Rethinking the Future of Alternative Transportation in Light of Millennial Usage

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Presented to TPRAC

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the heartbeat of HAMPTON ROADS TPO

TRANSPORTATION PLANNING ORGANIZATION

Impetus

- Recently Published Reports:

  Millennials use alternative transportation

  "Millennials": born 1982 thru 2000 (age 15-33 today)

- Ensuing Question:

  Given these reports, **should we plan for higher demand** for alternative transportation in the future?

Today

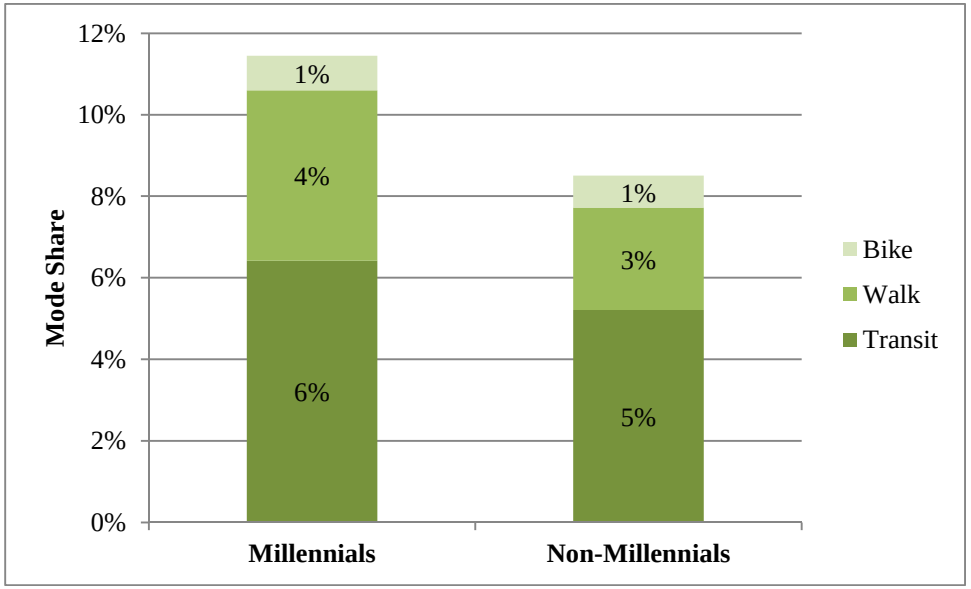
- Initial Finding

  In the U.S., **Millennials** use alternative transportation more than others:

  11% vs. 8%.

- Research Question

  Will usage of alternative transportation **increase proportionately** in the **future**?



Source: HRTPO staff analysis of 2009 NHTS data (PER2PUB- key columns- wrks & others.xlsx)

- Research

  What's causing current difference?

  - Generation? (static)
  - Age? (changes)
  - Income? (changes)

Data

- 1983, 1995, and 2009 National Household Travel Surveys (NHTS)
  - multiple eras needed to separate age and generation
- Coverage: U.S.
  - not enough HR data in pre-2009 surveys
- Records: 170,947 person records
- Modal Statistics:
  - 6% of (working) persons used alternative means to get to work
    - 0.5% biked
    - 2.3% walked
    - 3.5% used public transportation

Multiple Regression Analysis

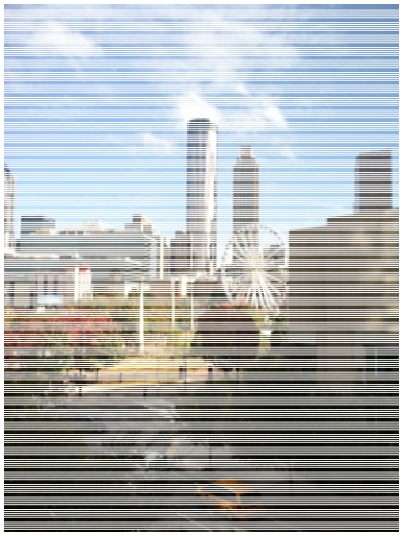
- Performance Measure:
  - usage of **alt trans** (yes:1, no:0)
- Factors related to mode choice:
  - Age
  - Generation
  - Era (multiple eras needed to separate age and generation)
  - Gender
  - Income
  - Location (degree of urbanization)
- Type: **Logistic** (due to performance measure being binary [0,1])

