



# Statistical Analysis of Northwind Cor

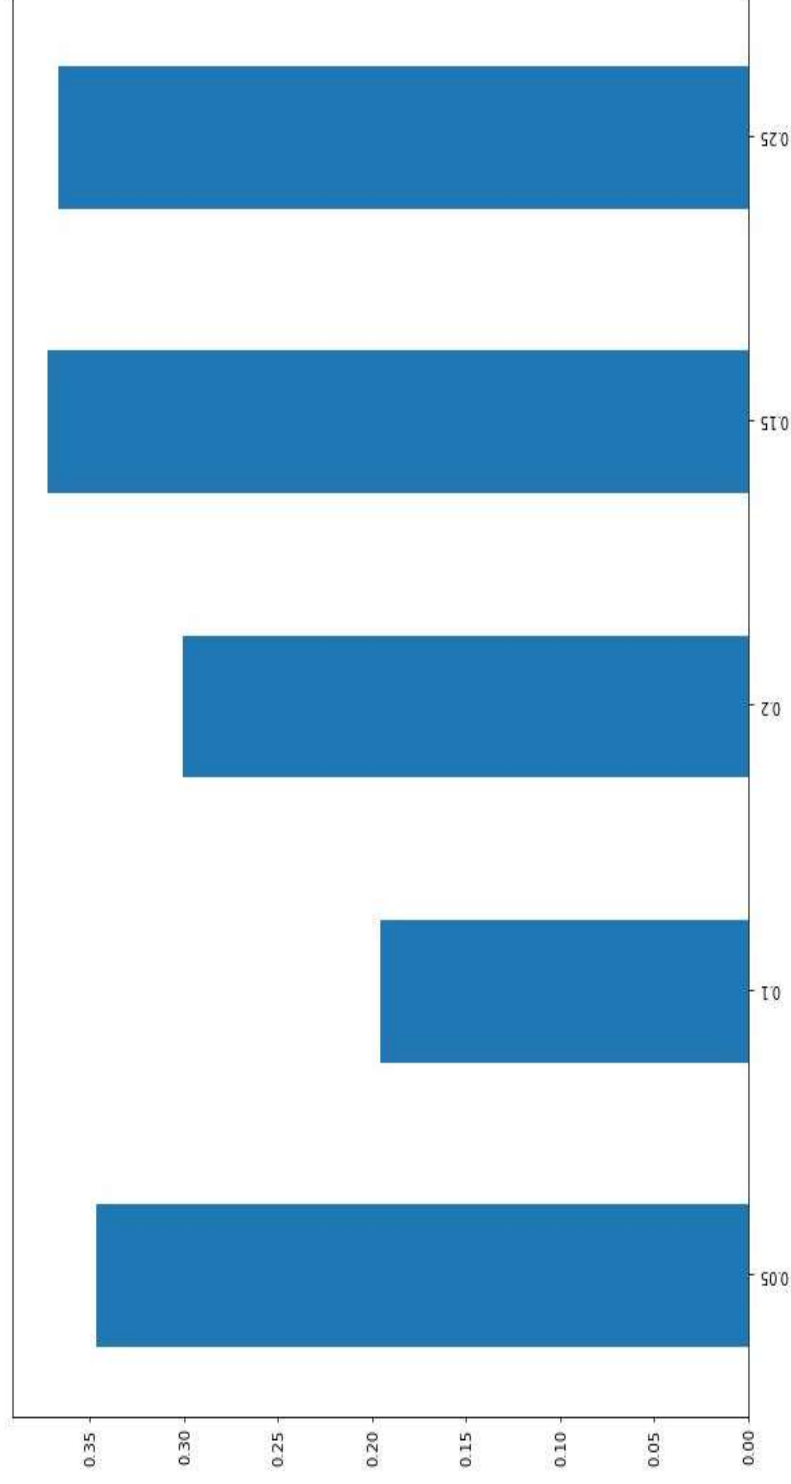
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# Effect of Discounts on Quantity Ordered

1. A higher discount offered had a statistically significant effect on the quantity of items ordered.
2. However, this effect was small.
  - a. We saw a Cohen's D value of 0.286, which is considered small.



