

Data Communications: Data Transalation Challenge

The audience:

The marketing and sales teams of Amazon. The data could facilitate the development of more efficient marketing strategies and the prioritization of efforts.

The main purpose:

Determine which product category generates the most revenue, and then identify target demographic and geographic segments for that product. This process was based on a series of data visualizations that showed trends in product category sales, monthly sales growth, and the geographic and demographic distribution of sales.

Part 1. Analyzing Revenue: Identifying the Most Revenue Product Category

Figure 1. Total Sales by Product Category in 2019: Identifying Top Performers

First, I grouped all 19 products into 8 categories which include Monitors, Batteries, Headphones, Charging Cables, Phones, Laptops, TVs and Home Appliances. The first step in the process is acknowledging that “Batteries” are the best-selling product among 8 product categories, followed by Headphone and Charging Cables.

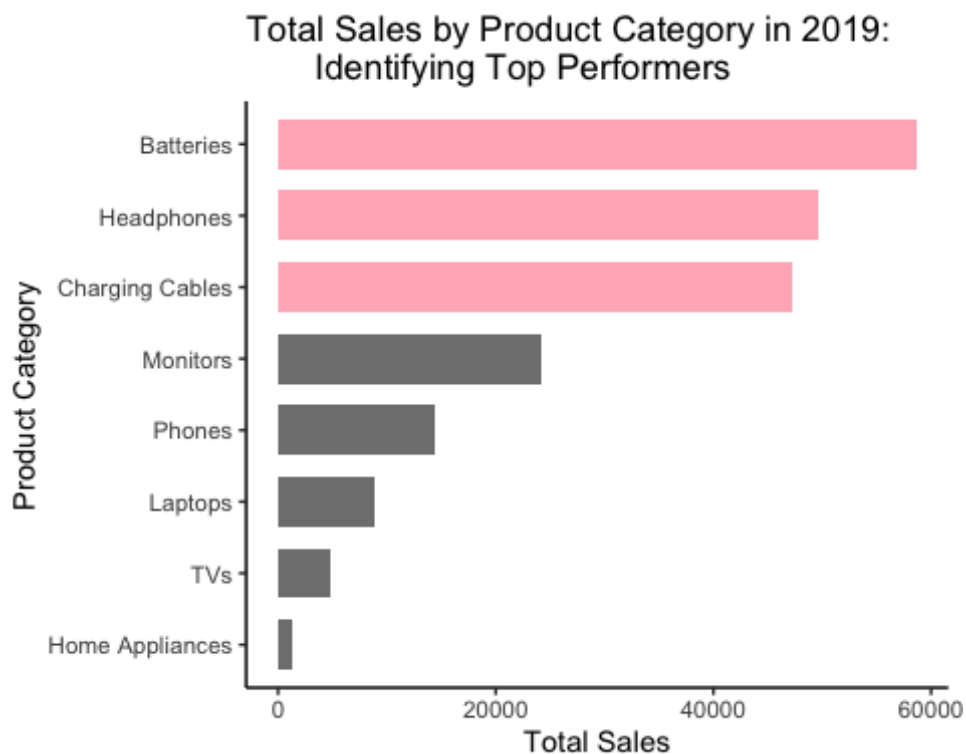


Figure 2. 2019 Sales Analysis: Laptops Dominating the Market with Strong Revenue Growth

As sales data may not fully reflect the company's long-term potential, it is crucial to examine the revenue earned by each category in 2019. A high level of market potential is evident from the comparison of the revenue share, which shows that the laptop category surpassed all other categories in 2019 by a wide margin.

However, as seen in Figures 1 and 2, the performance of laptop sales is not converting into an equivalent increase in income. It would be wise for the company to change its primary focus and turn its attention away from batteries and towards the laptop category in order to capitalize on the current market demand (technological advancements) and to take advantage of the growing revenue potential associated with this category.