Odds Factors

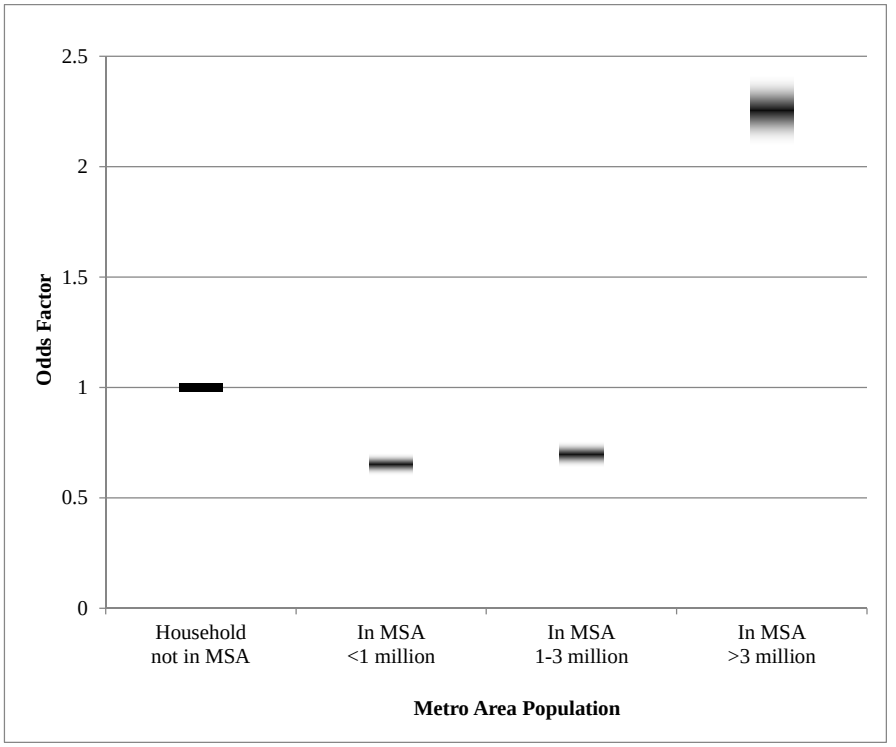
- Usage of alternative trans being binary (0,1), regression results are “odds factors”.
- “Odds”:
  - e.g. 4:1 odds (no:yes) -> 1yes / 5total or 20% chance
- “Odds Factors” increase odds
  - e.g. (4:1 odds) * (odds factor 2.0) -> 4:2 odds or 33% chance

Findings

All other things being equal (income, age, etc.), **living in a large MSA** gives a worker higher odds of using alternative transportation.



Note: Bars show 95% confidence interval.

