



# CONSUMER PURCHASING BEHAVIOR ANALYSIS

--- a country level study  
2002-2014

Ziyue Zhong  
June 29<sup>th</sup>, 2018

## 1. Introduction

This research is conducted on the survey of consumers from Michigan university.

The goal is to identify whether factors including consumer's income level, personal asset and work stability have influence on consumer behaviors.

Specifically, the research covered three consumer buying behaviors of buying house, buying vehicle and buying Large Household Durables.

## 2. Problem statement

The objective of this paper is to find out whether there is a positive correlation between the household's income level, assets and work stability and the household's buying behavior. With better understanding of this relationship, companies can target more accurately on their potential customers.

## 3. Overview of data

Data is directly collected from the survey of customers conducted by Michigan university. <https://data.sca.isr.umich.edu/>

Time period: 2002-2014

Selected Variables Name	Data Type	Description
pexp_r	Numeric	Expected Change in Financial Situation in a Year
pinc2_mean	Numeric	Probability of Personal Income Increase during the Next Year
pjob_mean	Numeric	Probability of Losing a Job During the Next 5 Years
inv_r50	Numeric	Current Value of Stock Market Investments
dur_r	Numeric	Buying Conditions for Large Household Durables
veh_r	Numeric	Buying Conditions for Vehicles

hom_r	Numeric	Buying Conditions for Houses
homval_r	Numeric	Change in Home Values During the Past Year

#### 4. Overview of what was done

##### 1) Demographic features (year, region, gender, income level) analysis

Four charts are drawn to analyze the demographic feature's influence on buying conditions. First, a radar chart is used to compare the buying condition of large durables, house and vehicles during 2002-2014. Then, a line chart is drawn to identify how income level influence the household's buying conditions of large durables. And a block chart is used to explain whether region has influence on the large durables buying conditions.

##### 2) Correlation analysis

Four charts in total provide a straightforward way to explore the correlation between household's possibility of income increase, personal asserts and work stability and their buying behaviors. Two first mixed charts are used to illustrate the relationship between work stability, income increase and buying conditions on vehicle, houses and large durables. The other two scatter plots are used to evaluate the correlation between household's investment and buying conditions.

#### 5. Discussion of results

- Large durable has the highest buying condition during 2004-2007, while houses has the highest buying condition during 2006-2014.
- Higher income level, higher buying condition of large durables.

- No obvious difference on buying conditions between each regions.
- Male has higher confidence on their income increase than female; Male has higher buying need for vehicle than female.
- There is a positive correlation between possibility of income increase and buying conditions for large variables, vehicle and homes.
- House values has a positive correlation with buying condition of large durables and houses and has no correlation with buying condition of vehicles.
- There is no correlation between work stability and buying conditions for large variables, vehicle and homes.
- There is no correlation between stock investment and buying conditions on large durables and houses.

## **6. Conclusion**

In general, demographic features have great influence on buying behavior, especially with gender and income level.

Household's possibility of income increase and personal asserts(house value and income level) have a positive correlation with buying condition of large durables, houses and vehicles.

Household's working stability has no correlation with their buying conditions.

## **7. Implications and Recommendations.**

- Company can create their customer profile according to their demographic information that may be collected by digital marketing.
- Using more targeted advertising strategy with accurate customer profiles.  
For example, invest more advertising on men instead of women if you are a vehicle company.
- For an estate agency, increasing house price means increasing market.
- In a booming economy, when people are positive about their income, the overall consumption would go up.

