

Group Project Goals and tasks

Team: Melodic Transport

Nathaniel Burbank - Jeremy Clark - Bruno Carriere

Looking back on the American consumer: How have our spending habits changed over the last 50 years?

Goals:

Consumer spending accounts for 70% of the American economy. Yet we rarely step back and consider the ways in which our spending habits have changed, and why those changes have happened. Our goal with this project is to explore how American consumer spending trends have changed overtime, and provide insights into the underlying social trends, demographic forces, and historical events that have motivated these shifts.

Using time-series data from the annual Consumer Expenditure Survey published by the Bureau of Labor Statistics, we aim to create a series of visualizations that will first inform the user about the ways in which modern spending habits differ from those of prior generations. Some categories (such as housing and healthcare) have grown significantly in recent decades, while others (such as food) have become a much smaller part of American consumers' budgets, and we want to display these shifts. Our hope is that we'll have detailed enough data so that the user will also be able to zoom in on each of these categories to display more detailed information about changes in subcategories. For example, if the user zoomed in on the transportation category, they might see a detailed breakdown of changes in American consumer spending habits on public transportation, automobile purchases, and gasoline over the given period of time.

Once we've built a visualization that displays *how* spending habits have changed, we will also work to provide insights into *why* these shifts have occurred. Our second goal is to overlay the changes in spending trends with other demographic and historical changes that we believe are correlated with the changes in spending habits. For example, family size has decreased significantly over the past century, while simultaneously, the share of Americans who live in cities has increased, and access to higher education has been greatly expanded. We believe each of these shifts might be apparent in the spending data, and we hope that by layering the different trends on top of one another the salient trends will become apparent. Additionally, our visualizations can be enhanced by comparing overtime consumer spending trends with timelines of interesting events in recent American history (military actions, stock market values, major weather events/natural disasters, presidential party, major legislation, etc.).

As a third goal, we'd also like users to be able to filter the data by race, income, educational level, region, and perhaps other criteria, to visualize how spending changes vary across different socio-economic categories.

Tasks:

- Become proficient with the Consumer Expenditure Survey [dataset](#). While it's clear that there's a lot of data available at a very high level of detail, we're still working to understand the way it's encoded so we can extract what we need from it to form the basis of our visualizations.
- Do some basic exploratory data analysis in Excel or R to get a handle on the most dramatic changes in spending habits over the given time period that we're hoping to (1) display and (2) explain.
- Make a list of 5 other changes in demographics that we believe would be most correlated/explanatory with regard to the changes in spending habits.
- Make a list of the key historical events/dates that we believe are connected to the given changes in spending habits.
- Make sketches of both our main and secondary visualizations
- Prepare simplified dataset as csv file (or files) that contain only the data points we need for our visualizations
- Build an initial version of the visualizations, and collect feedback.
- Revise, revise, revise.
- Rinse and repeat...

Dataset

The bulk of the data for our project will be gathered from the [Consumer Expenditure Survey](#) published by the [Bureau of Labor Statistics](#). There are other data sets available from the BLS that we are also considering such as Unemployment and Employment, Consumer Price Index and various price averages.

The CEX contains a large number of metrics. For each survey participant we have access to information such as:

- Age of reference person
- Composition of consumer units (families, children, etc)
- Education level
- Income level
- Region of residence

The data related to expenditures covers a wide range of purchases, including:

- Detailed food purchased for home
- Housing and shelter costs
- Apparel and services
- Health care spending

