



Presentation Series – UCD-ITS-PS-15-01

Lifestyles, Residential Location, Adoption of Emerging Technologies of Social Networks, Car Ownership and Mobility Choices of Millennials

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Mobility of Millennials in California

Interest in better understanding the relationships among *residential location, lifestyles, adoption of technology, the use of social networks, and mobility-related choices* of young adults, and in particular:

- The relationships among millennials' attitudes/lifestyles and actual behaviors (*do they behave differently from other generations?*)



(1)



(2)

(1) Seven tips for attracting Millennials, 2012, merchandisingmatters.com

(2) Martinmark, Golden gate bridge, 2014, stockfreeimages.com

Mobility of Millennials in California

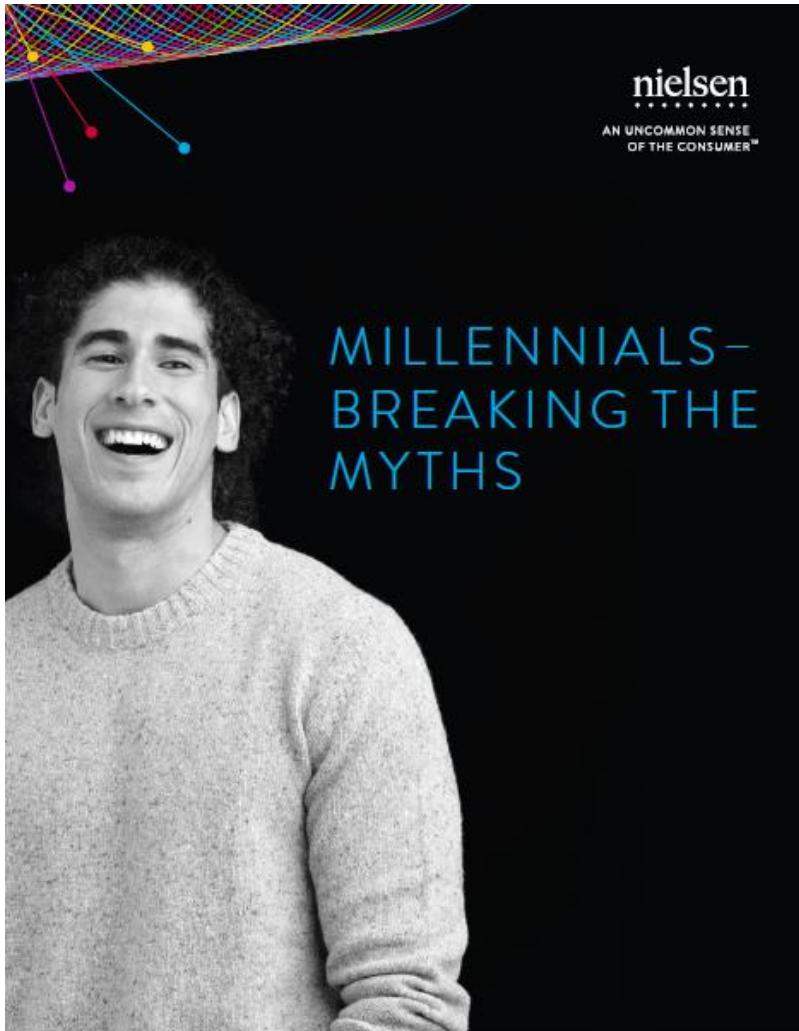
- Impact of *classical* (economic and non-economic) variables vs. *specific factors affecting the choices of millennials* (e.g. personal attitudes, adoption of technology, peers' influence, etc.)
- Their *aspirations for/opinions about life and future mobility* (e.g. major life changes, purchase and use of cars vs. use of other modes)



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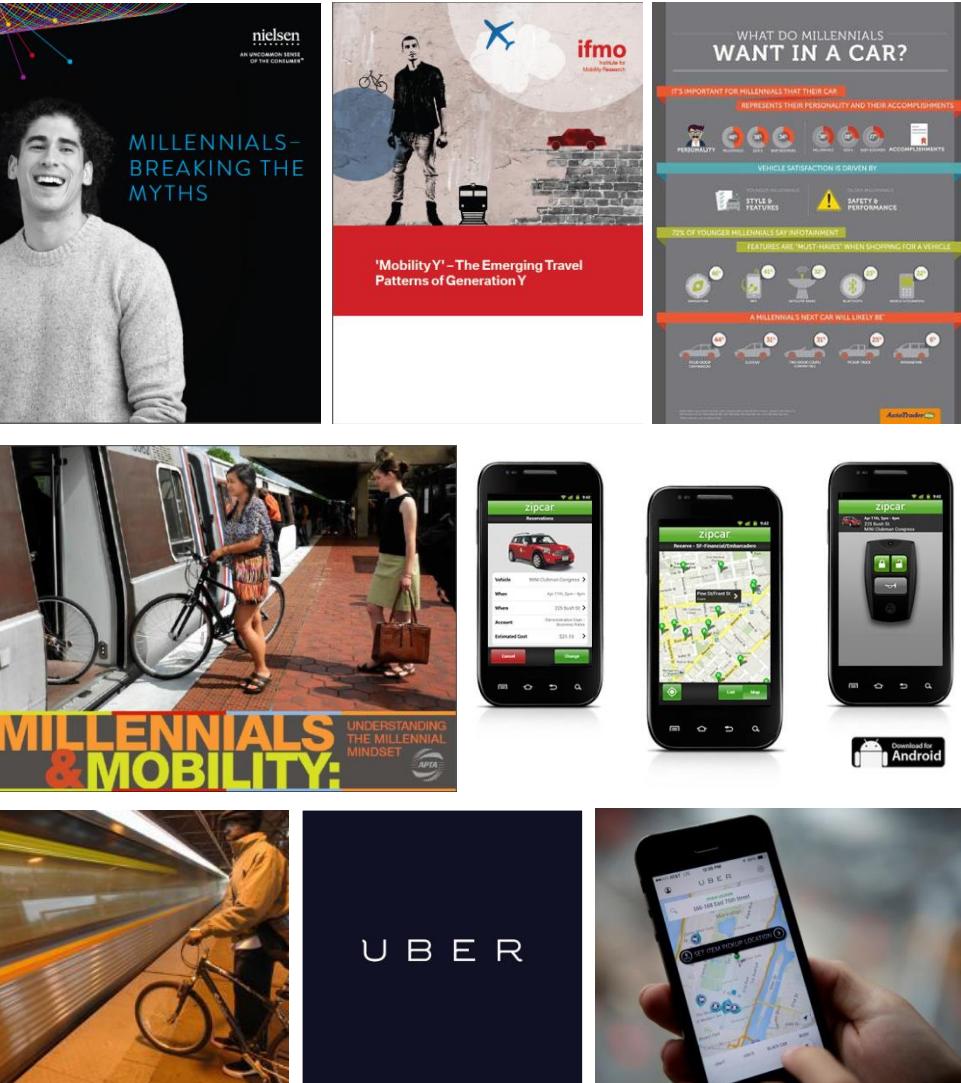
“Millennials” (or “Generation Y”)

- Rapidly changing trends in:
 - Household size
 - Educational attainment
 - Economic influence / consumption
- Very *active segment* of the population
- Increasing economic power (and *still climbing the income ladder*)
- “*Diverse, Expressive and Optimistic*”



“Millennials” (or “Generation Y”)

- Millennials often described as *heavy adopters of technology* and *social media*
- Less dependent on cars, and adaptable to the *sharing economy*
- Often prefer *urban locations* and *social lifestyles* (at least *in some regions*)
- The focus is mainly on *urban population...*