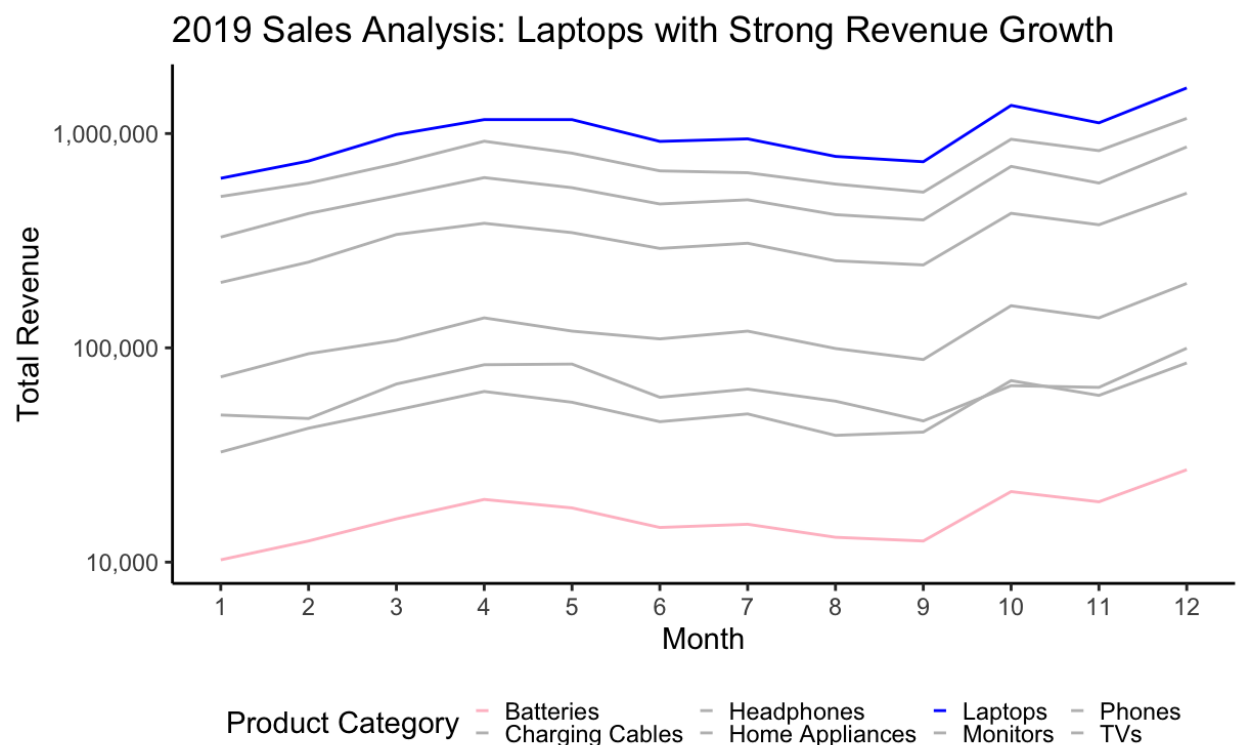


Figure 3. Monthly Sales Growth Rate in the Laptop Category in 2019

In the laptop category, we primarily sell two key products: Mac book Pro and Think Pad. An important factor in our marketing strategy is understanding the monthly sales growth rate for these products, which enables us to assess their relative performance and devise effective marketing.

According to the graph, the Mac Book Pro had higher positive growth rates, indicating stronger sales growth, in several months (2, 3, 4, 10, and 12) compared to the Think Pad. Considering that the Mac Book Pro is more expensive, the higher sales growth rates indicate that customers are willing to pay more for the Mac Book Pro despite its higher price.

However, the sales growth rates of both products are also similar in terms of patterns. Therefore, we need to conduct further research on the quantity sold to determine the final product that we should focus on.

