Newfood case

Business, Industries

Newfood Case by Adrian Sanchez The correlation between Price and sales is large and negative for all three-time periods. What does this say about how prices Works? The correlation coefficient shows a measure of the linear relationship between these two variables. However, this association does not imply causation, meaning that the change in one variable is not caused by the change of the other one in the opposite direction. Yet, the increasing negative value of the correlation coefficients allows us to infer from these results that when the price rises sales will decrease.

This argument is supported by the level of significance of each case less than 0, 01. Explain the correlations between advertising and sales. What is happening to the advertising effect over time? Apparently based solely on the correlation numbers the advertising has a negative effect on sales over the time. However when the level of significance is analyzed, it turned evident that these numbers are way greater than the (0. 001) level of significance corresponding with a 99. % confident level. Hence they are not significant and it is safe to conclude that the correlation numbers between advertising and sales have no effect. Note that the inter-correlations between advertising location and prices are all zero. Why? This result support the experiment parameters established from the beginning, we were considering this variables as independents, meaning that there are no linear relationship among them, endorsing the design of the experiment.

What do the regressions of sales variables (Sales1, Sales2, Sales3) using P, A and L as independent variables, imply about the effect of prices? Of advertising? Of Location? Effect of Price: As we stated in the question #1 there is a strong correlation between the prince and the sales numbers. An

increment in price suggests a decrease in sales. So, based on this result, we may say that the market is price sensitive and the company should take into consideration the price variable when developing the final launch plan of the product. Significance level is below 0. 1 meaning a 99% of confidence level. Effect of Advertising: Due to a high significance level, p-value higher than 0. 01 not accomplishing the 99% or even 95% of confidence level, we may safely state that advertising has no effect on sales. Effect of Location: Due to a high significance level, p-value higher than 0. 01 not accomplishing the 99% or even 95% of confidence level, we may safely state that location has no effect on sales. Rerun adding income and volume. Do your judgments about the effect of price, advertising and location change? Why?

When taking into consideration Income and Volume as additional values, my judgment does not change regarding the price and location effect. However, the impact of adding these two variables in the regression model make the advertising variable to become significant, and then having an effect in the actual outcomes of sales. In fact, only the volume variable affect the advertising significance in this case, income variable is not significant at 99% confident level. After analyzing the correlation chart, we realized that volume & advertising are correlated (negatively).

So the regression model fails to predict accurately the effect of advertising on sales. Since we have two “ independent” variables correlated, we need to control for volume and vary the advertising variable in order to get the real effect of this last one on the final outcomes of sales. What additional regression runs if any, should be made to complete the analysis of this data? I would run the regression of the 6 months sales compiled as dependent

variable and the others variables as independent (i. e. Price, advertising, location, Income, Volume).

I would also dig deeper in the interaction between al the independent variables (Price, advertising, location, income and volume). It is very important to understand the real effect of advertising in this model, for that as aforementioned we need to run model in which volume is controlled in different scenarios checking the behavior on the advertising in order to measure its real effect on sales. If possible obtain an output of residuals. Check the residuals to identify observations that do not seem to fit the model. Why don’t they fit?

They do not fit because perfectly because the initial regression model we are using is a linear model. Is very much likely that the relation between the independent variable and the dependent variable change the slope as the number increase or decreasing forming a curve in a YX chart. However the linear approximation seem to be very appropriate after looking after the shape of the data in the chart. Finally each independent variable has a different effect over the dependent variable, which makes the residuals also different, when compare among each other.