Potential Factors Affecting the Mobility of Millennials

| <u>Economic</u> | <u>Auto Costs</u> | <u>Technology</u> | <u>Demographic Change</u> |
|---|---|--|---|
| <ul style="list-style-type: none"> • Recession • Unemployment  | <ul style="list-style-type: none"> • Gasoline • Auto insurance • Driver's education • Auto repairs • Other fees | <ul style="list-style-type: none"> • Communication technology • Transportation technology (Über) | <ul style="list-style-type: none"> • Delayed marriage • Fewer children • Boomerang  |
| <u>Residential Location</u> <ul style="list-style-type: none"> • More likely to move to and live in cities | <u>Cultural</u> <ul style="list-style-type: none"> • Environmentalists • Less materialistic  | <u>Regulatory Changes</u> <ul style="list-style-type: none"> • Graduated Driver's Licensing • Texting while driving laws | <u>Alternative Modes</u> <ul style="list-style-type: none"> • Better transit • Improved infrastructure for walking/biking |

Common Limitations of Previous Studies

Lack of information on key variables:

- e.g. *personal attitudes and preferences* for studies based on the analysis of National Household Travel Survey data

Use of non-random samples:

- e.g. *convenience samples* for studies on university students

California Millennial Study

- Statewide study in California
- Design of a detailed survey to collect information from millennials
- Survey distributed through multiple channels, including an opinion panel to build a sample representative of California's population
- Sample includes Millennials and Generation X



Survey Content

Focus on:

- A. *Individual Attitudes and Preferences (general, environmental, technology, lifestyles, etc.)*
- B. *Online Social Media and Adoption of Technology*
- C. *Residential Location and Living Arrangements*
- D. *Employment and Work/Study Activities*
- E. *Transportation Mode Perceptions*
- F. *Current Travel Behavior*
- G. *Emerging Transp. Services (e.g. car-sharing, Uber, Lyft, etc.)*
- H. *Driver's License and Vehicle Ownership*
- I. *Previous Travel Behavior and Residential Location*
- J. *Aspirations for/Opinions about Future Mobility*
- K. *Sociodemographic Traits*

Individual Attitudes and Preferences



Section A: Your Opinions on Various Topics

To begin, we'd like to learn more about your opinions on various issues related to transportation, residential location and lifestyles. This will give us a more complete context for understanding your answers to later questions. We want your honest opinion on each statement contained in the next three tables (or your best guess, for topics you are not very familiar with) – **there are no “right” or “wrong” answers in this survey!**

Please choose the response that most closely fits your reaction to each of the following statements.

(1 of 3) Your opinions and preferences about personal lifestyles and residential location

| | <i>Strongly Disagree</i> | <i>Disagree</i> | <i>Neutral</i> | <i>Agree</i> | <i>Strongly Agree</i> |
|---|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I prefer to live close to transit, even if it means I'll have a smaller home and live in a more crowded area. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Getting regular exercise is very important to me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I like sticking to a routine. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I prefer to live in a spacious home, even if it is farther from public transportation and most destinations. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Individuals should generally put the needs of the group ahead of their own. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Doing two or more activities at the same time is the most efficient way to use my time. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I like the idea of having different types of businesses (such as stores, offices, post office, bank, library) mixed in with the homes in my neighborhood. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The importance of exercise is overrated. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Living Arrangements

Who lives with you?

PLEASE SELECT ALL THAT APPLY:

- Partner/husband/wife
- Child(ren) or grandchild(ren)
- Parent(s) or grandparent(s)
- One or more siblings
- Some other relative(s)
- One or more roommates/housemates
- I live alone
- Other (please specify):

Information is collected about residential location and living arrangements...

Social Networks and Adoption of Technology

On average, **how often** do you use each of the following?

| | <i>I have never heard of it</i> | <i>I have heard of it but never use it</i> | <i>I use it less than once a month</i> | <i>I use it at least once a month</i> |
|-------------------------|---------------------------------|--|--|---------------------------------------|
| Facebook | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Twitter | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Instagram | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Google+ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| LinkedIn | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reddit | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other (please specify): | <input type="text"/> | | | |

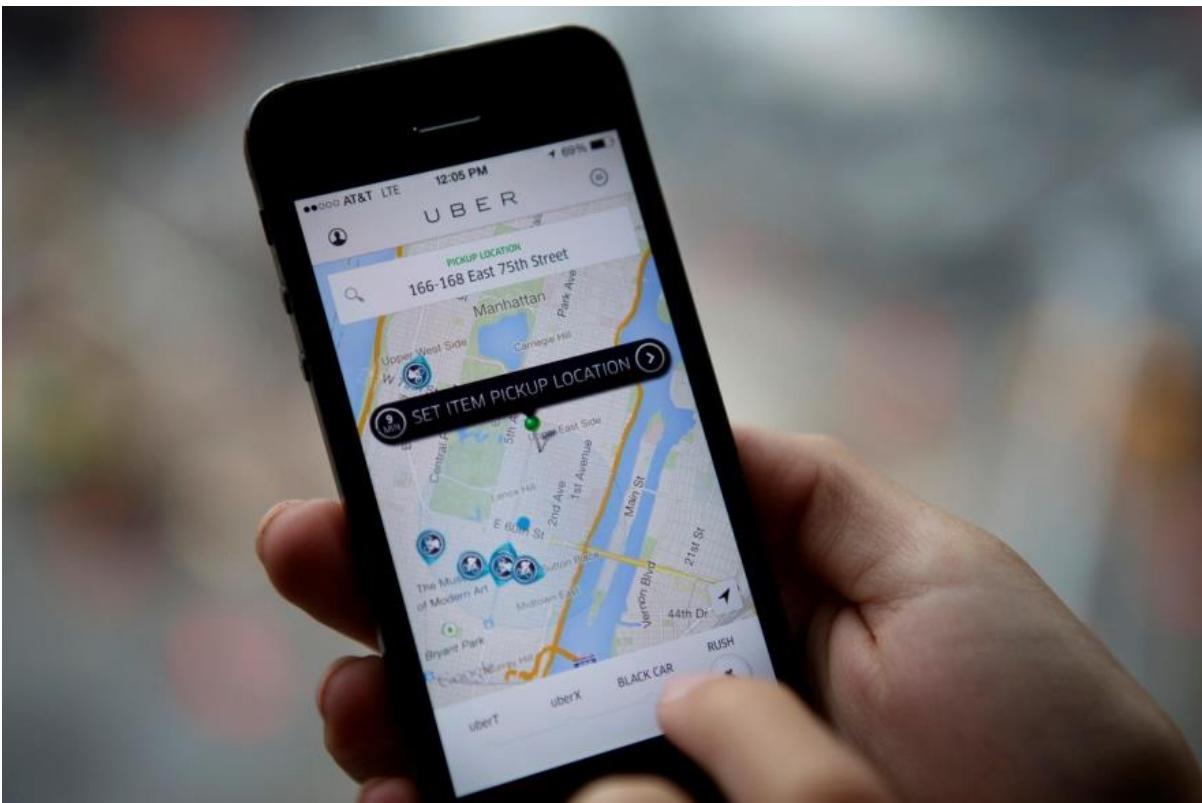
- I have never heard of it
- I have heard of it but never use it
- I use it ...**less than once a month**
 - ...at least **once a month**
 - ...at least **once a week**
 - ...**every day**
 - ...**multiple times per day**

