50 per 2L bottle cow's milk is considered an inferior good e.g. Budget brands, and \$5 - \$5.50 per 2L bottle is considered a normal good, and at \$6.00 per 2L bottle, it is considered a luxury good.

2

Necessities like bread and milk are normal goods and quantity demanded is relatively unresponsive to changes in income. Luxury goods are things we can do without when we do not have the income to support the purchase. Therefore, necessities are inelastic and luxuries are elastic. The proportion of a consumers' income spent on a good also affects its elasticity.

1

Generally, if a good takes up only a small portion of a consumers' income, an increase in the price of the good is not likely to cause a significant decrease in the quantity demanded of the good, and the good therefore tends to be relatively inelastic. In the context of cows' milk, approximately 93% of consumers surveyed said that they spent 3% or less of their weekly income on cows' milk. This is a very small proportion of a consumers' weekly income, therefore an increase in price is not likely to cause a proportionally larger decrease in quantity demanded, so in relation to income proportion, cows' milk is a relatively inelastic good. It is noticeable though that if consumers' income increased they would buy less inferior, cheaper brands of milk, and QD slightly increased for normal goods, and when they considered milk a luxury good.

2