## 8. Appendix

Figure 1: Comparison of customer's buying behavior, 2002-2014 – Ziyue Zhong

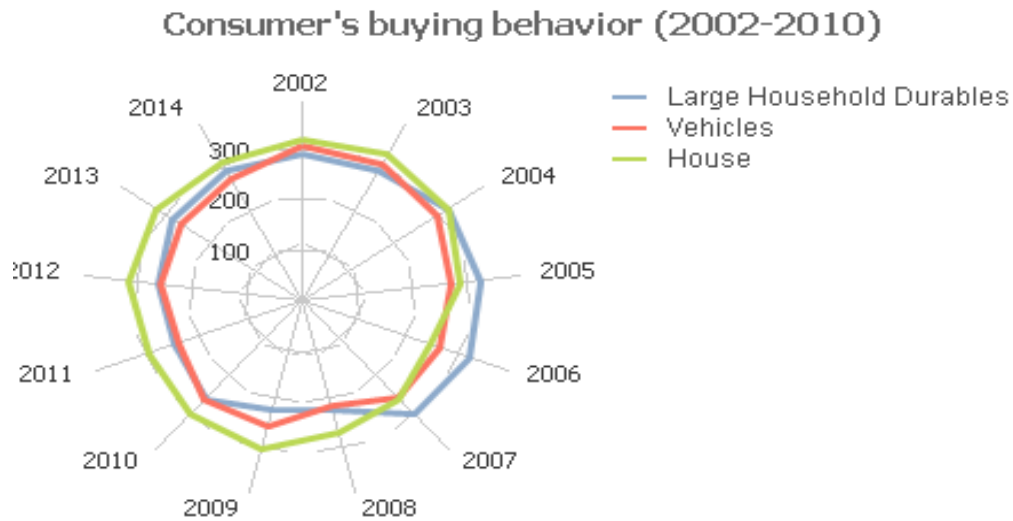


Figure 2: Large household durables buying conditions for different income level,

2002-2014 - Ziyue Zhong

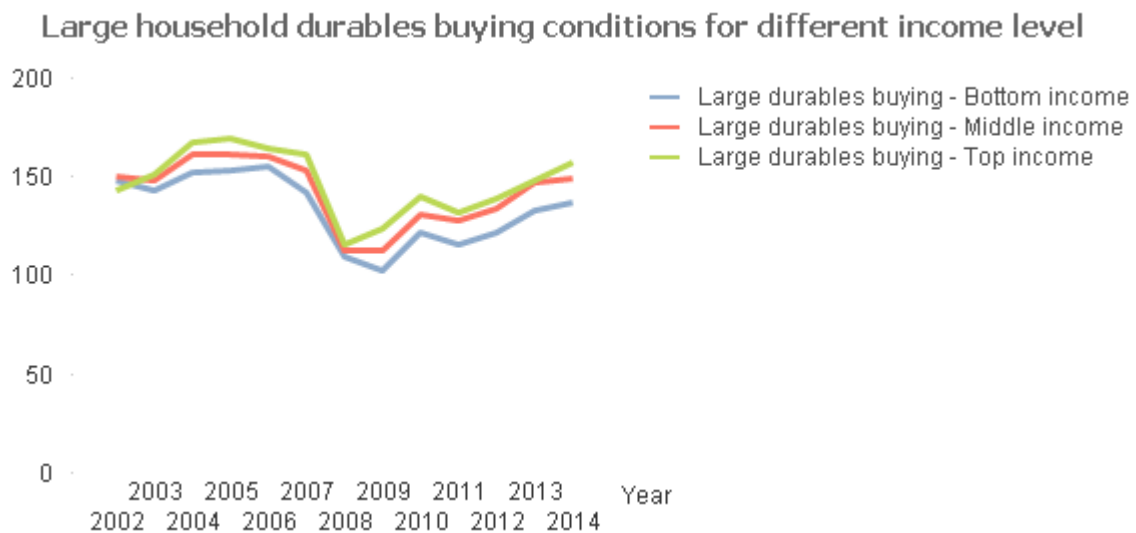


Figure 3: regional difference on large durables buying condition, 2002-2014 -

Ziyue Zhong

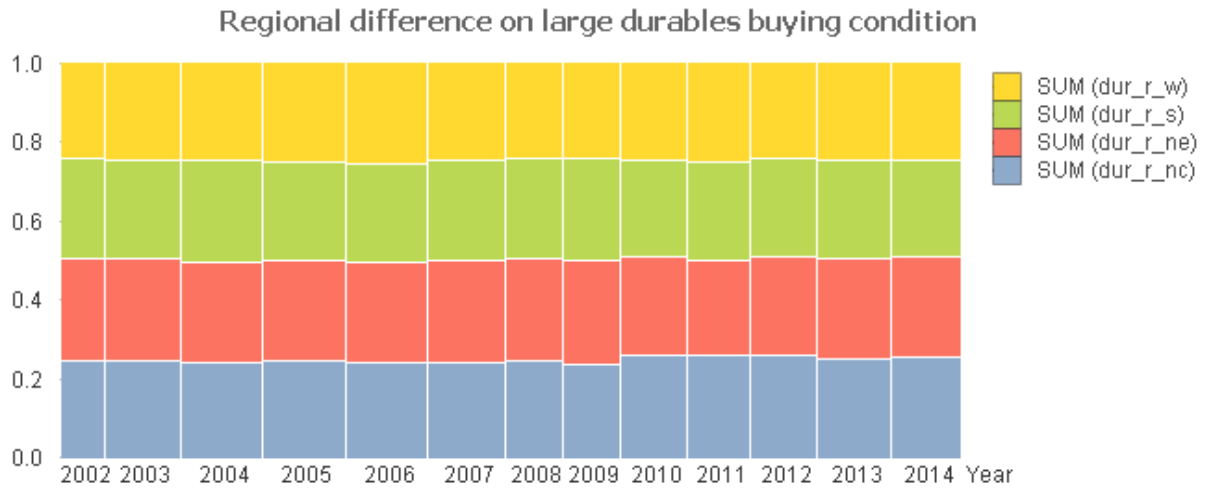