Impact of Emerging Technologies

- Smartphones (GPS, access to more info)
- Integrated ride-sharing / mobility
- Increasing opportunities to multitask
- Lower levels of car-ownership
- Extend range of public transportation-mobility



Car Ownership vs. Shared Mobility



Car Ownership vs. Shared Mobility



Section G: Emerging Transportation Services

We are interested in your *familiarity* with and *usage* of the following *transportation programs*. Please check the single most appropriate answer for each program below:

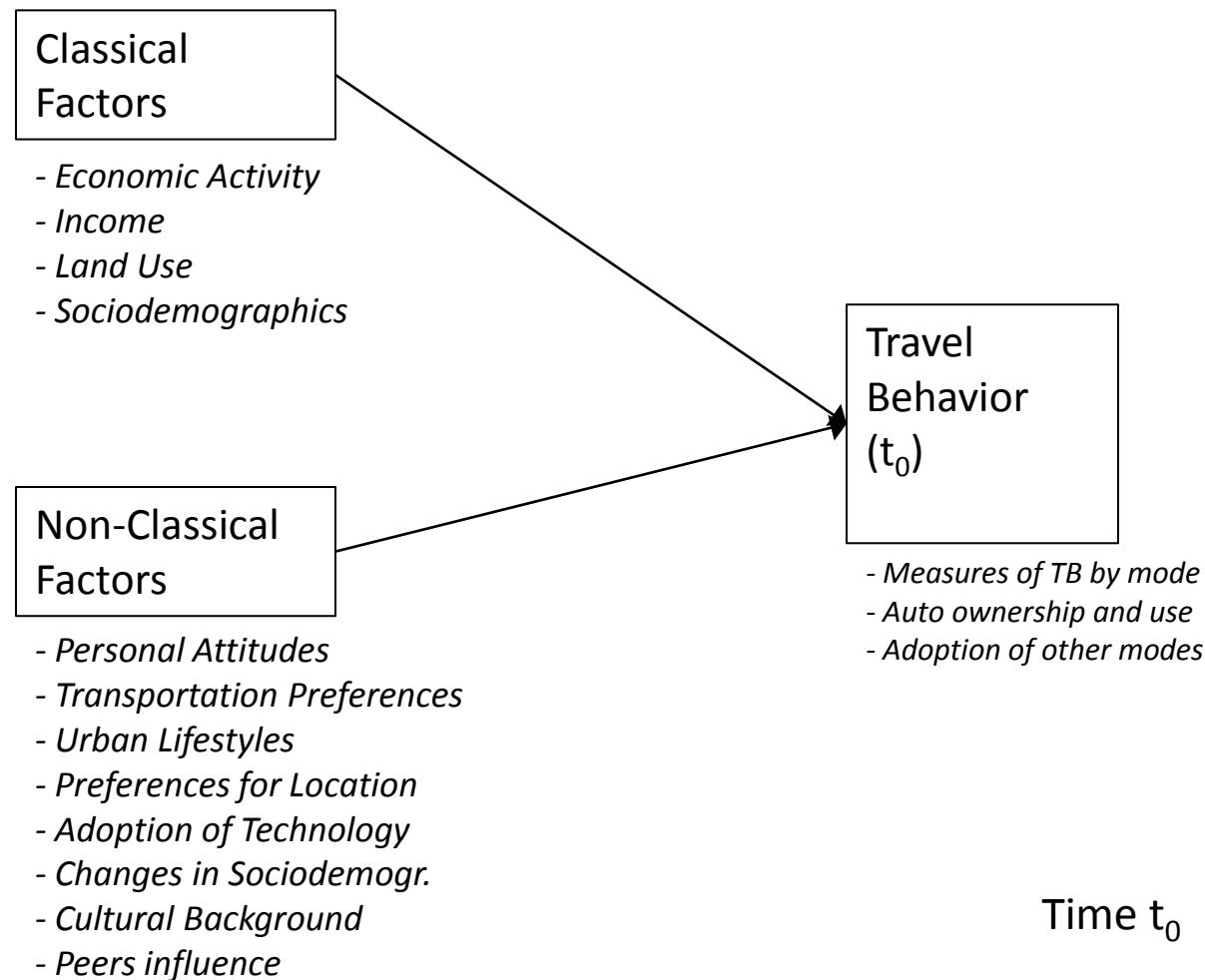
| | <i>I have never heard of it</i> | <i>I have heard of it but I've never used it.</i> | <i>I use it when traveling away from home</i> | <i>I use it in my hometown/city</i> | <i>I use it in my hometown/city AND when traveling away from home</i> |
|---|---------------------------------|---|---|-------------------------------------|---|
| Carsharing (e.g. Zipcar, City CarShare) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Peer-to-peer carsharing (e.g. Relay Rides, FlightCar) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ridesharing (e.g. Uber, Lyft) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bikesharing (e.g. Bay Area bike share) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Major life events

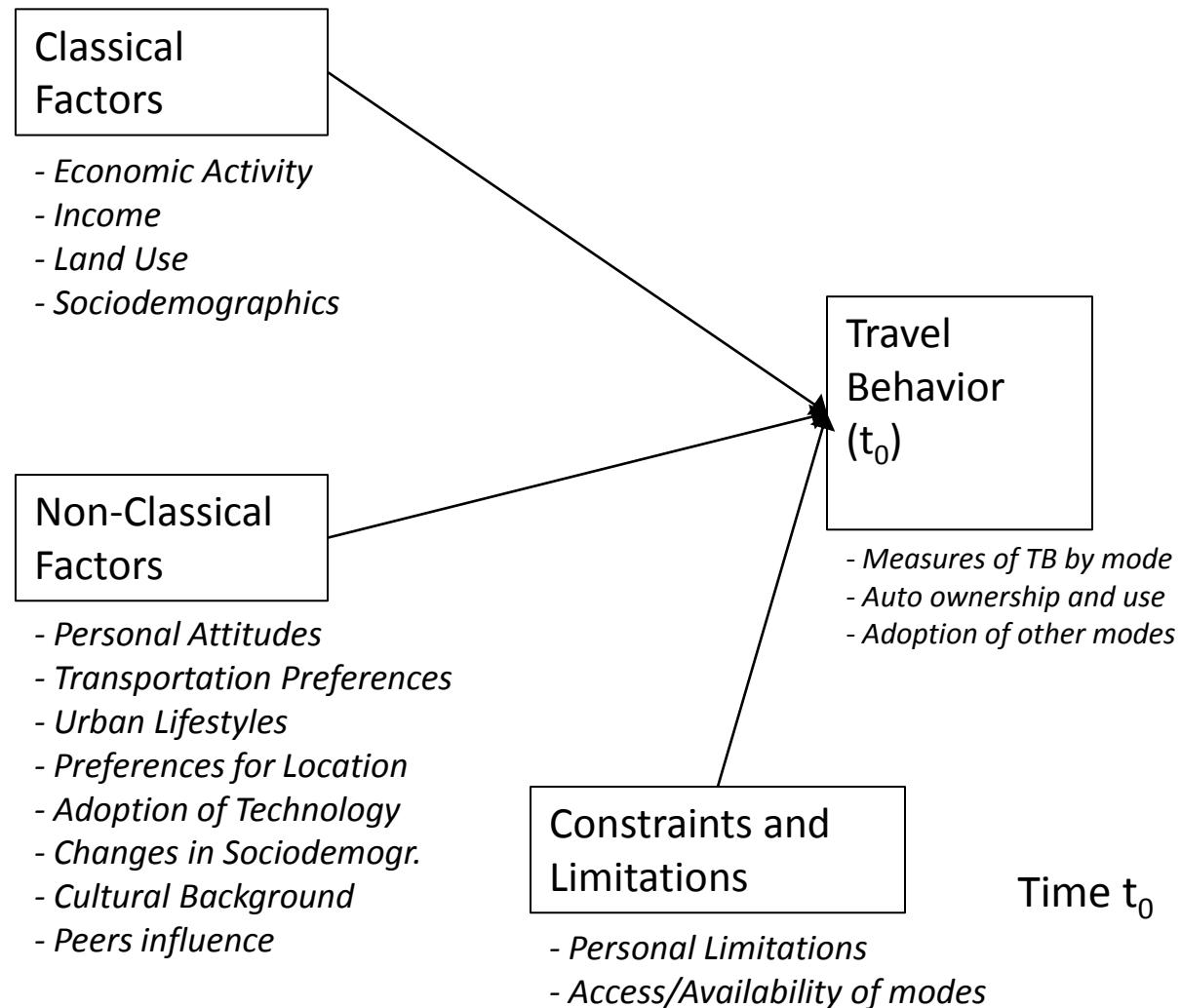
In the last three years...

