

HOW OLD IS TOO OLD? SELECTING A SAMPLE TO REFRESH EXISTING HOUSEHOLD SURVEY DATA

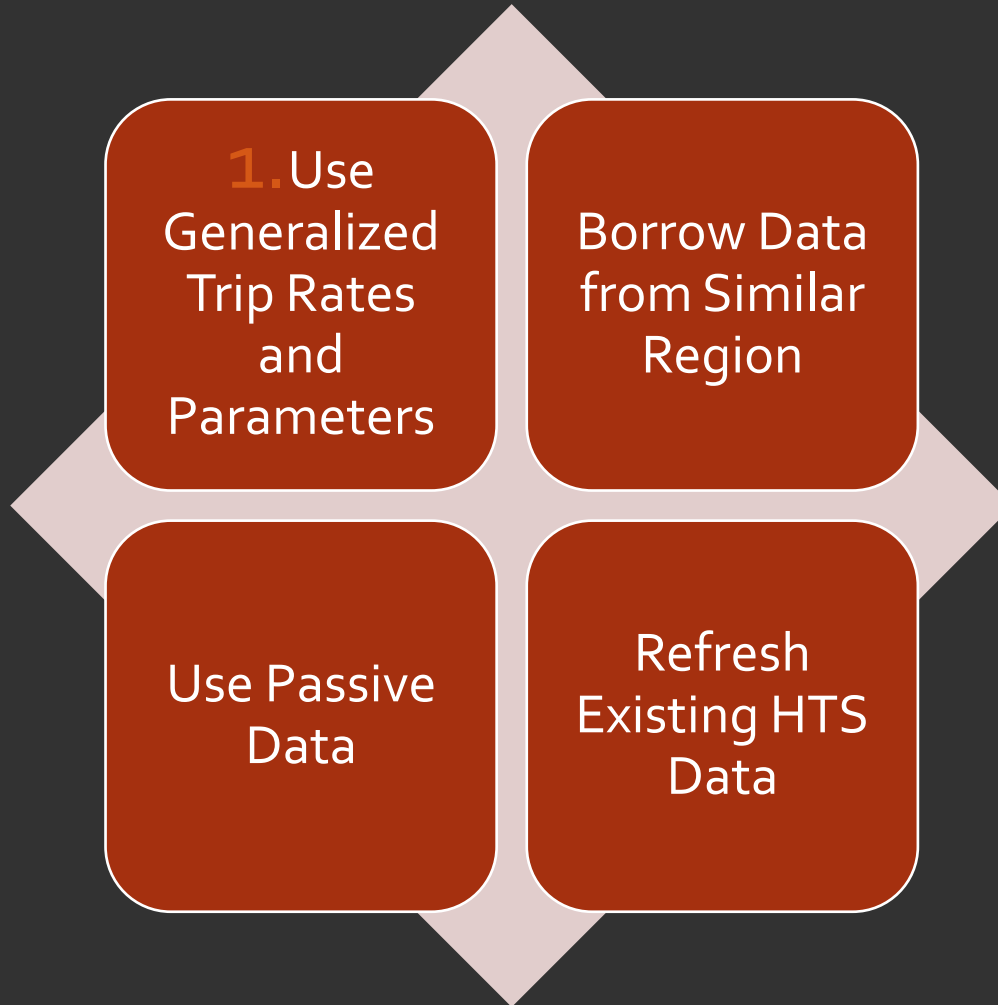
15th National Tools of the Trade Conference

Session C4: Doing More with Limited Data Collection Budgets

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LIMITED DATA COLLECTION BUDGET OPTIONS



REFRESHING DATA SETS

- Stopher (early 80s)
- Stopher and Greaves (2000, 2003)