# Effect of different sizes of discounts on quantity ordered

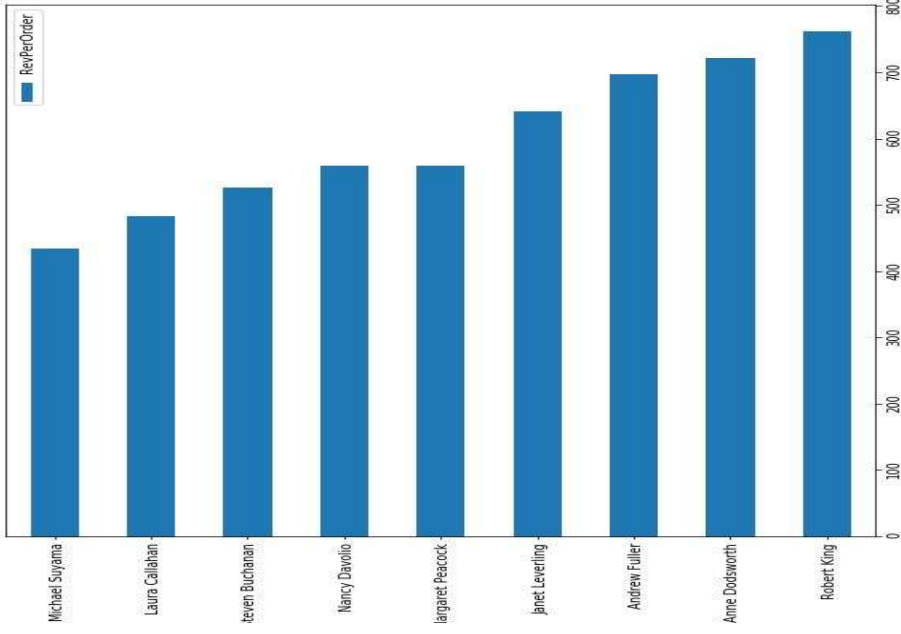


# Does Discount level lead to higher revenue?

1. Ultimately more important question:
  - a. We want to see if discounts are improving our bottom line
  - b. We don't want to lose money
2. Turns out discounts don't really increase revenue
  - a. The difference in average revenue from discounted vs regularly priced orders is \$44.
  - b. This difference is not statistically significant. There is a high probability that it is the result of random chance.



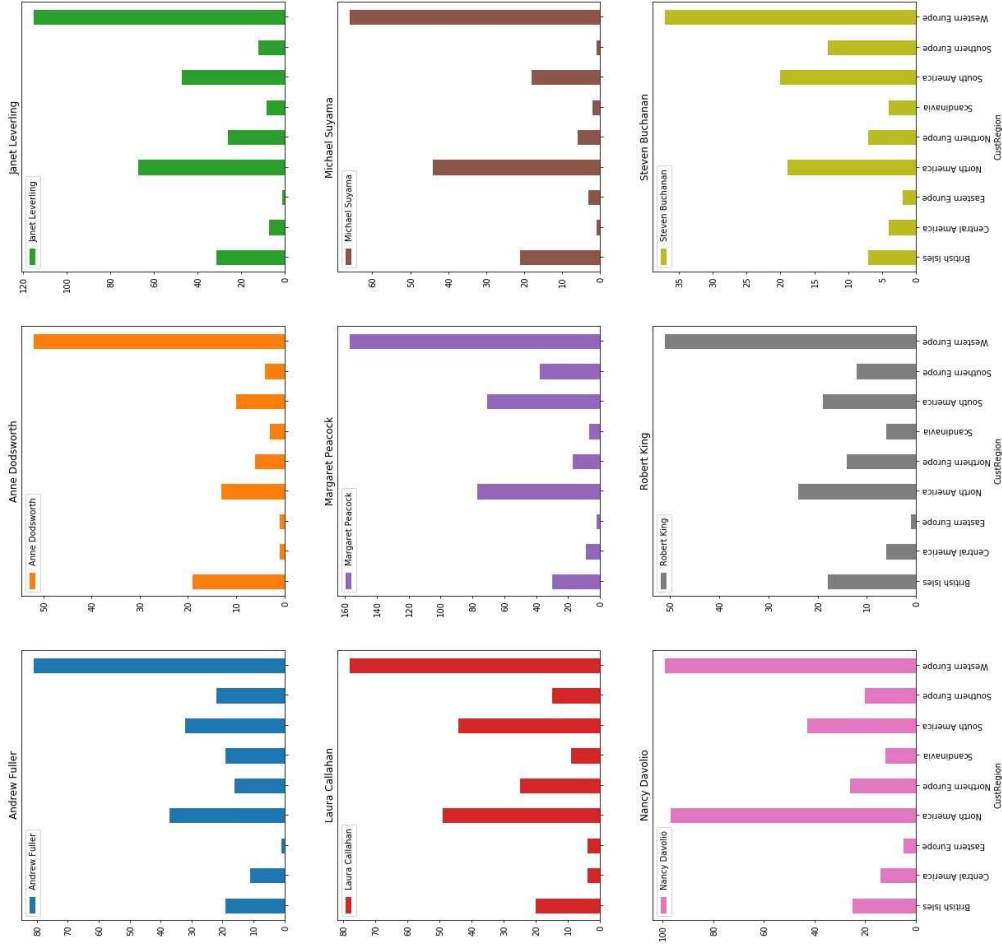
# Do some employees have better sales skills?