| | Yes, this happened in the last three years | NO, this has not happened during the last three years |
|---|--|---|
| I moved to the city | | |
| I moved to the suburbs | | |
| I moved to another city, state, or country | | |
| I bought a home | | |
| I sold my home | | |
| I started to study, or moved to a new school/university (e.g. undergraduate/graduate program) | | |
| I completed my studies | | |
| I started a new job/I changed my job | | |
| I lost my job | | |
| I left/retired from my previous job | | |
| Entered into a serious romantic relationship | | |
| I got married | | |
| I got separated/divorced/widowed | | |
| I had/adopted (a) child(ren) | | |
| I moved out of my family's (e.g. parents') or friends' place | | |
| I moved in with some family members (e.g. parents, siblings) or friends | | |
| I moved in with my partner/significant other | | |
| Some members of my household moved out (e.g. "children left the nest", a relative passed away, etc.) | | |
| Some members of my household moved in with me (e.g. children or other relatives moved in with me, etc.) | | |
| Other (please specify): _____ | | |

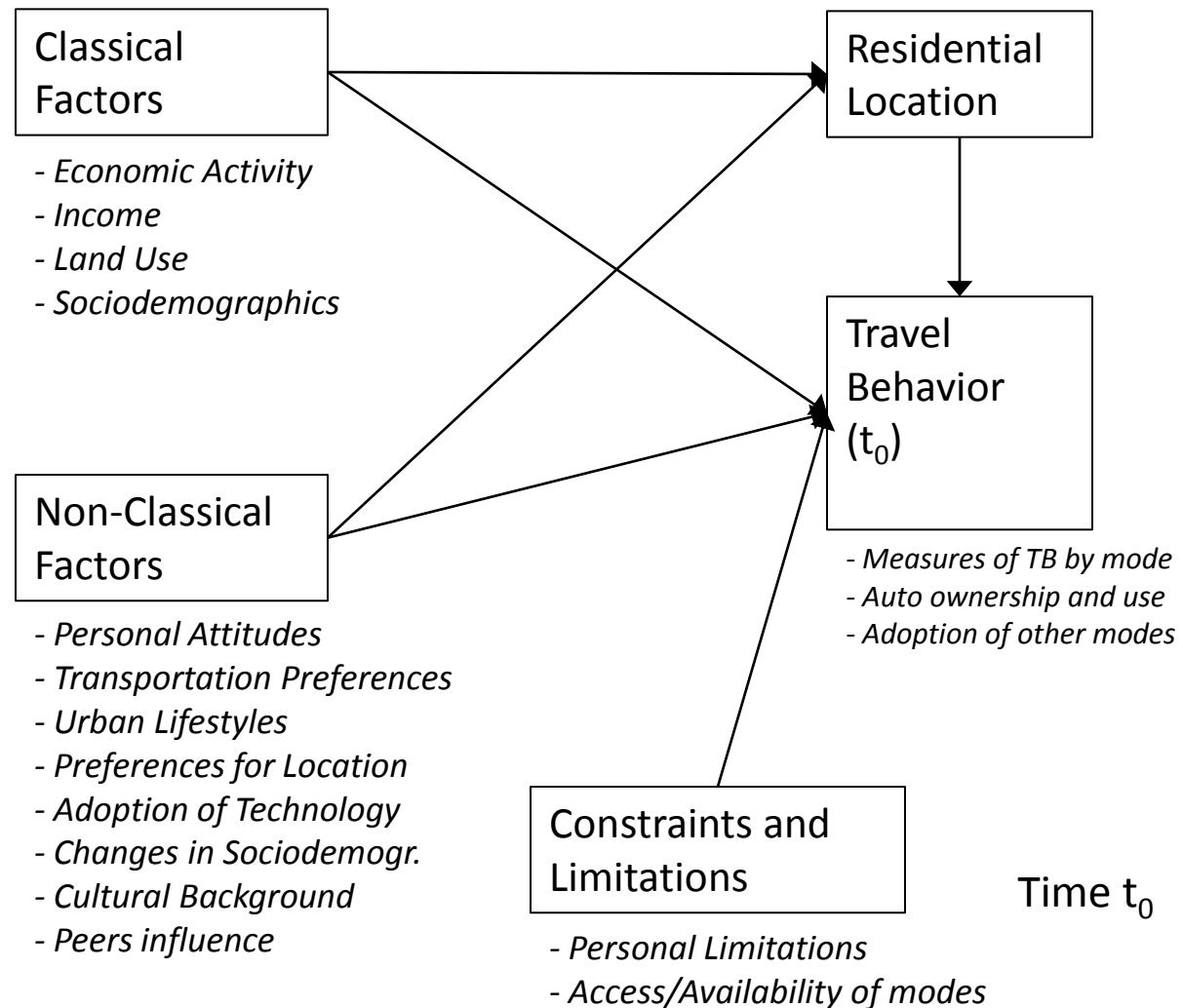
Behavioral Framework



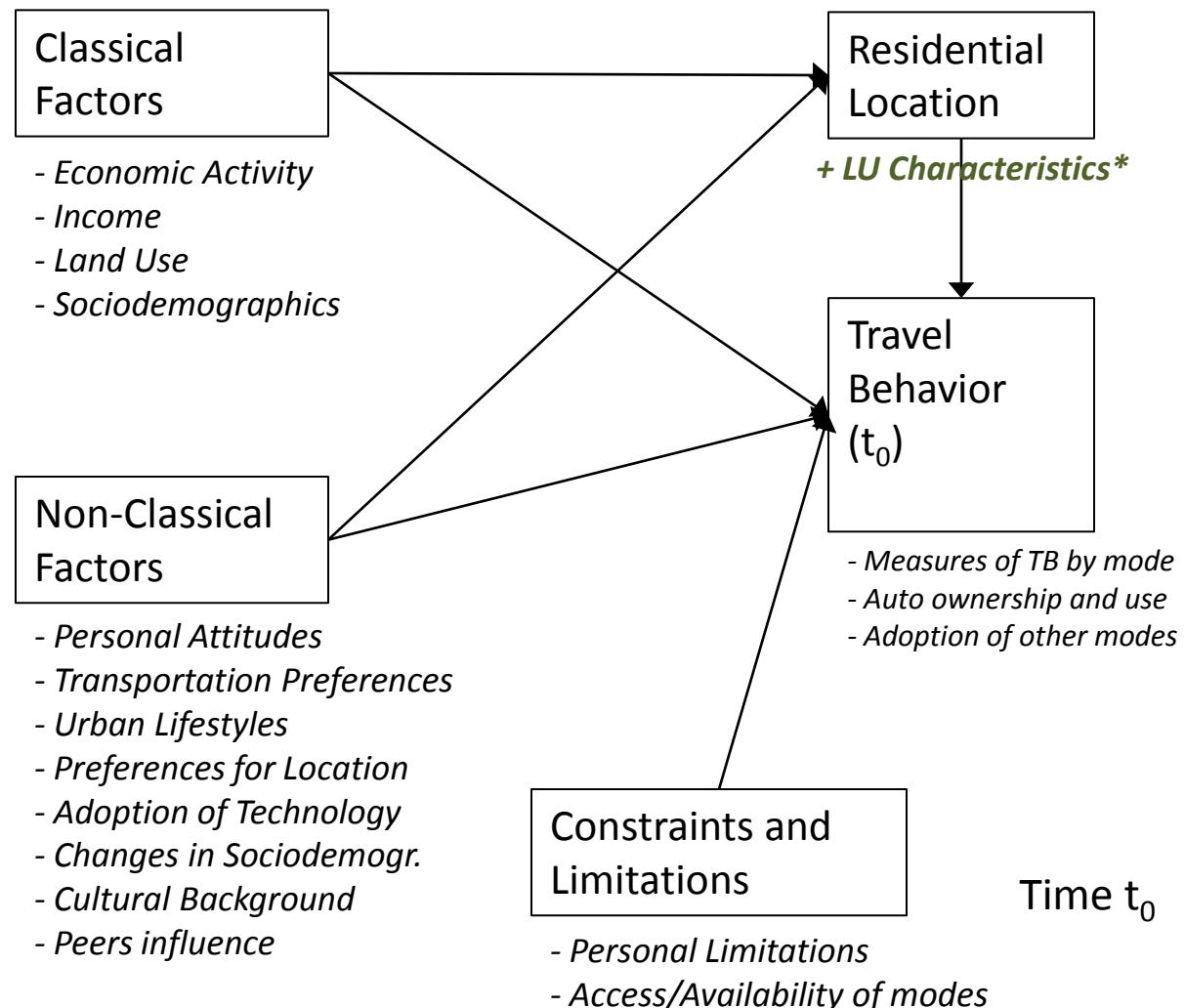
Behavioral Framework



Behavioral Framework

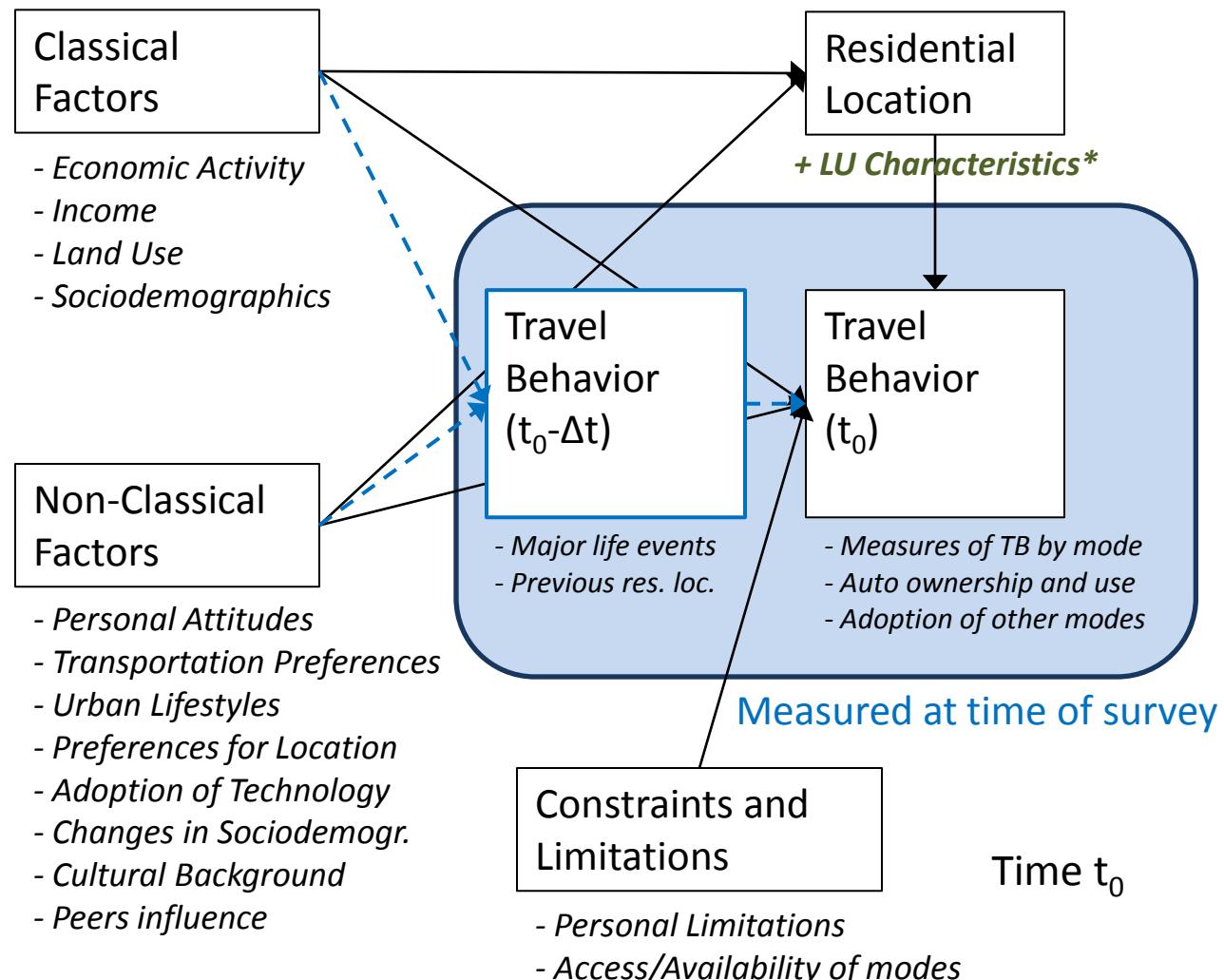


Behavioral Framework



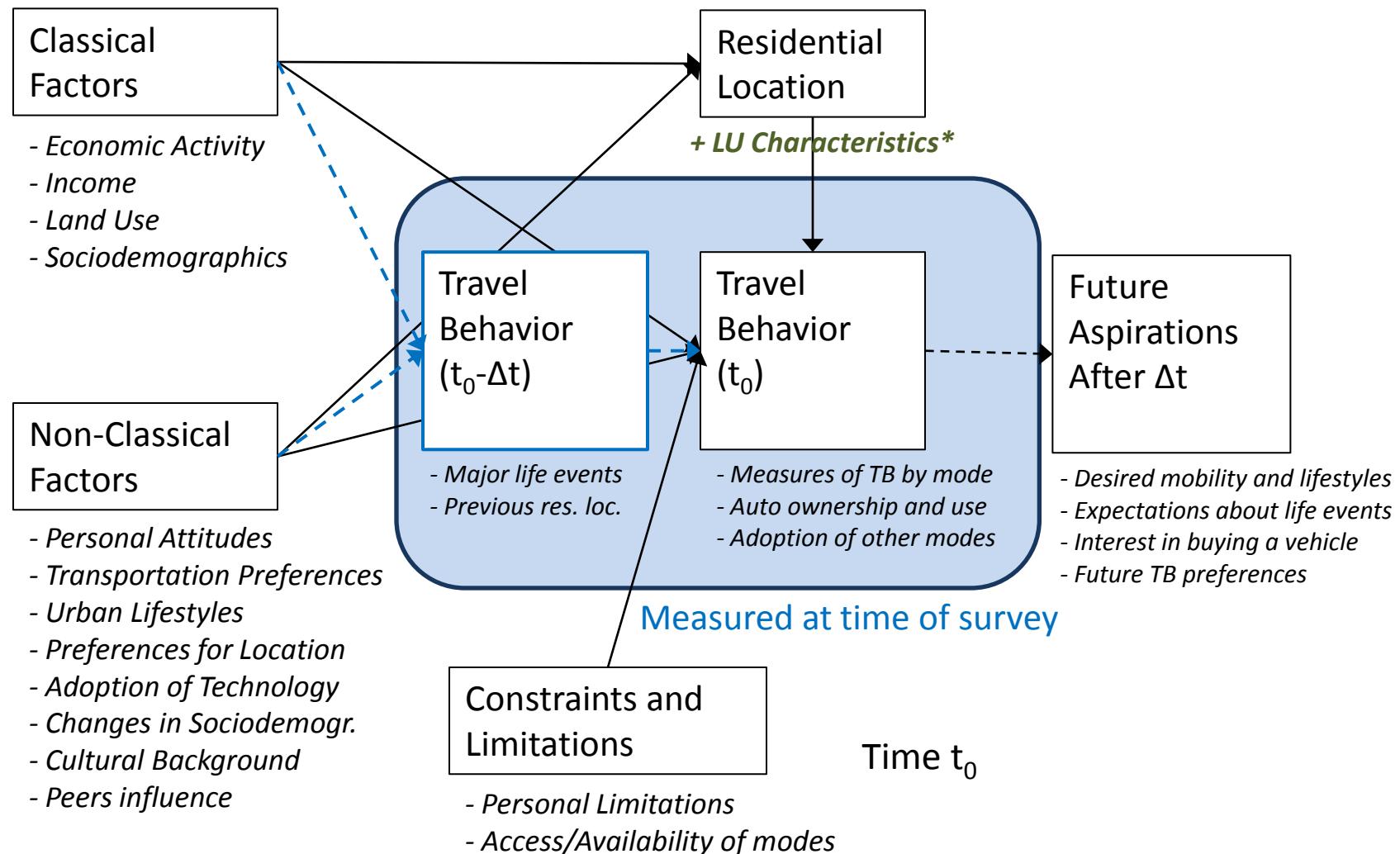
*Measured with external data (e.g. US EPA Smart Location data), after geocoding of residence (X, Y)

Behavioral Framework

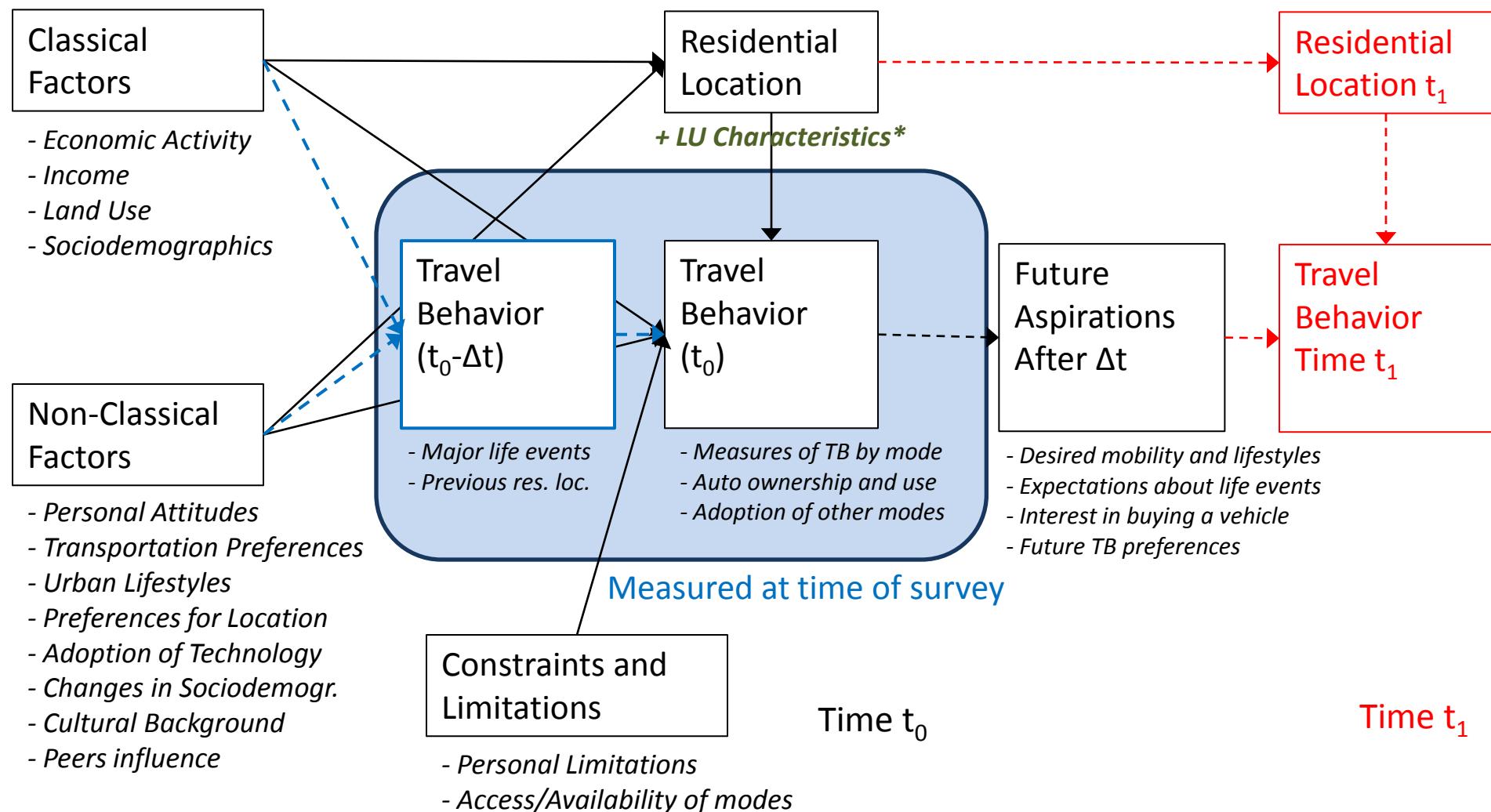


*Measured with external data (e.g. US EPA Smart Location data), after geocoding of residence (X, Y)

