Gentrification And Mobile Traffic

Traffic and Quality of Residential Life

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Abstract

The paper aims to study the impact of the gentrification on the mobile traffic and people’s living standards. In order to do this, based on the data from the census tract, we would combine five tracts into one zone, investigate three zones, collect the data of the time it takes for an automobile to cover a certain distance in the designed routes, and conduct a survey to assess the influence of mobile traffic on their quality of lives. Using these data and analysis strategies that fluctuation in the amount of mobile traffic has a significant impact on people’s lives. This can further suggest whether each group of people is influenced equally by the changing amount of traffic.

Background & significance

In this essay we are concerned with gentrification’s impact on mobile traffic in Harlem since the mobile traffic of the area may relate to people’s quality of life. Also, the different groups of people may be influenced in different ways, and we will explore further in our design about how these different groups get influenced according to the three conditions about the relationship between level of gentrification and level of mobile traffic listed in the next paragraph.

In order to conduct the research, first we would like to clarify the definition of the two key words: gentrification and mobile traffic. The broad definition of gentrification according to Ralph B. Taylor in 1989 is “the migration of younger, middle, and perhaps upper-income households into centrally located urban neighbors and the accompanying upgrading of the worn-out housing stock that previously had ‘filtered down’ to lower-income occupants.” To be more precise and for the further study of the relationship between gentrification, we define gentrification as the process where
a neighborhood’s residents have steadily higher median income over time. We divide gentrification into three parts, the most gentrified area, less gentrified area and least gentrified area. We would like to classify the three stages based on the income and level of residents in the neighborhood. People in more gentrified areas have higher income, and vice-versa. We define mobile traffic as the traffic that caused solely by cars.

There are three conditions that may be possible according to our proposition:

Condition A: As the area becomes more gentrified, the amount of mobile traffic decreases. If that is the case: Firstly, people will spend less time on their travels which means they will have more time spending on other issues. Secondly, air pollution will be alleviated and the chance of people getting respiratory diseases will decrease. Last but not least, the government may indeed support the process of gentrification.

Condition B: As the area becomes more gentrified, the amount of mobile traffic increases. If that is the case: Firstly, people will spend more time on their travels which means they will have less time spending on other issues. They have less freedom over their time. Secondly, air pollution will be aggravated and may be detrimental to people’s respiration system. Last but not least, the government may indeed jeopardize on the process of gentrification.

Condition C: As the area becomes more gentrified, the automobile traffic remains on the same level. If that is the case, the traffic would not be one of the factors that contribute to the change of quality of people’s lives before and after gentrification. In that case, the government may not take actions because of the mobile traffic impact.
Gentrification brings to the neighborhood, and gentrification may keep taking place in the area.

As the conditions listed above, we can see a close relationship between mobile traffic and people’s quality of life which proves the value of the research we are about to conduct.

**Design**

1. Variables (More would be clarified in part A, B, and C)
   - **X** (independent variable) gentrification
   - **Y** (dependent variable) the amount of mobile traffic
   - The quality of residents’ lives
   - Confounder (other factors that lead to a heavier traffic):
     - sudden weather changes
     - car accidents

2. Indicator variables (More will be clarified in Part A, B and C)
   - Indicators of gentrification: the average income we obtained from Part A
   - Indicator of the amount of mobile traffic: the time it takes for a car to cover a certain distance at a particular time of the day
   - Indicator of the quality of life: people’s responses to the interview questions

3. Direction/hypothesis
In this paper we are mainly talking about the relationship between gentrification and mobile traffic. In order to show the research’s significance, we will relate it to the quality of life within the area.

Look at the first graph. We assume that the mobile traffic level will go up as the area develops from a pre-gentrified area (G1) to the gentrifying area, and at some point (G2) the mobile traffic level will go down as the area become highly gentrified (G3); the neighborhood would get organized and settled while the poor already get pushed out, so the number of people living in the area will go down.

Moving on to the second graph. We assume that the quality of lives will go down as the area developing from a pre-gentrified area (G1) to the gentrifying area, and at some point (G2) the quality of people’s lives will go up as the area become highly gentrified (G3).

4. Techniques/steps

Part A
Observation of levels of gentrification

We observed the neighborhood. We consider the parts with fancier buildings and better street conditions are more gentrified. In order to confirm this, we will use the information from the U.S. national census in 2000 and 2010 to obtain information about the median household income of each census tract in Harlem. Using two census allow us to evaluate the changes in income over time.

We will create three zones based on the data in the U.S. census to model different stages of gentrification. Each zone consists of five adjacent census tracts. Based on our observations, we will make sure that the zones have similar road conditions because some difference in traffic might be only caused by the difference in the number of lanes. We can calculate the median household of each zone based on the median household income of each census tract.

According to our definition of gentrification, the higher the income, the more gentrified the area is. The zone with the highest income is the most gentrified area, zone 1; The area with the lower income is the less gentrified area, zone 2; The area with the lowest income is the least gentrified area, zone 3;

Part B

Observation of the indicator of the amount of mobile traffic

Steps:

1. Design a route in zone one for the car to drive through. Record the distance, the number of traffic lights and lanes.
2. Start driving through the route on a non-rainy day at 8:00AM. Ask the driver to record the time when he finishes. Do one trial each day until there are three trials. Calculate the time for each trial, and calculate the average time of the three trials.