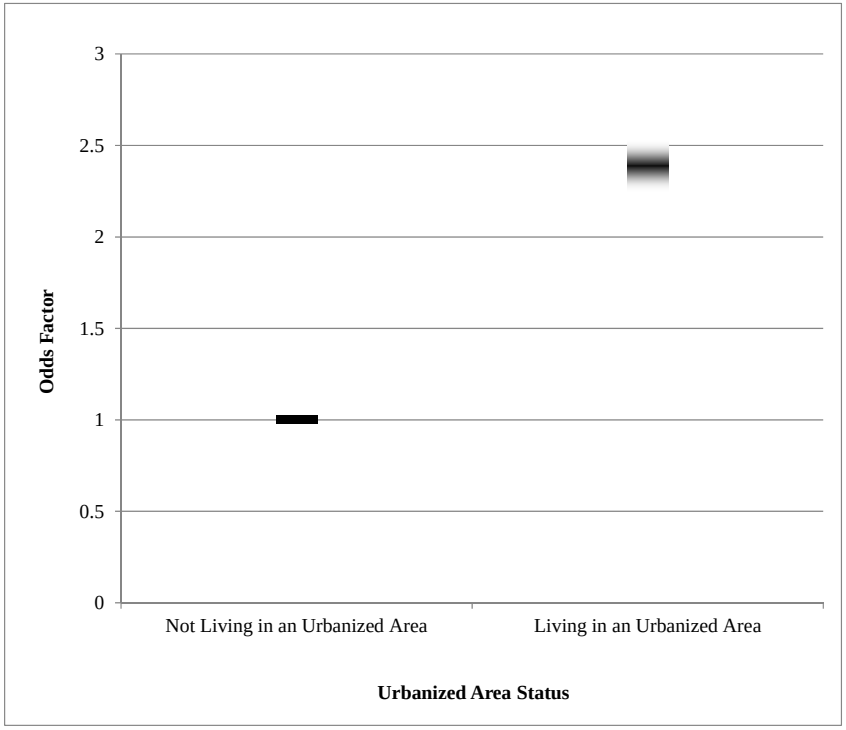


Source: HRTPO Staff analysis of NHTS data (results charts- 170k records- alt trans.xlsx)

Findings

Living in an Urbanized Area gives a worker much higher odds of using alternative transportation.

Note: Bars show 95% confidence interval.

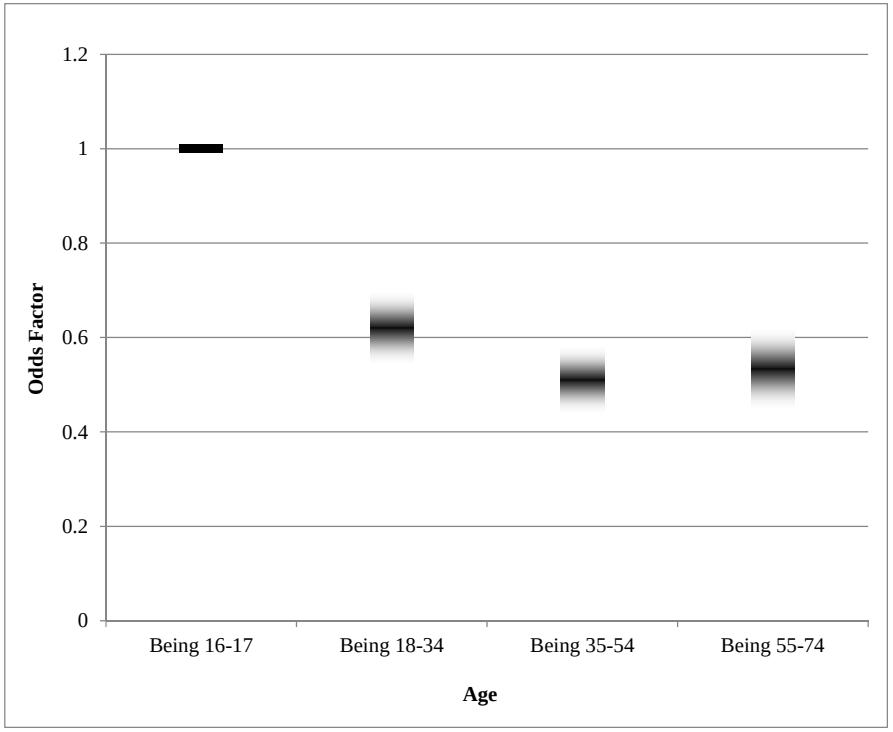


Source: HRTPO Staff analysis of NHTS data (results charts- 170k records- alt trans.xlsx)

Findings

Other than the teenage category, being in a particular **age group does not affect** the odds of using alternative transportation.

Note: Bars show 95% confidence interval.