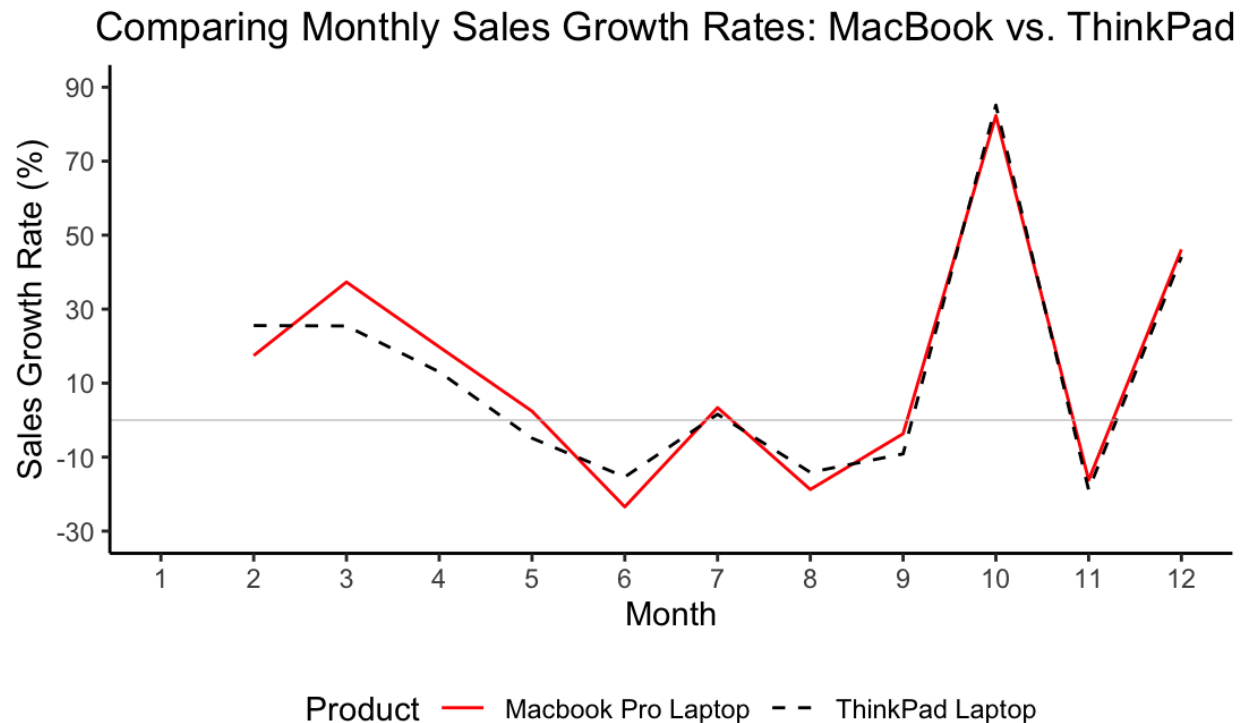
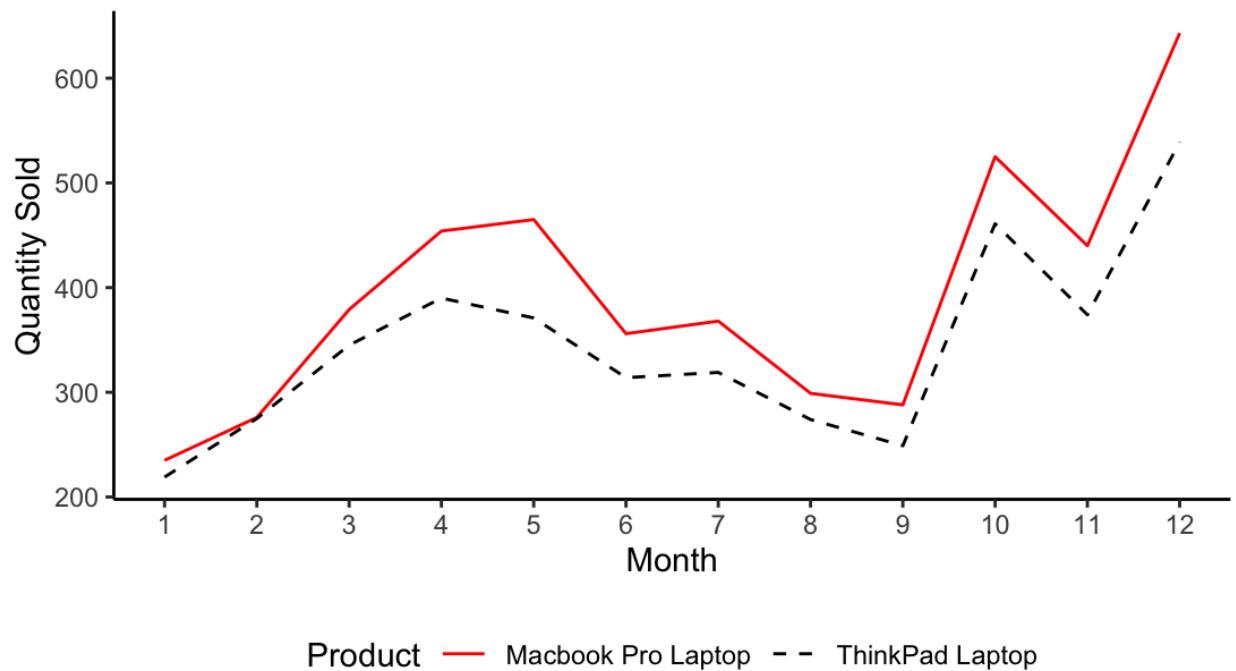