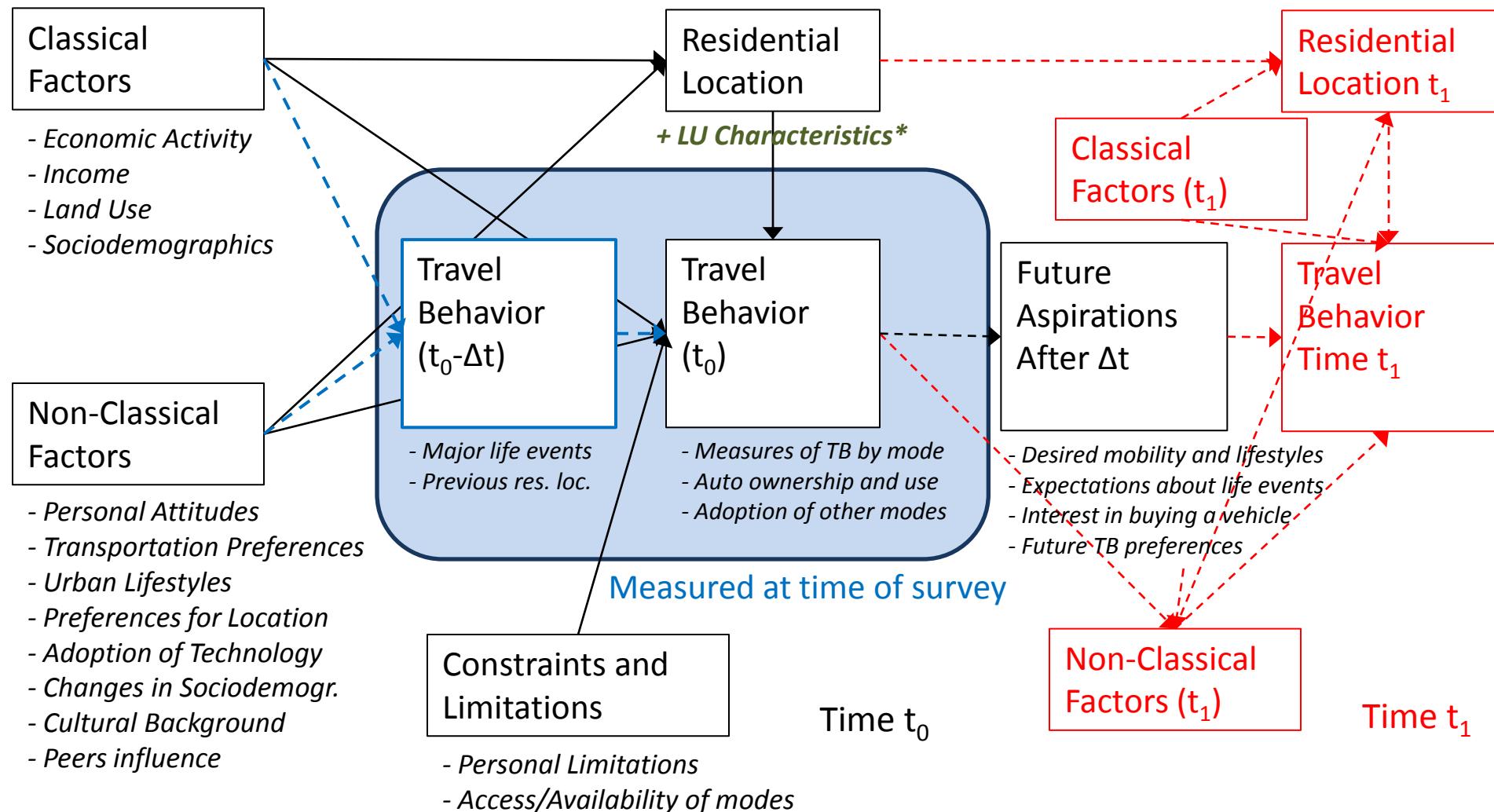
Behavioral Framework



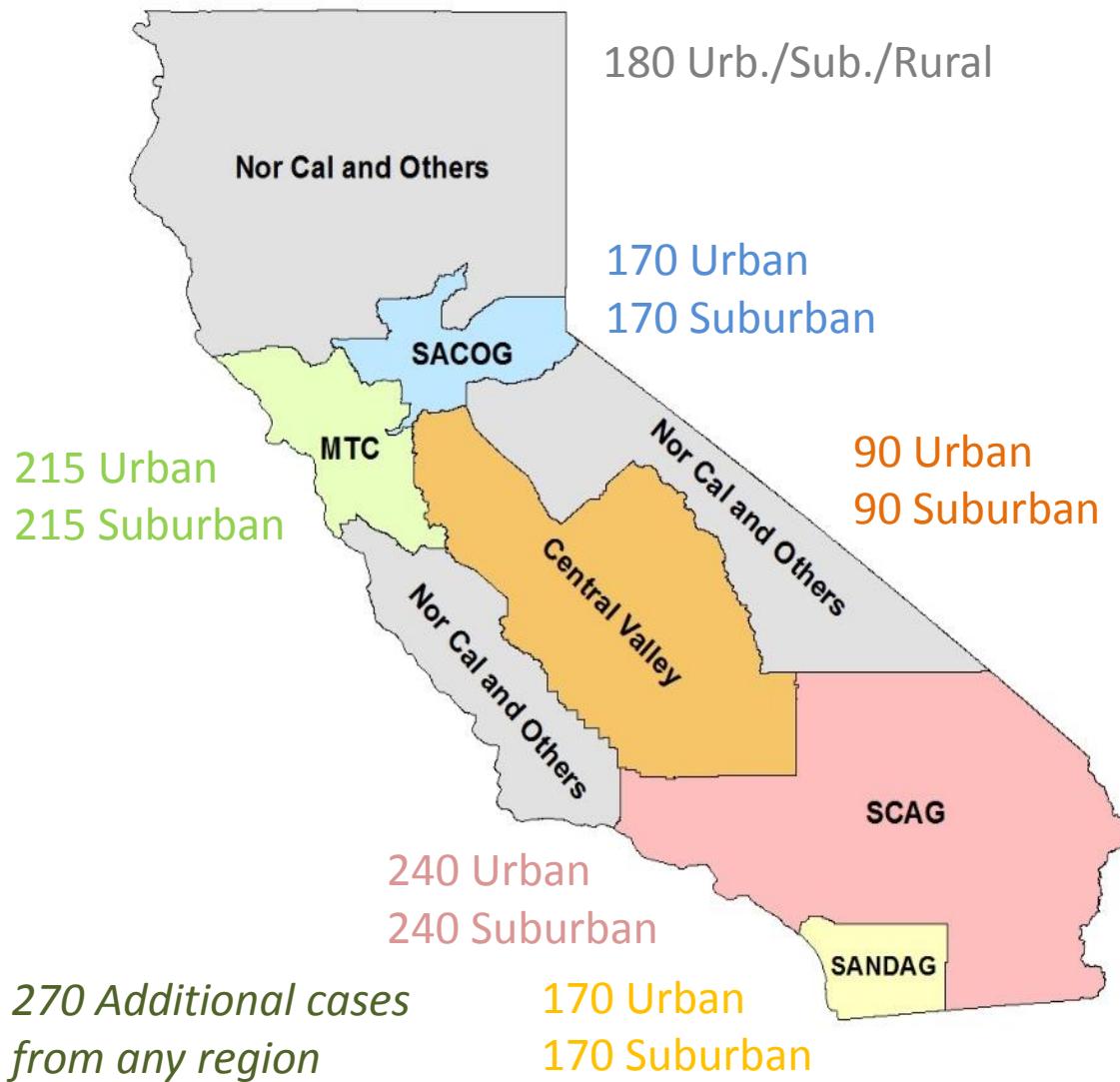
Behavioral Framework



Behavioral Framework



California Millennial Dataset



+210 Rural (All California)

Sample representative of California population for:

- Age
- Gender
- Income
- Race and Ethnicity
- Presence of Children (Y/N)

1400 Millennials
1000 "Gen Xers"

N = 2400 Total sample size

Research Question 1-b

How do *living arrangements* and *geographical location* impact mobility patterns (e.g. use of various transportation modes) of millennials?

What are the *relationships among travel behavior, personal preferences, adoption of technology and residential location* of millennials?

