# Poolvac, inc. essay sample

PoolVac, Inc. manufactures and sells a single product called the “ Sting Ray,” which is a patent-protected automatic cleaning device for swimming pools. PoolVac’s Sting Ray faces its closest competitor, Howard Industries, also selling a competing pool cleaner. Using the 26 observations report we calculated pricing and cash flows.

The General Demand equation used is QD = a + bP + cMavg + dPh
Where a is the dependent variable, bP is the price of the PoolVac good, cMavg is the average household income, and the dPh is the price of the related good (Howard Industries). . An estimated demand equation for PoolVac is: Qd = 2729 – 10. 8P + 0. 0214Mavg + 3. 17Ph

Where, bP is the price of the PoolVac good, cMavg is the average household income, and the dPh is the price of the related good (Howard Industries). So, we see the good sold by PoolVac (the Automatic Swimming Pool Cleaner) is considered a normal good. We know this due to the general demand formula and the LAW OF DEMAND, for every $1 dollar increase in the price of the PoolVac good, we see the quantity demanded decreases by 10. 8 units. We can also state, the Howard Industry good is a substitute good. We know this based on the values from the general demand function formula. So for every $1 dollar increase in the price of the Howard Industry good, we see the quantity demanded of the PoolVac good increases by 3. 17 units (when holding Income and the Price of the PoolVac good constant), this is due to the direct relationship between the change in quantity demanded and the change in price and the value for the related good is positive. Regression Results

Variable(Predictor)| Coefficient Estimate| Standard Error| T-ratio| P-value| P| -10. 758| 1. 33| -8. 09| 0. 000|

MAVG| 0. 021420| . 009452| 2. 27| 0. 034|

PH| 3. 166| 1. 344| 2. 36| 0. 028|

Since the P values of all 3 variables are within the 5% confidence interval, each variable should be considered as statistically significant in determining the demand of the pool vacuums. We should look at the P value for each of the slope parameters and in doing so, we find that price is 100% significant, average income (Mavg) is 96. 6% (100-. 034) and price of competition (Ph) is 97. 2% significant (100-. 028).

So, if the price of the product goes up, demand for the product goes down because of the negative coefficient associated with the price variable. The negative coefficient makes sense, because people are going to be less interested in buying something if it’s more expensive. Looking at the F stat which is 211. 1, we can say the overall regression equation is significant since the absolute value is large. The P value is 0 so there is no chance that this regression equation doesn’t explain the relationship between the given variables and quantity demanded.

Recommendations

Suppose PoolVac decides to price their automatic poolvac at $240 and the average income is $60, 000 the demand function would be as followed: Qd= 2729-10. 8P+0. 0214(5, 000)+3. 17(240)

Average income is 60, 000 a year divided by 12 months to get $5, 000 for the monthly income.

Qd= 2729-10. 8p+107+760. 8

Qd= 3596. 8-10. 8p Direct Demand Equation

Inverse demand function is:

Q= 3596. 8 -10. 8P

Q+10. 8= 3596. 8-10. 8p+10. 8p

Q-Q+10. 8= 3596. 8-Q

10. 8/10. 8= 3596. 8-Q/10. 8

P= 333. 04-0. 09

While the profit max quantity is 1650 and the inverse demand for the product is Q= 3596. 8-10. 8P. We substitute Q for 1650 and solve the inverse demand equation. 1650= 3596. 8-10. 8p

10. 8p+1650= 3596. 8-10. 8p+10. 8p

10. 8p-1650+1650= 3596. 8-1650

10. 8p= 1946. 8

10. 8p/10. 8= 1946. 8/10. 8

P= $180. 26

If PoolVac wants is to sell 1650 Sting Ray machines they will have to reduce their prices to $180 for each machine.

Assuming that the following variables for the estimated slope coefficient equations are a followed the: P= 290

Q= 1650

M= 5000

Pr= 240

Qd= a+bp+Cmavg+dPh

Qd= 2729-10. 8P+0. 0214Mavg+3. 17Pr

Price elasticity of Demand formula is E= B(P/Q)

E= -10. 8(290/1650)

E= -10. 8(0. 176)

E= -1. 90

Price elasticity is the responsiveness of change in price of a good. The price elasticity is less than 1, which makes the price change inelastic. From the equation, with the product being inelastic we can assume the price is not a great factor to the customers of the Sting Ray vs. Howard’s product given other determining factors.

Income elasticity C(m/Q)

Em= 0. 0214(5000/1650)

Em= 0. 0214(3. 03)

Em= 0. 065

Income elasticity shows the change in income to the purchase of the Sting ray. At 0. 065 the good is a normal good and income is not affected much when purchasing this product.

Cross Price elasticity D(Pr/Q)

Exr= 3. 17( 240/1650)

Exr= 3. 17(0. 145)

Exr= 0. 46

Cross Price elasticity measures the responsiveness of quantity demanded of one good to changes in the price of a related good. The amount of the cross price shows that the 2 products are substitutes of each other and shows that the customers of Howard Industry are not really affected if there is a change in price of one product to the next.

Looking at the above equations with changes in price demand, income and cross price. I would recommend the managers of Sting Ray to lower the price slightly to continue to be in competition with Howard products but this will also let Sting Ray's product stay inelastic where factors of income are not involved.

If the manager wanted to increase units sold by 5% in efforts to increase revenue the managers would b= have to lower the product's current price by 2. 6%. Percentage change in price

-1. 90= 5%/%change P

0. 5/-1. 90=-0. 026 = 2. 6%

The current price elasticity is -1. 90 and the change in units is to be increased by 5% which cause the price of the Sting Ray to go down in price by 2. 6% to achieve the goal of 5% of more units sold.

An 3 % increase in M (income) i would increase the quantity of Sting Rays demanded 2

X. 63%.= 1. 26%.

P= 290

Q= 1650

M= 5100

Pr= 240

Qd= a+bp+Cmavg+dPh

Qd= 2729-10. 8P+0. 0214Mavg+3. 17Pr

M= 5000X 2%= 5100

If Howard Industries raise the price of its pool cleaner by 3 percent and hold other factor constant, the predicted percentage increases in quantity demand. P= 290

Q= 1650

M= 5100

Pr= 247

Qd= a+bp+Cmavg+dPh

Qd= 2729-10. 8P+0. 0214Mavg+3. 17Pr

Ph= 240 X 3% =$247. 20