

Under Pressure: Analyzing the Connection Between Stress and Consumer Buying Behavior

Executive Summary

This data analytics capstone proposal aims to investigate the relationship between stress and consumer behavior by analyzing data on mental health, pulse spending, and FEMA records related to COVID-19. The study recognizes that stress can significantly impact individuals' decision-making processes and purchasing habits, particularly in the aftermath of COVID-19. Understanding this influence is crucial for businesses seeking to tailor their marketing strategies and product offerings effectively in disaster-prone regions.

The project will leverage various data analysis tools, including SQL, Python, Power BI, and Tableau, to analyze and visualize the collected data. SQL will be used to manage and query the databases containing the mental health and pulse spending data, allowing for efficient data retrieval and aggregation. Python will be employed for data preprocessing, statistical analysis, and the exploration of relationships between variables. Power BI and Tableau will serve as visualization platforms to create interactive dashboards and reports, enabling the effective communication of findings and insights derived from the data.

The study's conclusions may offer actionable insights for businesses, policymakers, and emergency response organizations, ultimately contributing to more effective strategies for supporting and rebuilding communities in the aftermath of natural disasters.

Motivation

I have an interest in all things rooted in psychology and relish learning what motivates people to make the decisions they do.

Data Question

How has consumer spending changed during the Covid-19 pandemic compared to previous years? Have there been any notable shifts in spending patterns, such as increased spending on certain products or decreased spending on others?

Minimum Viable Product (MVP)

Data collection: Obtain the necessary datasets, which provide information on consumer spending patterns, preferably with a breakdown by product categories or industries.

Data preprocessing: Clean and preprocess the datasets to ensure consistency and compatibility. Handle missing values, format inconsistencies, and harmonize the data from different sources.

Timeframe selection: Choose a suitable timeframe for analysis. This could include comparing consumer spending patterns during the COVID-19 pandemic (e.g., from 2020 to 2021) with previous years (e.g., 2018 to 2019).

Analyzing overall spending trends: Calculate and visualize the total consumer spending for each period under consideration. Compare the overall spending levels and identify any significant changes or trends.

Identifying shifts in spending patterns: Explore specific product categories or industries within the datasets. Calculate the spending for each category and compare the proportions and changes over time. Identify notable shifts, such as increased or decreased spending on certain products or industries during the pandemic compared to previous years.

Visualization and reporting: Create clear and informative visualizations, such as line graphs, bar charts, or heatmaps, to present the findings effectively. Generate a concise report summarizing the key insights, highlighting any significant changes in spending patterns.

Schedule

1. Get the data (5/15/23)
2. Clean & Explore the data (6/10/23)
3. Create presentation of your analysis (6/17/23)
 - a. Should be a presentation, but could include a Jupyter notebook or dashboard in Excel, Tableau, or PowerBI
4. Internal Demos (6/22/23)
5. Demo Day! (6/29/23)

Data

- [Percent Change in Consumer Spending, 2020-2022 - Catalog \(data.gov\)](#)
- [COVID-19 Case Surveillance Public Use Data - Catalog](#)
- [Spend Summary Statistics \(safegraph.com\)](#)
- [COVID-19 and Recovery Archive | U.S. Bureau of Economic Analysis \(BEA\)](#)
- [State of the Restaurant Industry | OpenTable](#)

CDC, COVID -- <https://covid19mobility.org/data>

Census data -- <https://www.census.gov/programs-surveys/household-pulse-survey/data.html>

Additional Data

[Psychological factors and consumer behavior during the COVID-19 pandemic | PLOS ONE](#)

[Surveys of Consumers \(umich.edu\)](#)

National Health Interview Survey (NHIS):
<https://www.cdc.gov/nchs/nhis/index.htm>

<https://www.bea.gov/data/consumer-spending/main>

Potential Challenges

- Possible partial data
- Not enough data
- Data not ideal for topic exploration
- Imposter Syndrome

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