Demand Estimation

Option 1

Answer 1

Solution:

$Q_D = -5200 - 42P + 20PX + 5.2I + .20A + .25M$

When P = 500, PX = 600, I = 5500, A = 10000 and M = 5000, using regression equation,

$Q_D = -5200 - 42*500 + 20*600 + 5.2*5500 + 0.2*10000 + 0.25*5000 = 17650$

Price elasticity = (P/Q)*(dQ/dP)

From regression equation, dQ/dP = -42.

So, price elasticity E_P= (P/Q) * (-42) = (-42) * (500 / 17650) = -1.19

Likewise,

E_{PX} = 20 * 600 / 17650 = 0.68

E_I = 5.2 * 5500 / 17650 = 1.62

E_A = 0.20 * 10000 / 17650 = 0.11

E_M = 0.25 * 5000 / 17650 = 0.07

Answer 2

Short term and Long term Implications of the elasticities for the business

Price elasticity shows the responsiveness of demand to changes in price. Negative price elasticity of demand (PED) signifies the inverse relationship between price and demand. According to the equation, PED is -1.19 for widgets, which means that an increase in price of $1 would result in a contraction of demand of $1.19. Since the change in price corresponds with a more than proportionate change in demand, PED is said to be elastic. As a result, an increase in price would discourage consumers from buying.

A positive cross elasticity of demand points to the fact that the good is a substitute. Rise in price of one good will directly lead to the expansion of demand of the other. The numeric figure of 0.68 (from the equation) implicates that the two products are substitutes, but the relation between them is not strong; rather, it is inelastic. Hence, price should be set independent of the competitor, fulfilling the objectives of the business.

Income elasticity (E_I) of 1.62 shows a strong relationship between demand and income of the people residing in the standard metropolitan area. The result indicates that a rise in income would result in a more than proportionate increase in demand. This good can, thus, be termed as a luxury good and the firm can benefit from raising its prices when there is an increase in the income.

Advertising elasticity (E_A) yields a figure of 0.11, which indicates that there is a weak relationship between demand and advertising. The business is not likely to gain customers through advertising, which means that it can be reduced or minimized to save up on costs.

Although, the product is complemented by microwave ovens, the price elasticity with respect to sale of microwaves is highly inelastic with a figure of 0.07. This indicates that the

demand for frozen food is not related to the sale of microwaves and the business can ignore this factor.

In conclusion, the demand of microwavable food has experienced the strongest relationship with respect to income and PED and that rest of the elements do not heavily impact its demand. Changes in food prices have known to impact consumption majorly (Cornelson 2014). It is important for the business to take this into account and focus on the main factor that effects demand for its product, namely, price and income of the consumers. Other factors, such as advertising can be reduced in order to diminish costs and enhance profits.

Answer 3

Recommend for cutting down price to increase the market share

Since PED is inversely related, slash in prices would lead to a rise in, but it may also result in a loss of total revenue generated. Price cut of $1 would result in a more than proportionate increase in demand of $1.19, which is essentially not much. It is important to take into account other factors that affect the demand. Demand is highly vulnerable to income; therefore, a rise in income would help increase demand even at higher prices as the net effect of PED and income elasticity would be positive. Summing up, I believe that prices should not be slashed; rather, the business should wait for incomes to increase in order to maximize profits.

Answer 4

Solution a & b:

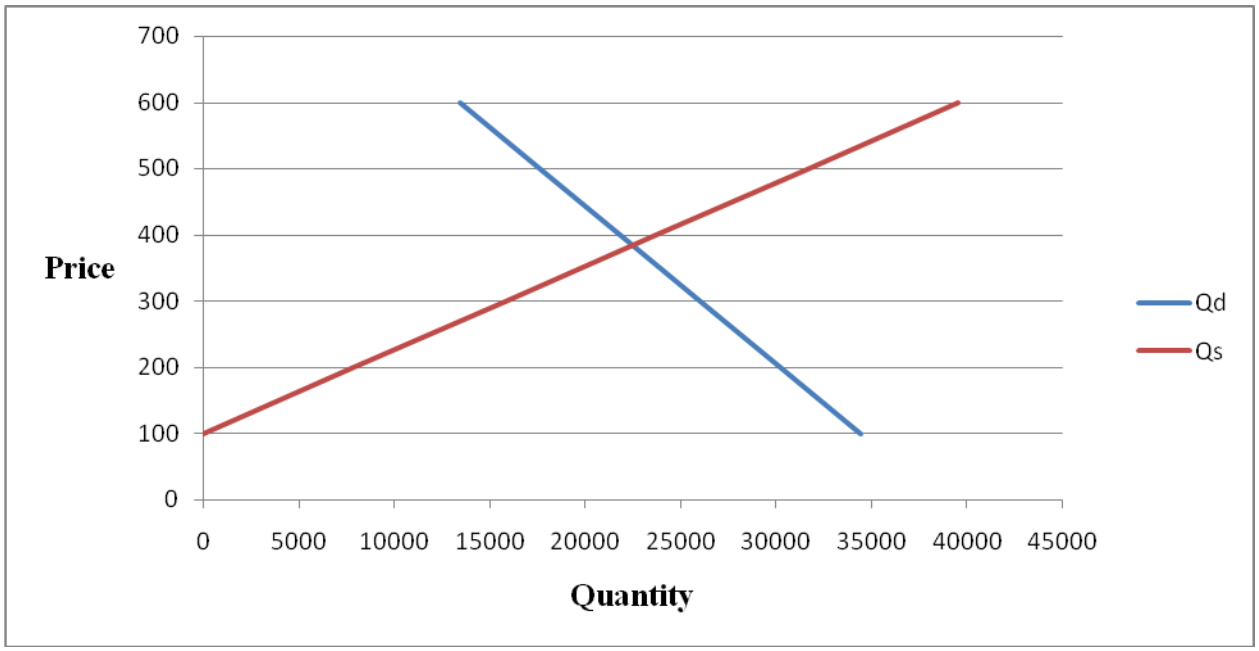
Assuming all the factors affecting demand in this model remains constant, except of price. The changes in price occur as 100, 200, 300, 400, 500, 600 cents. Following is the demand curve, along with the supply curve based on MC / supply function Q = -7909.89 + 79.0989P**:**

With all other factors remaining constant, the demand equation results in:

Q_D = -5200 - 42*P + 20*600 + 5.2*5500 + 0.2*10000 + 0.25*5000

Q_D = 38650 - 42P Q_S = -7909.89 + 79.0989P

Price	100	200	300	400	500	600
Q_D	34450	30250	26050	21850	17650	13450
Q_S	0	7909.89	15819.78	23729.67	31639.56	39549.45



Solution c) The equilibrium price and quantity

$Q_E = 22502$ $P_E = 384.48$

Answer d) Significant factors that cause changes in supply and demand for the product

Demand is affected by many factors that include internal factors, such as pricing, as well as external influences, such population and income. Demand for low calorie frozen food can change according to trends in society or social factors (Rahimi et al. 2014, p. 484). If people start eating healthier food, demand would increase for low calorie food. Income also plays an important part in demand, as an increase in income levels will result in an increase in demand. Individual factors also need to be considered, such as sex, age, education, etc as they play an important role in individuals purchase decisions. Furthermore, culture has a significant impact on the perception and decision of purchase among consumers.

On the other hand, supply will be affected by prices of goods in the international market. A highly volatile agriculture market would result in inconsistent supply of goods with fluctuating prices which would cause problems for the business (Haile1 & Kalkhul 2013, p. 2). Conditions of production also play a vital role. For instance, evolution in technology will lead to more efficient ways of production. Furthermore, if there is an increase in the number of competitors, then prices would shift downwards, inducing fall in supply. Similarly, political and regulatory conditions can also affect the production of certain products in a country.

Answer 5

Crucial factors that cause rightward shifts and leftward shifts of the demand and supply curves

Rightwards shift of the demand curve can come about by fall in price of complementary goods such as microwaves and increase in income. Leftward shift could be caused due to fall in price of substitutes, fall in incomes and increase in price of complementary goods.

Supply can shift outwards (right) if the number of competitors increase in the market which will evidently increase supply. A fall in taxes or rise in subsidies will also increase supply (Andreyeva, Long & Brownell 2010, p. 217).Technological advancements would similarly push supply outwards due to lower costs of production. Anticipation of higher prices for goods would increase supply prematurely. Conversely, fall in competition, higher costs of production (labor and technology) and lack of raw materials such as agricultural products would result in leftward shift in supply.

References

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