- Entertainment

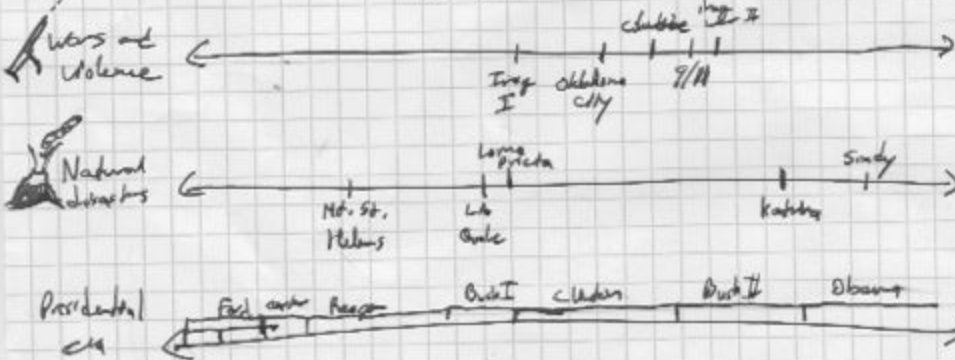
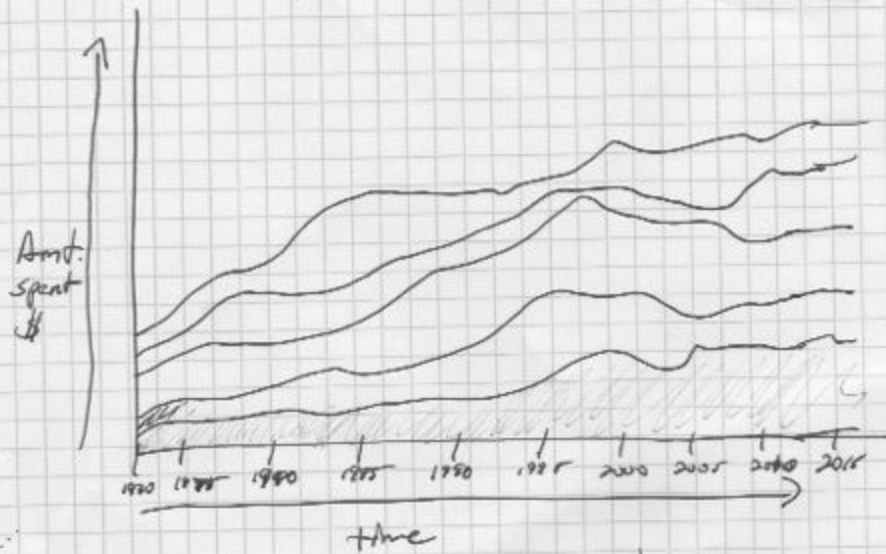
In addition, we will supplement the data set with timeline information for various interesting and meaningful events in recent American history: Military actions, stock market values, natural disasters, presidential and party changes, major legislation, etc.

Supplemental Data

- [The Presidents Of the USA](#)
- [The International Disaster Database](#)
- [Timeline of United States History](#)
- [Timeline of United States Military operations](#)
- [Chronology of Significant Events \(CA Dep. Of Finance\)](#)

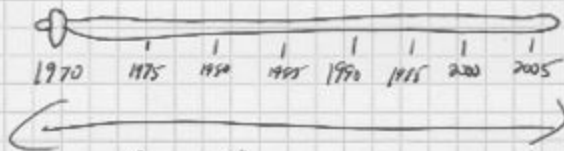
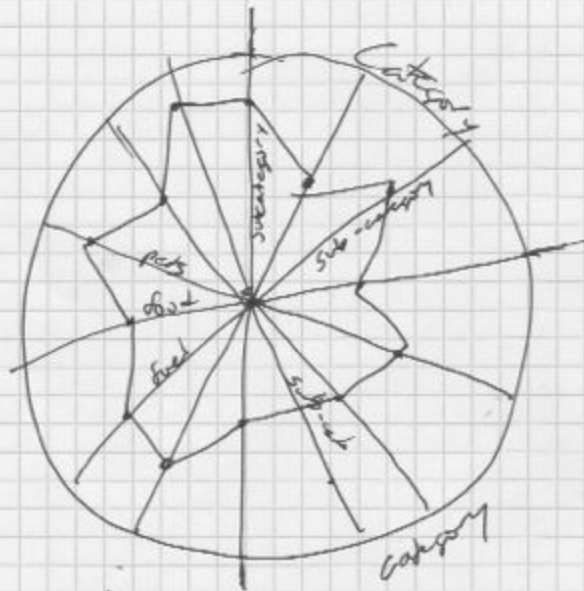
Possible Visualizations

Viz I



~~Brushing~~ Brushing along horizontal X-axes will zoom main stack chart, and add indicators to the stack chart.