Figure 4. Monthly Quantity Sold in 2019 - The Mac Book Pro Dominates:

We are interested in the quantity sold by Mac book and Think Pad in this phase. The data shows that throughout the whole year of 2019, the Mac Book Pro consistently outperformed the Think Pad in the laptop category. The apparent supremacy of the Mac Book Pro confirms its potential to be a key product to concentrate on.

MacBook and ThinkPad: A Comparative Journey through Monthly Sale



Part 2: Identify target demographic and geographic segments for Macbook Pro

High Revenue: Think Pad generates less revenue per unit sold in comparison to Mac Book Pro due to the higher price point of Mac Book Pro. As a result, even if the Mac Book Pro and Think Pad contributed the same total number of units sold, the Mac Book Pro would still have a greater impact on the revenue.

Brand Strength and Customer Loyalty: The Apple brand is well-known for its high quality which has a loyal customer base, with many people who stick with the brand and are more likely upgrade to the newest Apple products. This loyalty can be used to make sales steadier and more predictable.

Cross-selling opportunities: Customers who purchase Mac Book Pro may be interested in purchasing additional other Apple products: lightning charging cable, AirPods (the products we are also selling among 19 products), which can increase revenue of Amazon even further.

Therefore, it is reasonable to focus our marketing efforts on the Mac Book Pro. In this context, we will continue to analyze more about demographic and geographic factors in order to refine our target market. This strategy will effectively prioritize our marketing team's efforts, directing them to allocate resources in the way that maximizes return on investment.

Figure 5. Quantity Sold of Mac Book Pro by Median Age Range

The results show the top three age groups are 20-25, 25-30, 35-40. By narrowing down our target to the top three age groups that purchased the most Mac Book Pro, we gain valuable insights into potential growth opportunities and can assess the market potential within the cities associated

with these age segments since we have information about the geographic locations where this age group resides.

Therefore, we can further analyze the geographic distribution of sales. In this case, the age group of 35 to 40 years old, which accounts for the largest number of Mac Book Pro purchases, includes a significant population residing in major cities such as San Francisco, New York, Atlanta, and Seattle. This information allows us to better understand the concentration of sales and identify key geographic areas where our marketing and sales efforts can be strategically focused to expand our market share.

Top 3 Age Profiles Dominating MacBook Pro Sales

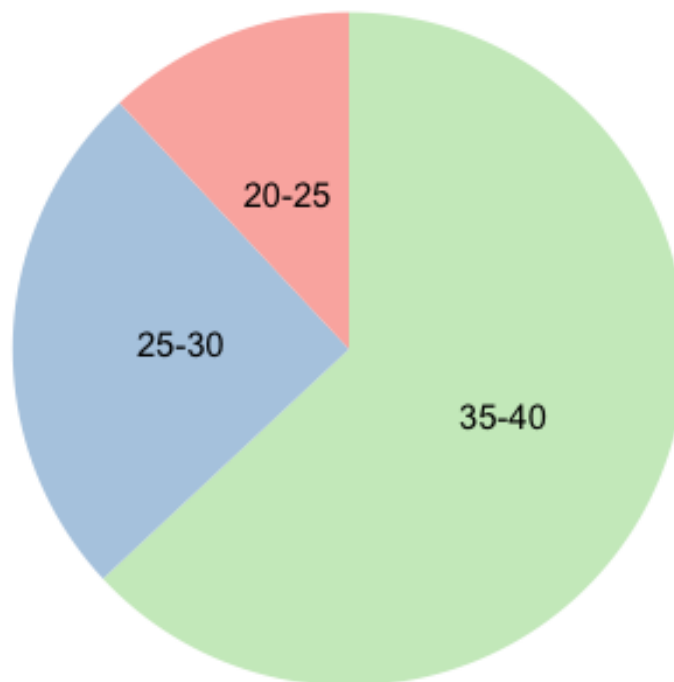


Figure 6. City Sold - San Francisco Leads:

In this phase, we will compare sales per capita rather than total sales of each city in this step because comparing total sales alone may not reflect true sales efficiency, so sales per capita can help identify cities where MacBook Pro laptops are more popular and have higher demand relative to the population.

