Northwind Analysis

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Problem Statement

★ **Effectiveness of Discounts**
  ○ **Discount levels**
  ○ **Products**
★ **USA**
  ○ **Customers**
  ○ **Employees**

A couple of problems I have been working on is analyzing the effectiveness of discounts on increasing the quantity of product our customers are purchasing. I have looked into the different discount amounts as well as the categories of products that have been discounted.

The second thing I will talk about today is the data I have analyzed regarding the buying and selling activity of the customers and employees in the USA.

Business Value

Discounts

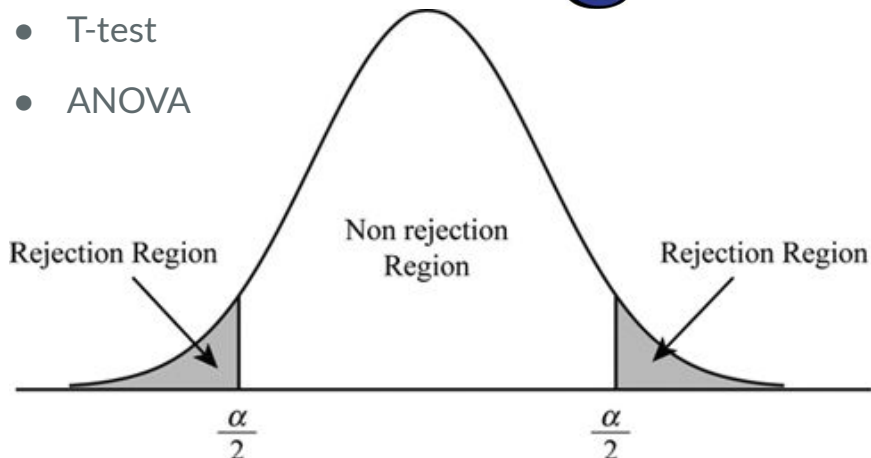- Quantity
- Profits
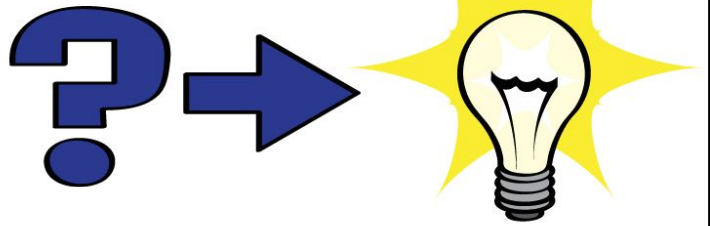
USA

- Customers
- Employees

It is important to find out how Northwind can use discounts in order to increase quantity of sales for an end goal of increasing profits!
After looking into the customers and employees in the US, I am hoping to find a model program to improve our sales around the world.

Methodology

## Hypothesis Testing

- T-test
- ANOVA

I've looked into the Northwind Database and used statistical testing of the past orders. The tests that I have used are the T-test when testing 2 samples or the ANOVA test when testing multiple samples. Using these tests, I was able to obtain information that should be valuable for the company to make decisions.

Business Recommendations

Discounts

- Discount Levels

- Products

Sampling distributions of sample mean
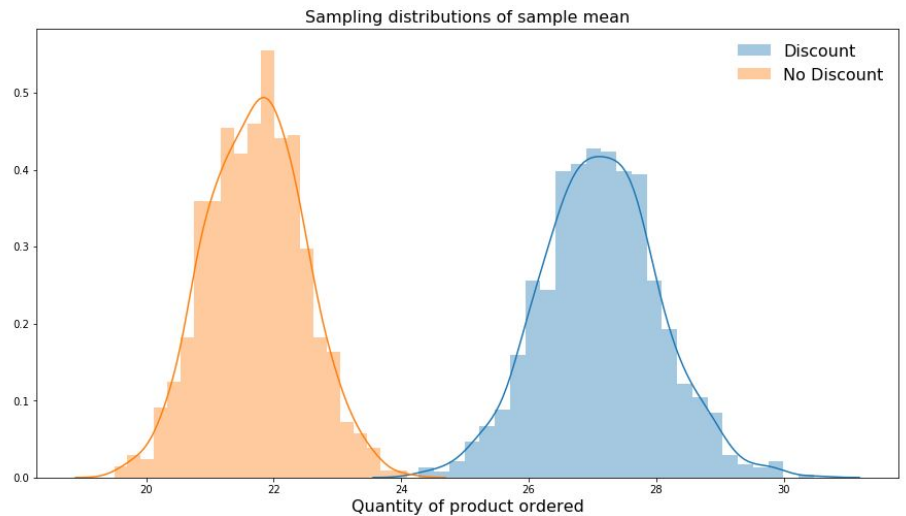
From the data, it was shown that quantity of product ordered is significantly higher when the product is discounted. Increasing quantity is important to increase profits. The discount levels that increased quantity sold the most were 5, 15, 20, and 25. Using this information, discount levels other than these should be discontinued. There was no significant difference between product categories in regards to quantity bought with a discount. Therefore, discounts can be applied evenly across the product categories.

Business Recommendations

USA Sales

- Customers

- Employees

USA vs Other countries Total Order Price Distribution of Sample Means
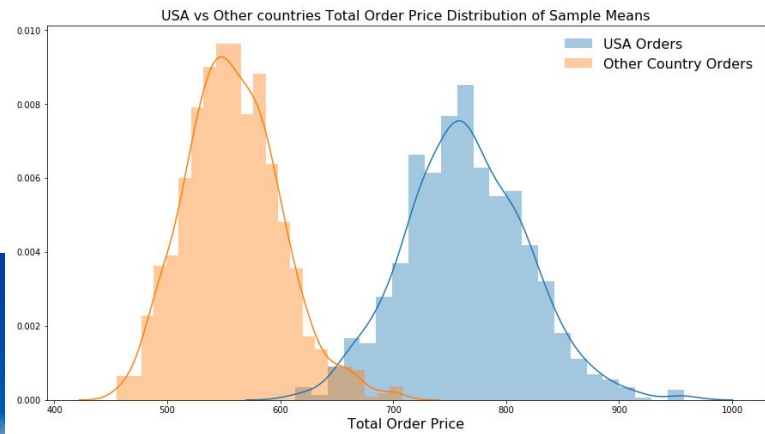
Customers in the US have significantly higher total order price when compared to other countries as a whole. Employees in the US sell significantly more orders than employees in the UK. This information should be used for training other employees in order to help sales across the world.

Future Work

Non discounted products

Employees Sales

Lowest Spending Countries

Although I gained quite a bit of information from the work that was done, further analysis should be completed.

One important question to look into is what product category sells the best without a discount? We can then avoid discounting products that would sell anyway without a discount.

We could look into the territory sales in the UK to find a way to increase the employee sales.

Also look into the lowest spending countries in order to increase marketing to raise sales in those areas.