1. Metric to evaluate sales skills: Revenue per order
  - a. Accounts for varying employment duration, work hours  
other factors
2. Some employees seem to have higher average revenue per order
  - a. Robert King is at the top
3. But is this statistically significant?
  - a. Yes. The probability that Robert King's higher revenues are the result of random chance is around 2.5%

# Employee sales by region

1. Is it possible there is something other than sales ability that accounts for Robert King's success?
  - a. What if he sells more in some regions than others?
    - i. This could still be astute sales acumen on his part.
2. The distributions of employee sales by region seem similar across employees so that's probably not a factor.

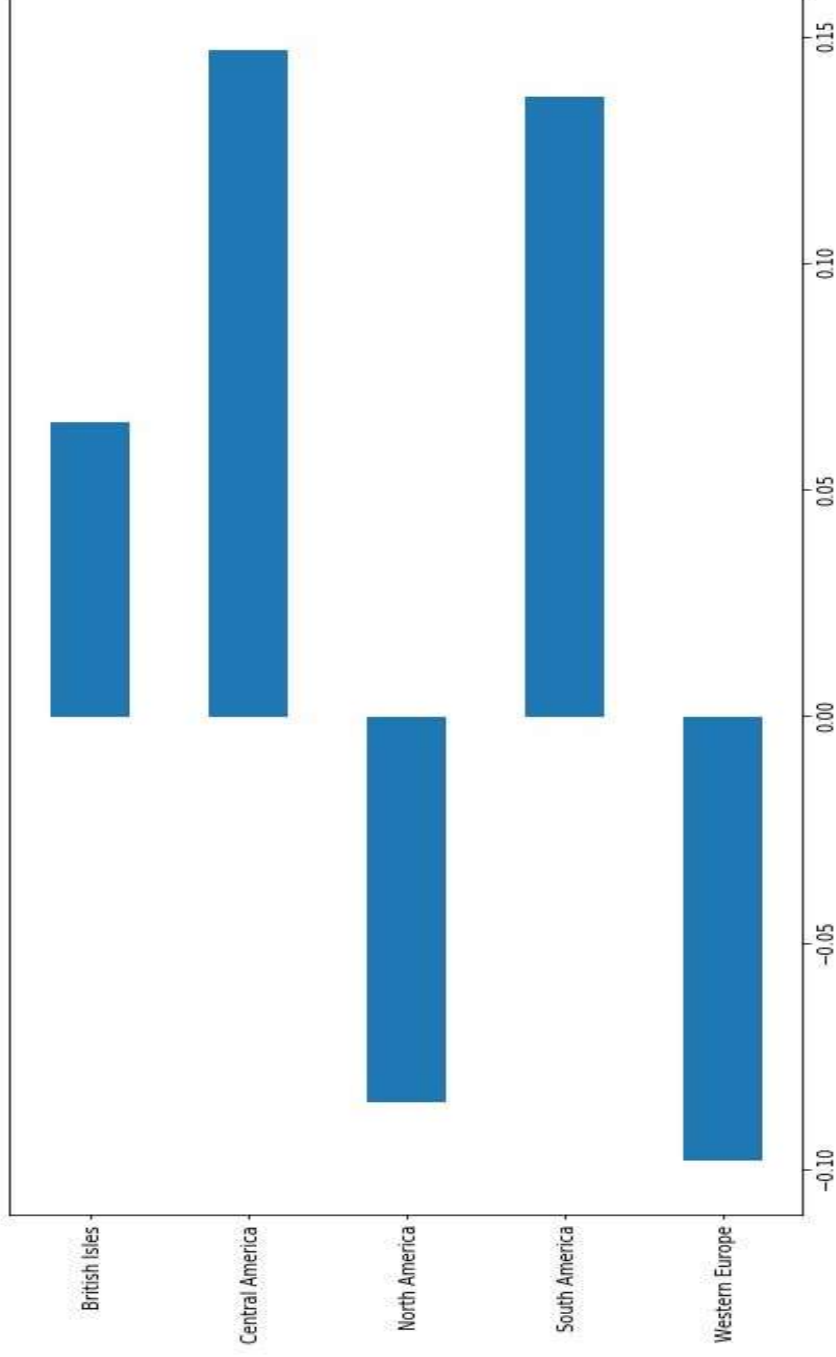


# Buying preferences by region: Local or imported?

1. Do customers in particular regions prefer local or imported products?
  - a. Knowing this we can calibrate sales strategy accordingly.
2. To find out we :
  - a. Count purchases of local products by customers in a given region
  - b. Count purchases of local products by all other customers
  - c. Compute the probability of observing a count of local products as high or as low as that of that particular customer given the average for the remaining population.



# Results:



- North America and Western Europe seem to prefer buying locally
- Central America, South America and the British Isles prefer imports