Vis II

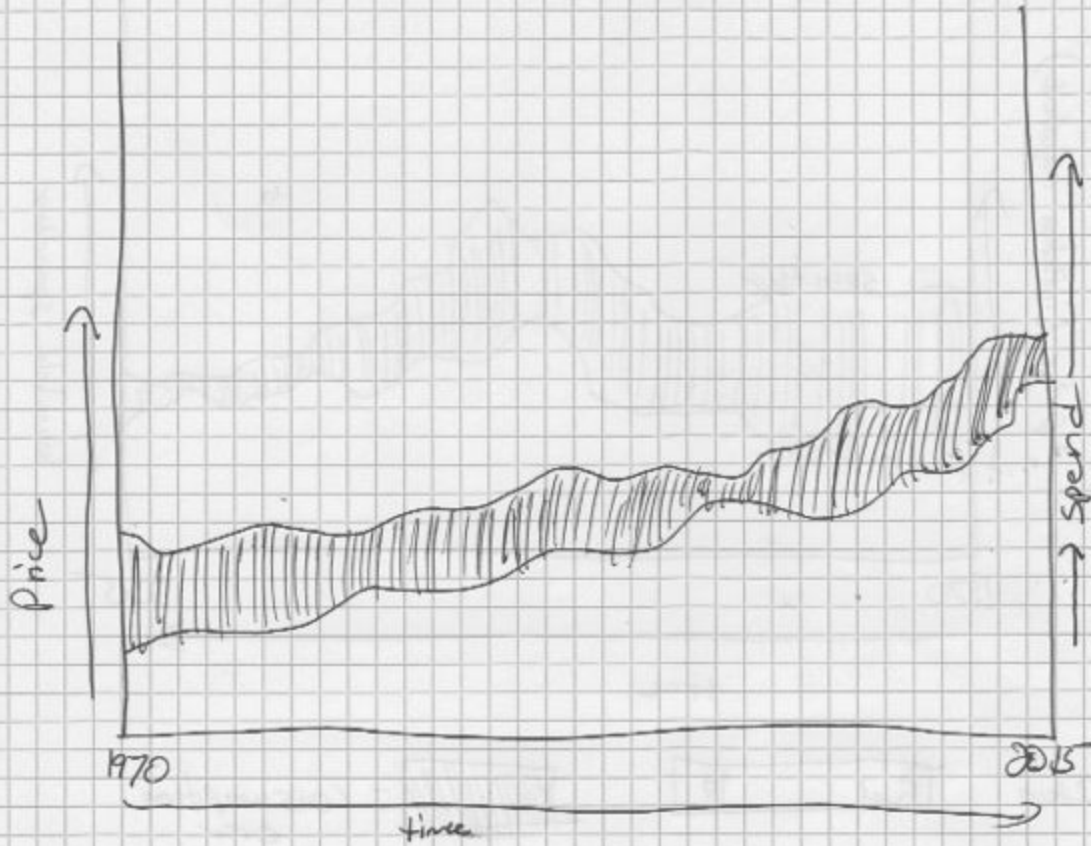


As ~~slide~~ moves, star
plot animates, ~~the~~ sort of
a "flip book" effect

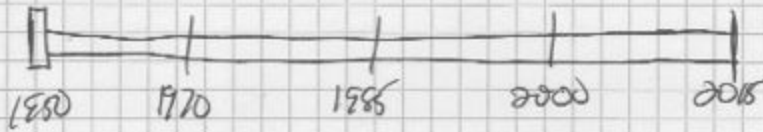
V.s III

Item Fuel ▽

 = consumption over time



As the slider moves year over year, the size of items in the house changes to reflect relative spend.



Vis III
Alt.

