Soft drink case study 1

Group Assignment 1 – Soft Drink Case Study Economics 3315: Managerial Economics Case 1: Soft Drink Case Study A study on soft drink consumption across the 48 contiguous states in the United States was conducted. The attached dataset describes the consumption across the US. There are 48 elements which are the states and 4 variables which are Cans/Capita/Yr, 6-Pck Price, Income/Capita, and Mean Temp. Out of these variables, we have dependent and independent variables. In this study, Cans/Capita/Yr is the dependent variable, while 6-Pack Price, Income/Capita and Mean Temp are the independent variables.

During the analysis, the data was manipulated to see how the independent variables affect each other and the dependent variable. This case study will determine the estimated demand for soft drink consumption, interpret the associated coefficients, and calculate the price elasticity of soft drink demand at the mean. 1. Estimate the demand for soft drinks. Multiple Regression Equation (Theoretical): soft drink demand = 514. 27 – 242. 97 *6-pack price +1. 36 *income + 2. 93 *mean temp+ e Multiple Regression Equation (Estimated): soft drink demand = 514. 27 – 242. 97 *6-pack price +1. 36 *income + 2. 3 *mean temp 2. Interpret the coefficients and calculate the price elasticity of soft drink demand at the mean (use the mean values of the independent variables to make a prediction on quantity demanded of soft drinks. Use that value when computing the price elasticity of soft drink demand at the mean. The price of soft drinks is an inverse determinant of the quantity demanded for soft drinks. In other words, price is indirectly related to the quantity demanded for soft drinks. As the price of soft drink

changes, the quantity demanded for soft drinks will change in the opposite direction.

A unit change in price will result in a change in the demand for soft drinks of 242. 97 in the opposite direction. Income is directly related to the quantity demanded for soft drinks. As income rises, the quantity demanded for soft drinks shall also increase. A unit change in income will result in a 1. 36 change in the demand for soft drinks in the same direction. Temperature is also directly related to the quantity demanded for soft drinks. As temperature rises, quantity demanded for soft drink increases. A unit change in temperature will result in a 2. 93 change in the quantity demanded for soft drink in the same direction.

The price elasticity of soft drink demand at the mean is as follows: Y: 514. 27 – 242. 97 (2. 20) + 1. 36 (16. 14) + 2. 93 (53. 60) = 158. 74 ~ 159 Price Elasticity = -242. 97* 2. 20/158. 74 = -3. 40 3. Omit price from the regression equation. Describe the signs of the estimated coefficients and the statistical significance of the coefficients. soft drink demand: = -56. 61 – 2. 28*income/capita + 4. 70*mean temp We see that both income/capita and mean temp have negative coefficients which indicates that a unit change in price will result in a change in the demand for soft drink of both 56. 1 and 2. 28 in the opposite direction. T-Stat for coefficients: (-1. 131) Income/Capita and (5. 699) Mean Temp Using the “ rule of 2” and the t-test as an approximation for the . 05 level of significance, we can say Income per Capita (-1. 131) is not statistically significant because it’s lower than 2. On the other hand, Mean Temp (5. 699) is statistically significant because it’s greater than 2. Since the variable “ mean temp” is statistically significant,

we can conclude that the variable indeed has an impact on demand and that this sample parameter is truly reflective of the population. 4.

Now omit both price and temperature from the regression equation. Should a marketing plan for soft drinks be designed that relocates most canned drink machines into low-income neighborhoods? Why or why not? Justify your answer. soft drink demand = 254. 56 – 5. 97 *Income/Capita The regression result shows that the F-value for the overall significance of the regression equation is 5. 79 with a significance value 0. 0202. As the significance value is less than 0. 05, the model is significant at 5% level of significance. This means that the estimated regression equation is statistically significant.

But, the R- square value of the model is 0. 1118. This means that only 11. 18% variations in the annual demand can be explained by the variations in the independent variable, income per capita. The remaining 88. 82% variations are left unexplained. Therefore, the regression coefficient of the independent variable income per capita was not statistically significant in the multiple regression models. Putting all of these facts into consideration, it would be a bad idea to change the marketing plan for soft drinks to relocate most canned drink machines into low-income neighborhoods.

In conclusion, we can conclude that the price of soft drinks have an inverse impact on the demand for soft drinks while income and temperature are directly related to soft drink consumption. As the price of soft drink increases, consumption decreases. On the other hand, as income and temperature increases, consumption also increases. We can also conclude that although income is statistically significant, income alone leaves to much

unexplained variation that may be accounted for by other variables. Therefore, designing a marketing plan based solely on income would not be a good business decision.