US and Australia

1. Estimate parameters from existing data/NHTS

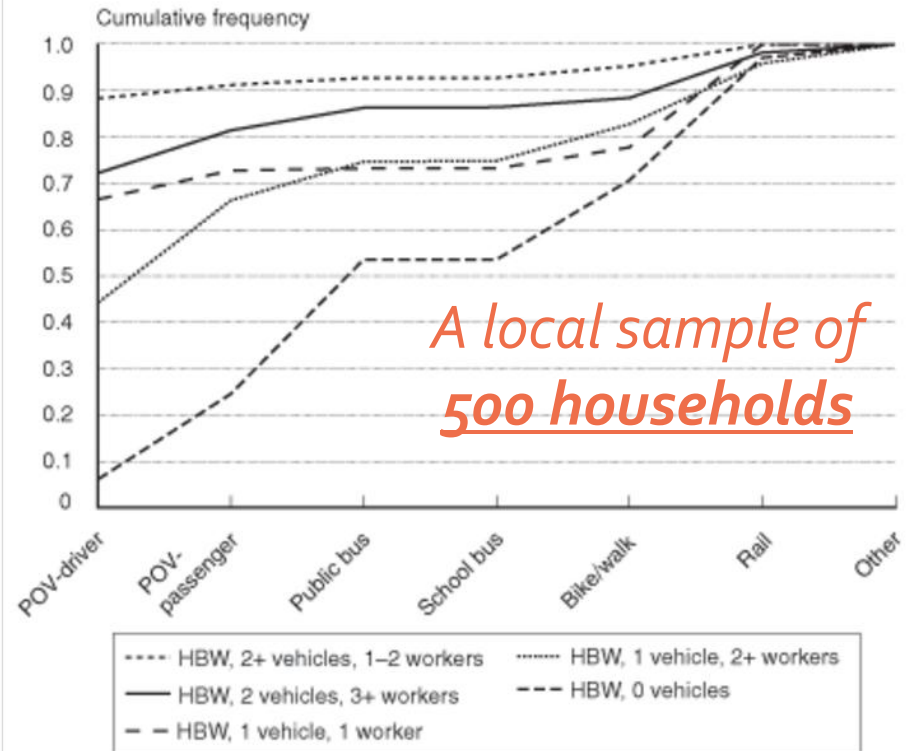
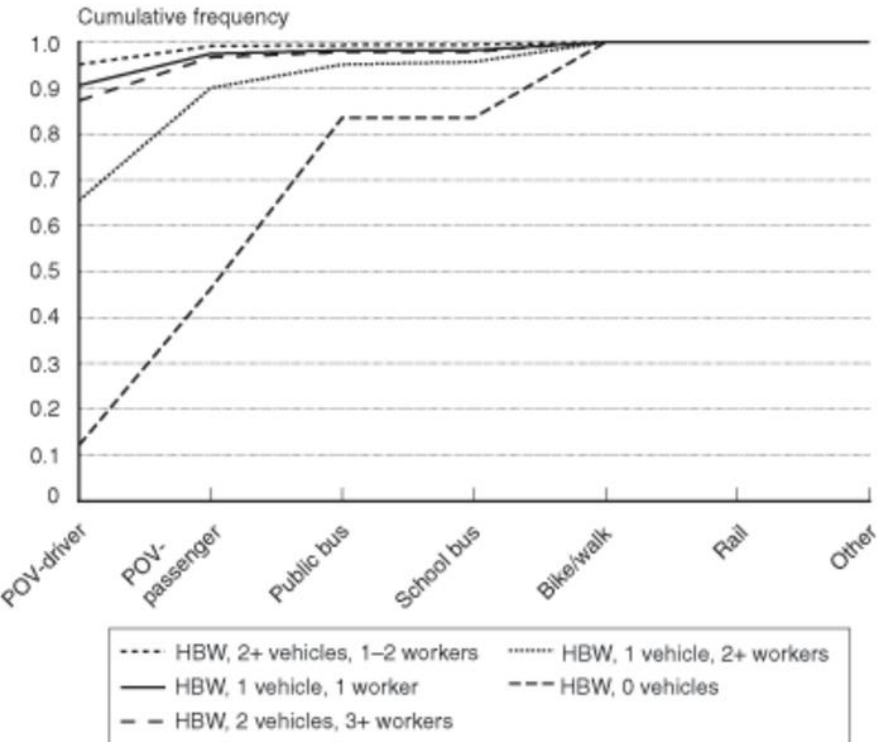