Figure 4: Gender difference on expected income change and buying behaviors on vehicles, 2002-2014 - Ziyue Zhong

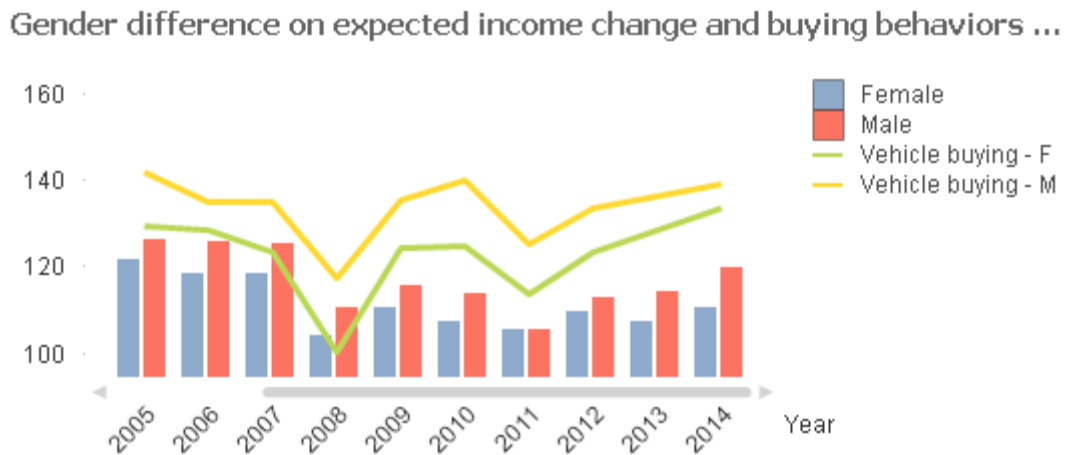


Figure 5: Probability of personal income increase and buying behaviors for different goods, 2002-2014 - Ziyue Zhong

Probability of Personal Income Increase&amp;Buying Conditions for different goods

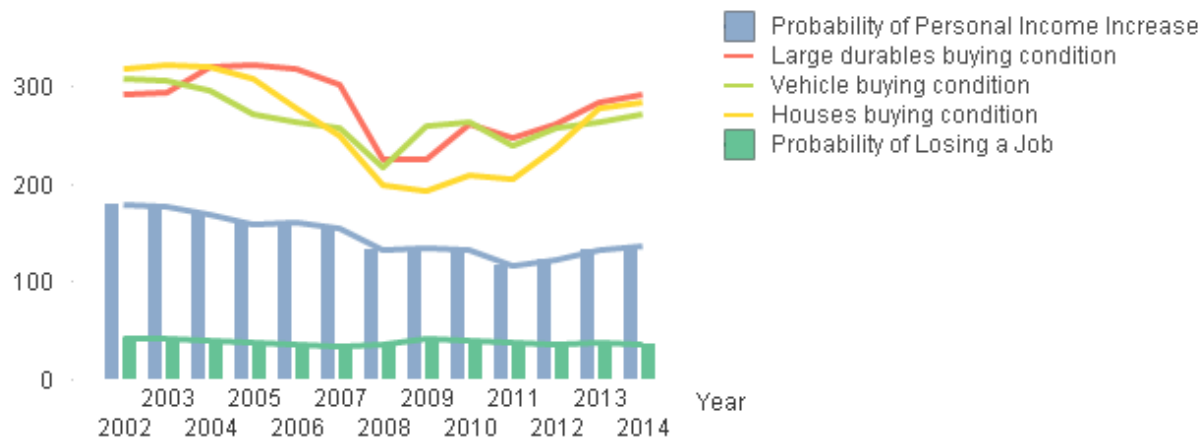


Figure 6: Changes in home values and buying behaviors for different goods, 2002-2014 - Ziyue Zhong

