



My Findings



By Eric Sundstrom
Data Scientist, Northwind Traders



I have completed 4 statistical analyses/hypothesis tests I would like to share with you.

Each test is based on a question meant to explore ways to help the company.

Quick Preface:

What Is A Hypothesis Test?

- Hypothesis Testing is just a fancy term to describe a way in which two groups of data are compared to each other to find out if there is a noticeable difference between the average of the groups.
- It sounds simple but it can be a surprisingly effective way to find insight into which of your business's people or processes are most successful.

1st Question

Are The Younger Sales Employees Selling More Than The Older Sales Employees?

Test Parameters:

- Younger vs. Older was determined by lower 50% in age of employee vs. upper 50% in age of employee
 - The data used was total orders sold by employee over a 2-year period (2013, 2014). All employees were active during this entire period
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1st Test Results

The test concludes that, with 95% confidence, there is no statistically significant difference between the # of sales an employee makes based on their age relative to their colleagues

Takeaways

- The younger employees may be making more sales but there is not enough evidence to know for certain
- We should revisit this test again as our company expands
- This test could help with knowing who to train or whether to switch to hiring younger candidates

**As an aside, all the data sourced for these tests was taken from the company's own SQLite Database

2nd Question

Is The Average Order Price Higher When The Sales Employee Is Located In The Same Country As The Buyer?



2nd Test Results

Our test gave us evidence to suggest that the average order price IS higher when both parties are in the same country versus when they are in different countries

Takeaway

- I believe this data might be useful for our company to determine if we should add a physical location to a country we are not currently in

3rd Question

Have More Discounted Products
or Regularly Priced Products
Been Sold Since Our Company
Was Created?

- It seems logical to assume that people are probably more likely to buy an item when it is priced at a discount
 - We did this test to see if our company's data also reflects this notion
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3rd Test Results

We found evidence to suggest that, YES, there was a difference in orders placed based on full-price vs discounted price. But it was in the opposite direction than what we were expecting. The data suggests that for our company, less items are sold when discounted, not more

Takeaways

- These results do not make real-world sense
- It became clear that we gathered the wrong information for what we were trying to study. We needed data that also reflected the amount of time things were available for purchase at each price

4th Question

Do Discounts Have An Effect On
The Number Of Products
Customers Order? If So, At What
Level(s) Of Discount?

- This test was basically a redo of the failed 3rd Test
 - This time we used the average order size of a product to measure the impact of a discount
 - Using an average takes away needing to measure the amount of time each product was for sale at each price point
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4th Test Results

Through this improved test we determined, from our data, that discounts have a large (positive) impact on how many orders are placed on a specific product, at a time

Takeaways

- I am sure the accounting department is happy to know that discounts actually result in larger orders
- I would suggest to our company to not be shy about using discounts if we need to see a temporary bump in gross sales

4th Test

Results (Continued.)

- Five additional tests show evidence to suggest that customers order more of a product when discounted at each of the five rates we use (5, 10, 15, 20, 25) then when compared to standard price
- Discounts of 20% and 25% showed by far the biggest increase in sales
- Surprisingly, sales average increased more when the discount was 5% than when the discounts were 10% and 15%
- If I had to recommend one discount rate to use most often it would be the 20% discount. It showed about the same increase in sales as the 25% discount but the company gets the extra 5% as well