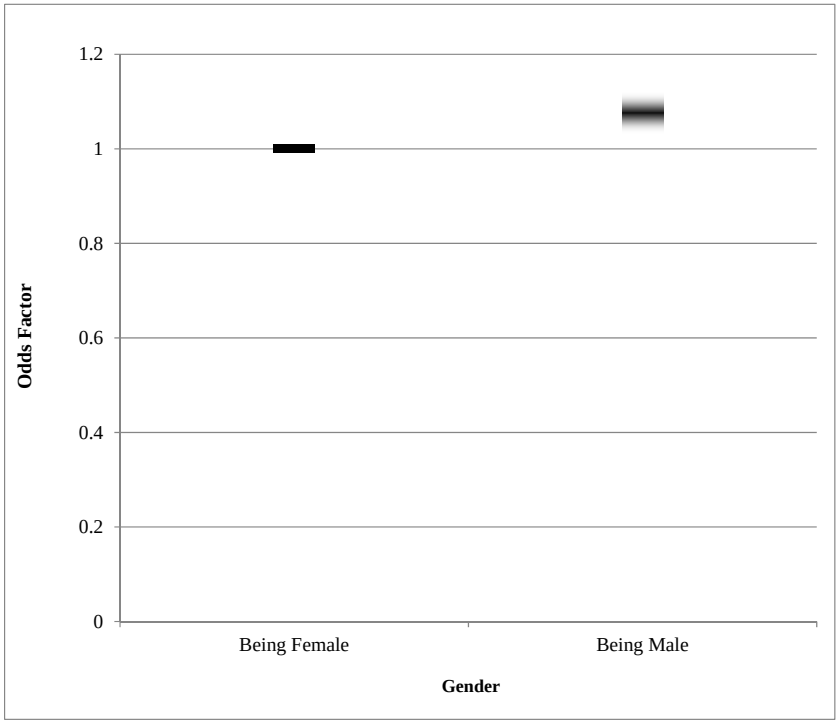


Source: HRTPO Staff analysis of NHTS data (results charts- 170k records- alt trans.xlsx)

Findings

Being male gives a worker slightly higher odds of using alternative transportation.

Note: Bars show 95% confidence interval.

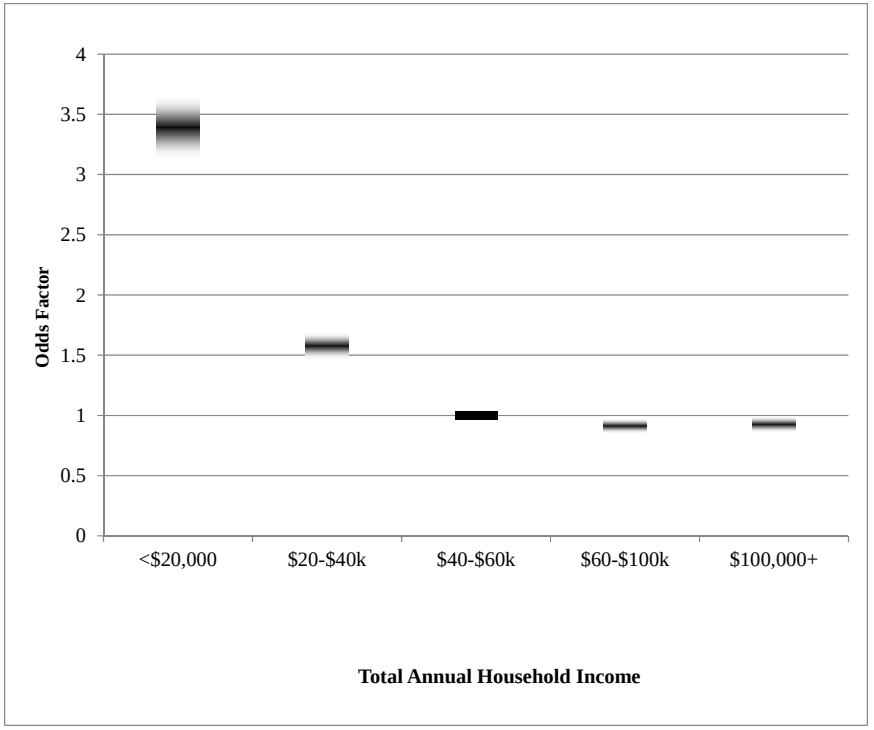


Source: HRTPO Staff analysis of NHTS data (results charts- 170k records- alt trans.xlsx)

Findings

Living in a **low-income** household gives a worker much higher odds of using alternative transportation.