This study is based on sales information for certain zip codes inside each city for the MacBook Pro. However, I will use name of each city to for the graph instead of ZIP codes, so it would be easier to understand. Although we are aware that these zip codes don't cover the whole area of their respective cities, they nonetheless offer helpful information about regional sales trends.

These findings do, however, give us a view of the markets where MacBook Pros are popular and where there may be room for expansion. Our research also points to possible prospects in several markets. For instance, Atlanta has lower sales in our dataset while having a demographic profile that is close to the top selling cities. This can point to a market that's unreached that we can target to boost revenue.

However, considering the MacBook Pro's high price, it's critical to comprehend how earnings are distributed across these locations. In order to improve our marketing strategy and find the most potential target markets, our next stage is a thorough income-based research.

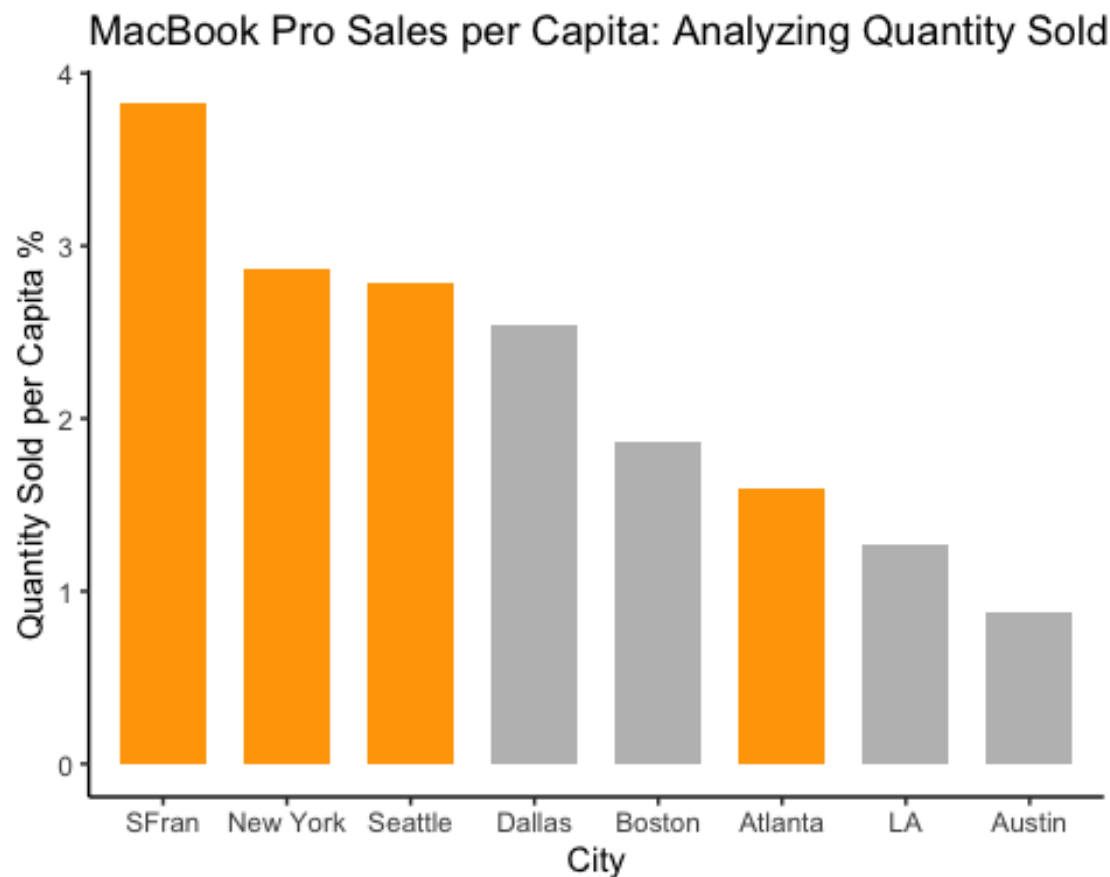
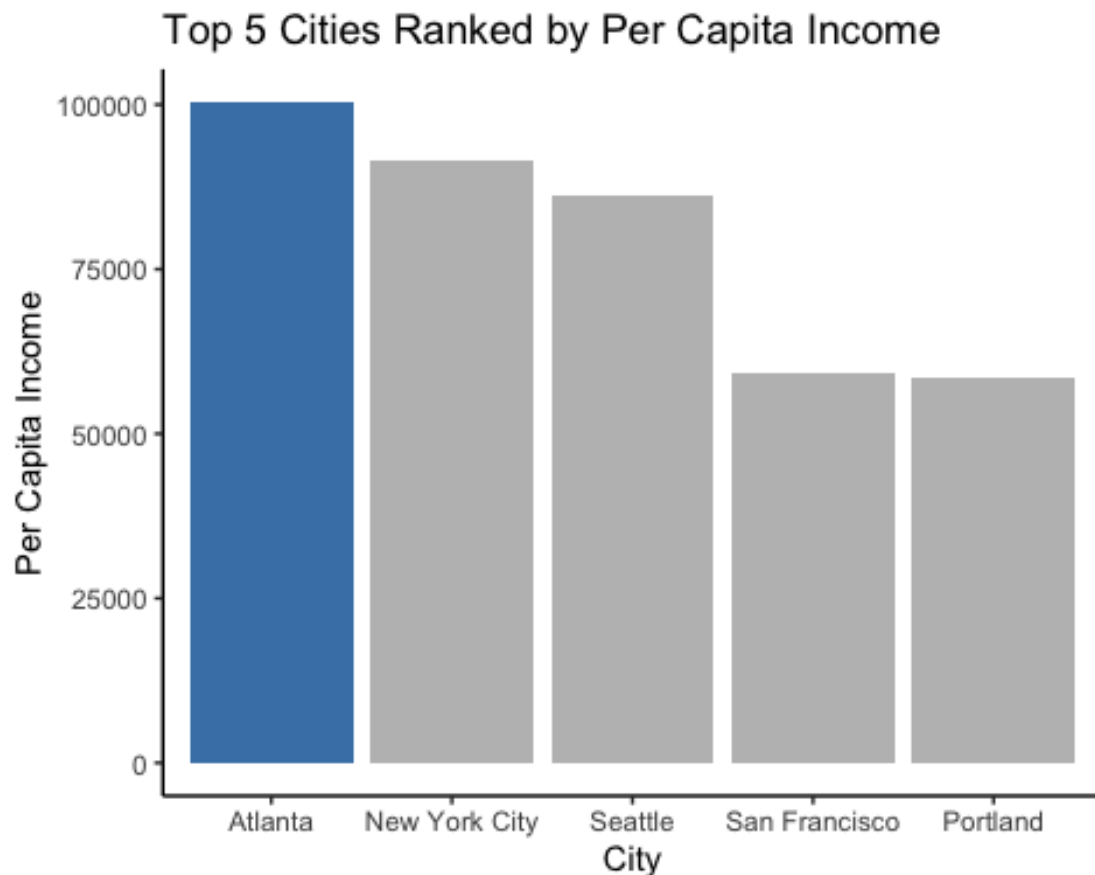


Figure 7. Top 5 Cities by Per Capita Income - The Affluent Markets



The story concludes with San Francisco, New York, and Seattle continue to be among the top cities in terms of both per capita income and Mac Book Pro sales, suggesting a strong correlation.

Atlanta stands out as the city with the highest per capita income among our target cities. However, despite having the highest per capita income of any of our target cities and being within the targeted age group, Atlanta ranks sixth in Mac Book Pro sales per capita (Figure 6). As a result of this disparity, Atlanta's market is underdeveloped and has great potential.

Given the high income of Atlanta's residents, it is evident that expanding our marketing and sales efforts in this city has the potential to generate substantial returns. By targeting those between the ages of 35 and 40 and concentrating our efforts on Atlanta's high-income demographic, we can maximize our returns and drive substantial growth in Mac Book Pro sales.