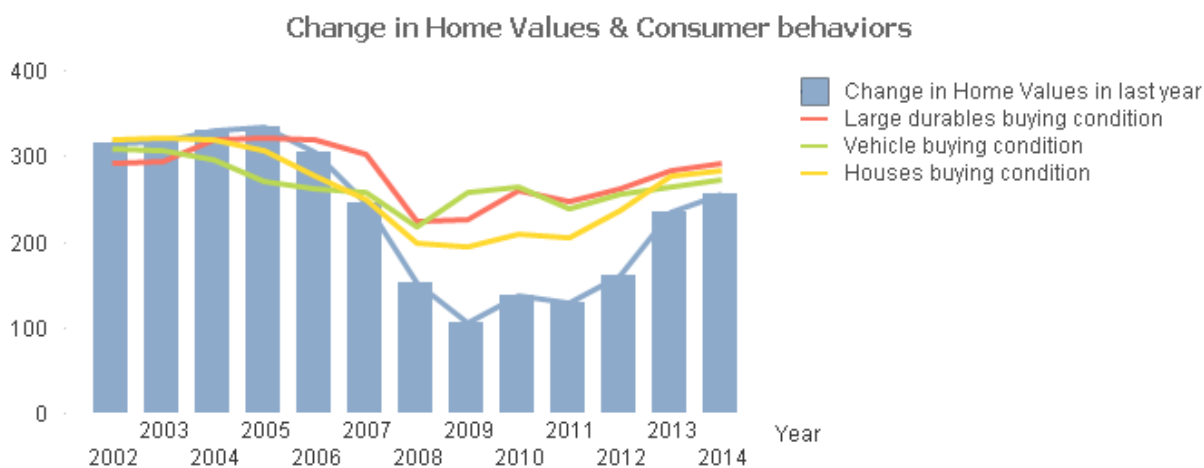


Figure 7: Correlation between stock investment and buying conditions for durables, 2002-2014 - Ziyue Zhong



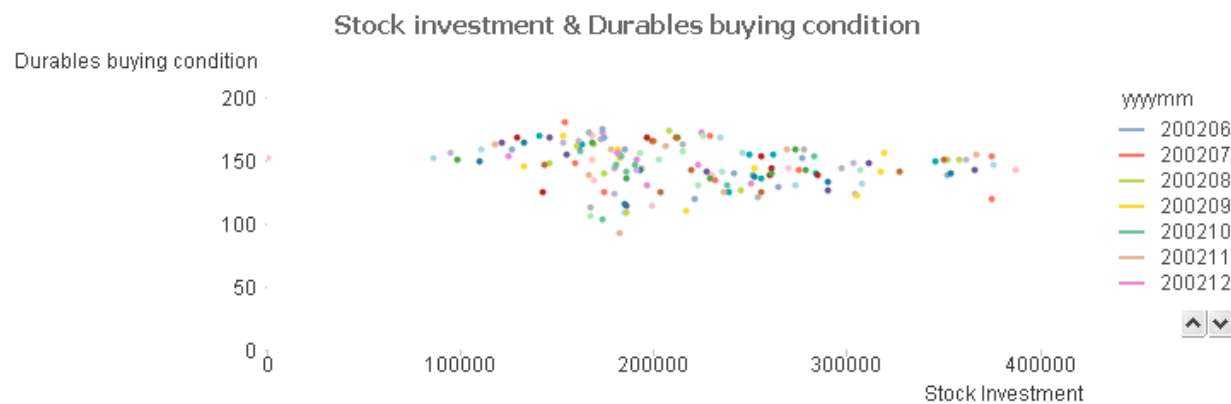


Figure 8: Correlation between stock investment and buying conditions for houses,

2002-2014 - Ziyue Zhong