Note: Bars show 95% confidence interval.

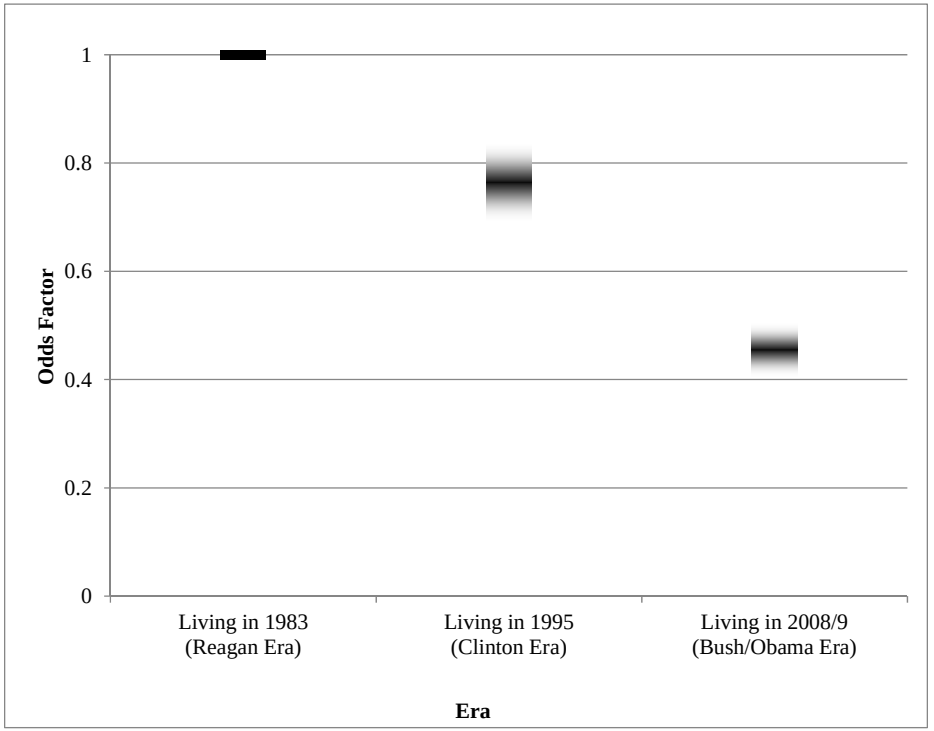


Source: HRTPO Staff analysis of NHTS data (results charts- 170k records- alt trans.xlsx)

Findings

All other things being equal (income, generation, location, etc.), **living in recent decades** gives workers lower odds of using alternative transportation.

Note: Bars show 95% confidence interval.



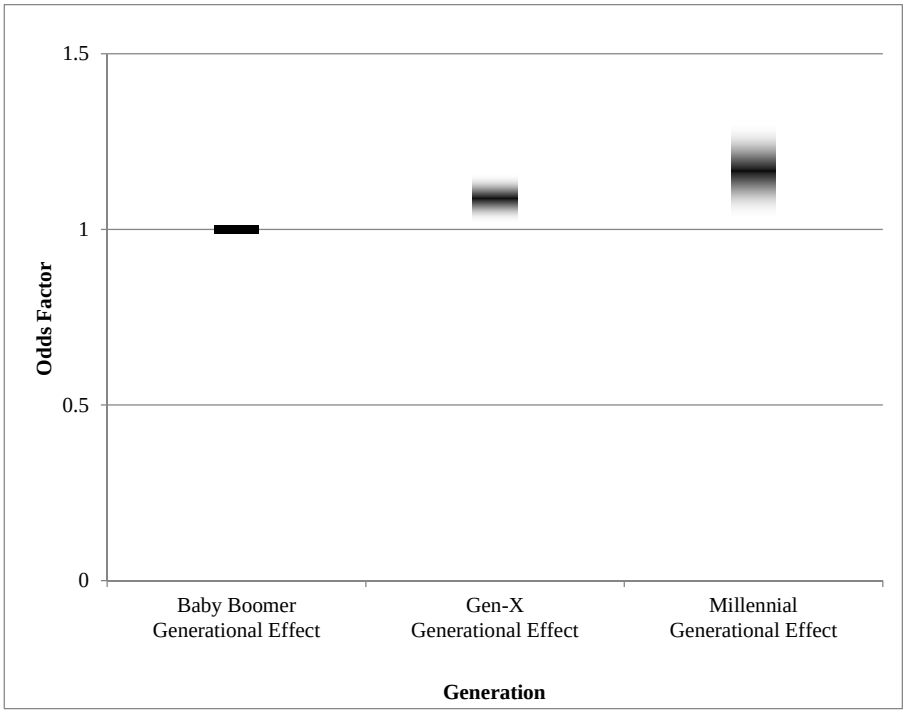
Source: HRTPO Staff analysis of NHTS data (results charts- 170k records- alt trans.xlsx)