3. Repeat step 2 for zone one at 12:00PM and 5:00PM

4. Repeat steps 1 and 2 for zone two and zone three. Make sure the distance, the number of traffic lights and lanes are the same for all three zones.

- Note: If there are car accidents or sudden weather changes during trials in steps 2,3 and 4, that trial will not be used for data collections and will be replaced by another trial completed under normal conditions.

- Analysis:

  Compare the average time obtained in steps 2,3,4 and 5. The longer the time, the more mobile traffic there is. If the time is longer in more gentrified area, we can prove that gentrification increases the amount of traffic. Since we found neighborhoods that are in different stages of gentrification, we will be able to determine how does gentrification relate to traffic by recording the time.

  This experiment can also show how gentrification affects mobile traffic at various times during a day, which might tell us some possible sources of the traffic. The different sources of traffic could reflect the social conditions in different neighborhoods. The difference between each neighborhood may be caused by gentrification. For example, if there is a big disparity between the amount of traffic during rush hours and normal hours in a little-gentrified neighborhood, we might speculate that there are many commuters, and that poorer people have tighter
schedules. Doing multiple trials at different times of a day is a method to reduce the amount of error.

Part C:

We will do a survey to investigate the effect of mobile traffic on residents’ quality of lives. Since the quality of life can be affected by numerous factors, we have to stay specific.

We tend to find out the satisfaction of citizens that may influence by the traffic. The time they spend on transportation, the environment they are living in, and their attitude towards the condition above are the aspects we want to investigate. People's opinion towards different neighborhood help our group to understand the common ideas of gentrification in Harlem.

Different categories of people, students, white-collars, blue-collars and business owners, will be the main focus of our interview in order to evaluate the effect of automobile traffic on people from different communities. We hope make inferences about whether various groups of people are affected equally by mobile traffic. For example, poor people might be less affected because they cannot afford cars.

Below is our survey:

**The neighborhood’s life of Harlem**

**Residents survey**

1. Which category do you belong to?

   1) students  2) white-collars  3) blue-collars  4) unemployed  5) others
2. If you are unemployed, why is that?

3. Which type of transportation do you primarily use to work/ to school on weekdays?

   1) private cars  2) buses  3) Subway  4) By foot  5) Bikes  6) Others

4. Have your traveling time to work increased/ decreased/ stay the same over time?

   1) increased       2) stay the same       3) decreased

5. How do the changes in the air quality in your neighborhood affect your life?

   1) strongly positively affected my life  2) positively affected my life  3) not affected my life at all/no noticeable changes  4) negatively affected my life  5) strongly negatively affected my life

6. How you ever been bothered by the noises in your neighborhood?___________

   Where does the sound primarily come from?__________________

7. How do the changes in the sound pollution in your neighborhood affect your life?

   1) strongly positively affected my life  2) positively affected my life  3) not affected my life at all  4) negatively affected my life  5) strongly negatively affected my life.

8. Overall, how did the changing natural environment affect your lives mood?

We will follow the steps below to implement the survey:

1. We will walk around in zone 1, which is the highly-gentrified area, on a Sunday afternoon to ask someone walking on the streets to respond to this survey. This is to
make sure people have enough time to respond and increase the success rate. We will first ask them if they have one minute for a short survey.

2. We will stop after we got five students, five white-collars, five blue-collars, and five business owners responded.

3. Repeat step 1 and 2 for four other Sundays. Therefore, there will be 100 respondents in total.

4. Repeat step 1, 2 and 3 for zone 2 and zone 3.

Discussion and conclusion

There are some weak points in our research.

- For data collection on the car, to make the driver stay consistent is one challenge. For example, the driver might unconsciously drive faster on one day but slower on another. The speed that affected by the mood of the driver will not be able to control by us. This is significant because the speed may affect the time that the car passing the street; the data directly affect to our analysis and final result.

- There could be unpredictable events occurring on streets that are closely related to data collection. For instance, marches and protests that led by residents frequently take places in Harlem. These issues do not simply fall into the category of accidents and may be inevitable. It could undoubtedly affect our data collection.

- Despite the fact that we asked specifically about the impact of traffic on quality of lives, the respondents to the survey in Part C may unconsciously take other factors into consideration. Mood is one of those factors. For example, a respondent who
received a promotion before the survey is less likely to emphasize the negatively
effects of mobile traffic than a respondent who is criticized by his boss.

- The other weak point in our design part is that the standard value of answer choice
for our survey’s questions is not clear. The distance between options (strongly
positively affected and positively affected) are difficult to standardize. It is also a
challenge because the value (distance) between each choice varies from person to
person. We have to assume the distance between each option is the same, However,
this problem may also affect the accuracy of our collected data.

Reference :
August 13, 2015. (http://sites.duke.edu/urbaneconomics/?p=1092)

(http://www.nytimes.com/2010/01/06/nyregion/06harlem.html)