Estimation of frequency models for the use of various means of travel, segmented respectively for millennials and Gen Xers.

- How does location affect millennials' mobility choices?
- What is the impact of the adoption of *on-demand ride services* (Uber/Lyft) on the use of other modes?
- What is the impact of living arrangements vs. personal preferences?

What is the impact of millennials' level of education, income and geographic location?

Research Question 2

Are the dominant trends of millennials' travel permanent or temporary (e.g. effect of a transition in life stages)?

Estimation of a VMT model, which controls for sociodemographics, personal attitudes, lifestyles, and geographic location.

- What is the impact of stage of life (e.g. being married, presence of children) on the travel behavior of millennials?
- What is the impact of personal attitudes and preferences?
- How does the place where somebody grew up affect travel behavior?
- What is the impact of major life events (new job, relocation to city, moving out of parents' place, moving in with partner, etc.)?

Not possible to fully analyze these issues using NHTS, or other currently available travel survey data.

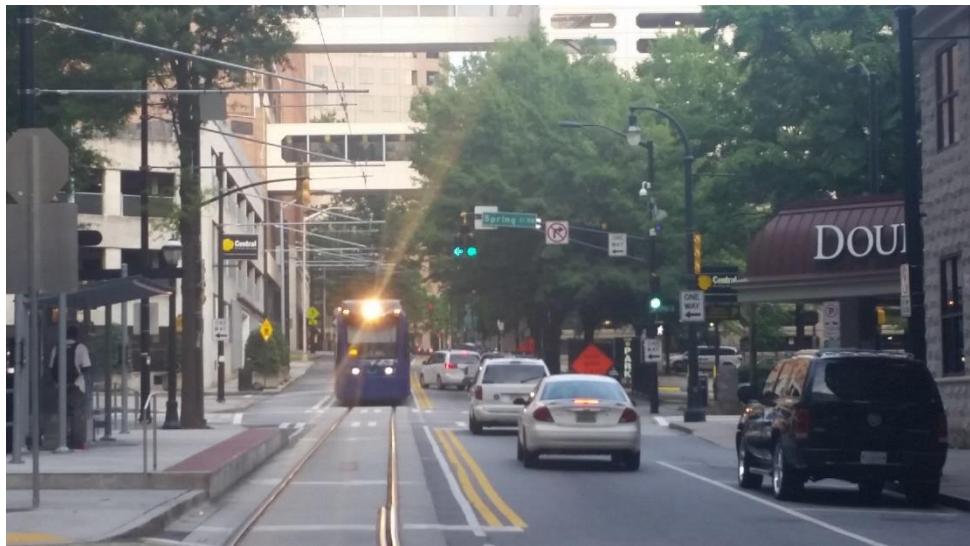
Research Question 3

How many millennials match the stereotype of *urbanite/socialite* common in the media?

Cluster analysis to analyze different profiles of people (socialite/urbanite vs. others)

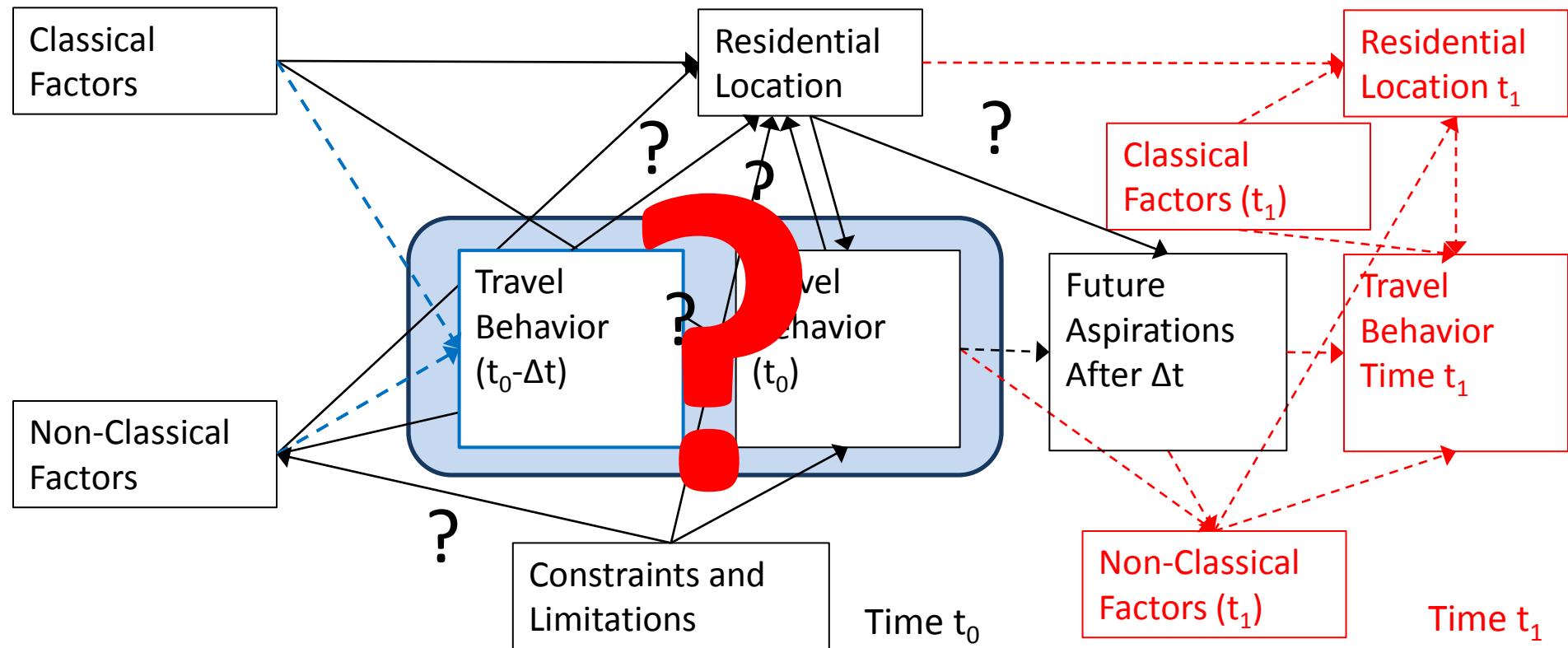
Stereotype common in the media:

- Live in urban areas
- Have dynamic lifestyles
- Heavy users of social media
- Own zero (or few) cars
- Use public transportation
- Adopt new technologies



How many millennials vs. members of older generation fit in this profile?

Research Question 4



Structural Equations Model that explores relationships among attitudes and preferences, residential location, travel behavior, and future aspirations for mobility, etc.

Research Question 5

What are the transportation patterns of the heavy *users of online social media*?

Are young adults active both in the *online social media* and *in-person activities* (i.e. stereotype from the media), or is a substitution effect between internet activity and physical travel at work?

What is the role of peers' influence?

Interest in studying the different profiles of users, based on geographic location, living arrangements, social activities, and mobility patterns.

Policy Implications, and Next Steps

- Importance of understanding how millennials make *key decisions* about residential location and mobility:
 - Motivations behind the observed trends
 - Relationships among personal attitudes/lifestyles, activity participation, adoption of technology and mobility choices
 - Expected duration of effects (*permanent vs. temporary* changes in mobility)
- Insights into the *potential response of millennials to policies*, e.g. economic incentives vs. promotion of environmental-friendly choices
- Plan to extend the study to other U.S. States (Georgia, Vermont, in next stage of the research), and to international comparisons

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Thank you for your attention!



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