Key Finding

There appears to be a small **Millennial** generational effect.

All other things being equal (income, location, etc.), being a member of the **Millennial** generation was **positively related** to usage of alternative transportation in the data set.

Note: Bars show 95% confidence interval.



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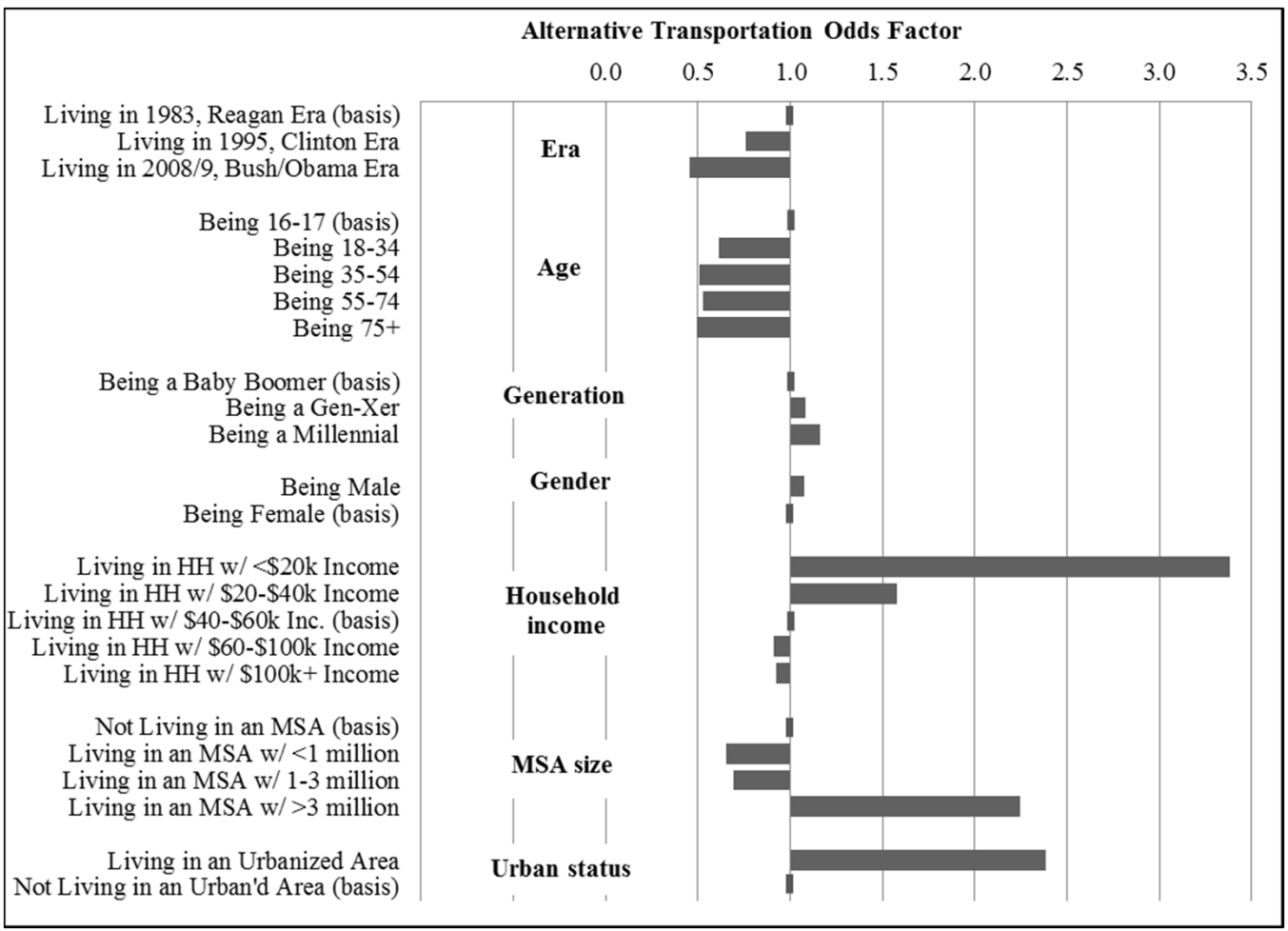
Model Summary



Source: HRTPO Staff analysis of NHTS data (results charts- 170k records- alt trans.xlsx)

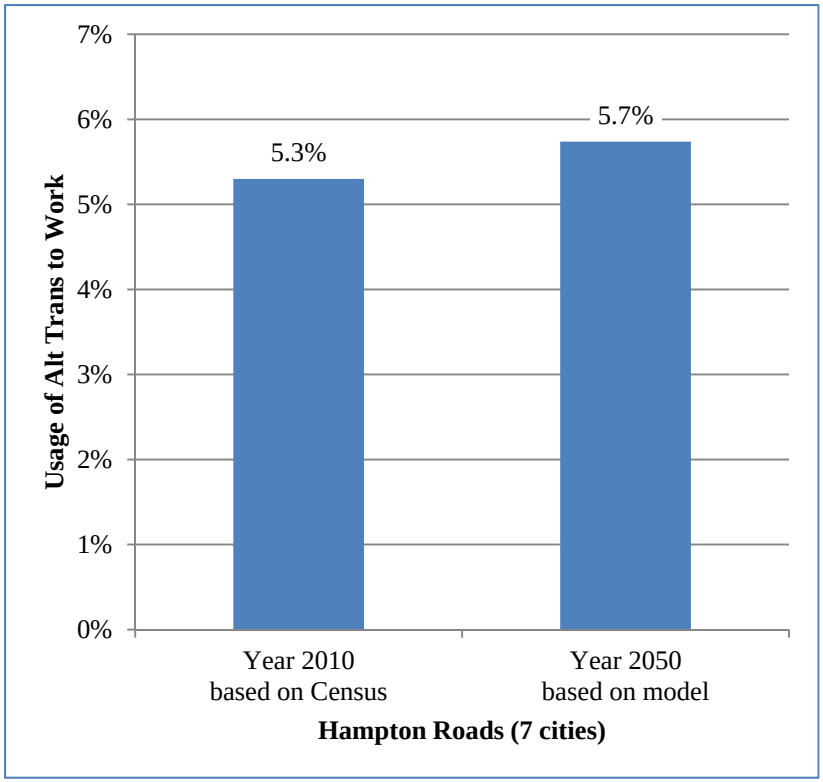
Research Answer

Staff used the model to prepare **a forecast** of usage of alternative transportation in Hampton Roads (HR):

Assumption: HR workforce of the future is same as today *except for generation*

- We gave all future workers the Millennial factor (1.2 odds ratio)

Result:



Conclusion & Next Steps

Conclusion

The Millennial generational effect appears to be a positive factor concerning usage of alternative transportation.

Under one scenario, HRTPO staff would expect usage of alternative transportation for commuting in Hampton Roads to increase from 5.3% (2010) to 5.7% (2050).

Implementation

HRTPO staff is considering all seven factors when planning alternative transportation infrastructure.

e.g. current Signature Paths project

Next Steps

- **Scoring candidate rail-trails** in Hampton Roads
  - Measure of effectiveness:
    - usage of active transportation (biking and walking only)
      - Model based on income categories of households in vicinity

- **Presentation at TRB** of Future of Alternative Transportation in Light of Millennials