Conduct new survey of 500 HH



Refresh parameters with new data

REFRESHING DATA SETS



SELECTING A SAMPLE TO REFRESH EXISTING HOUSEHOLD SURVEY DATA

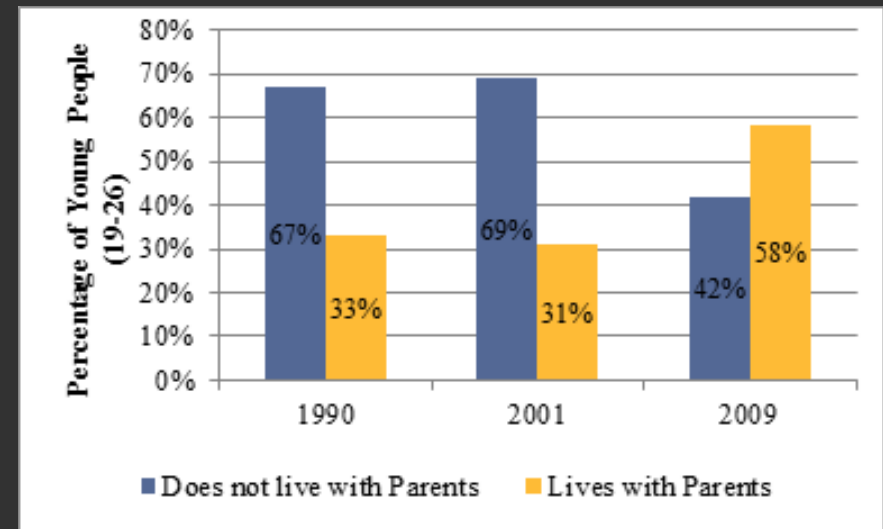
Base = NHTS
or Existing HTS
Survey

Refresh = New
Sample of 500
HH

Question =
How to allocate
local sample?

AREAS OF FOCUS

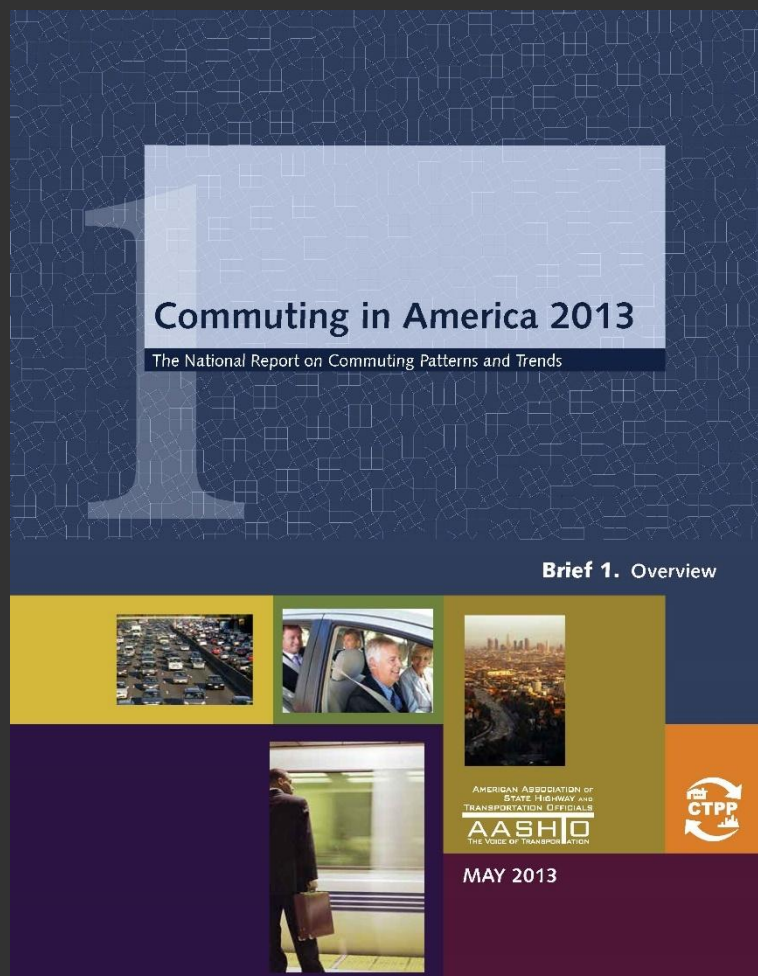
- Home-Based Work Trips
- Household Composition / Life Cycle
- Geography
- Other Cost Considerations



Source: FHWA (NPTS and NHTS)

Areas of Stability and Instability in Travel Behavior

Q1 – HOME-BASED WORK TRIPS?



Primary

- ACS/CTPP
- National Household Travel Survey

Secondary

- American Housing Survey
- Consumer Expenditure Survey
- Transportation Energy Data Book
- National Transit Database

<http://traveltrends.transportation.org/Pages/default.aspx>

Q1 – HOME-BASED WORK TRIPS?

"... this analysis is carried out at a point in time when there is growing evidence of significant changes in travel behavior associated with demographic, economic, technological, and social-cultural changes. These changes are affecting work trip commuting and travel in general ..."

- Declines in **bicycle, pedestrian, and transit travel** appear to have ended and are showing evidence of some rebound
- **Non-work travel** appears to have stabilized or declined
- **Auto availability** may have peaked and reversed
- **Home ownership** levels appear to have peaked and **multi-family housing** is showing relative strength
- Monitoring consequences of **emerging trends** like young people with more modest auto availability and older adults remaining in the work force

Q1 – HOME-BASED WORK TRIPS?

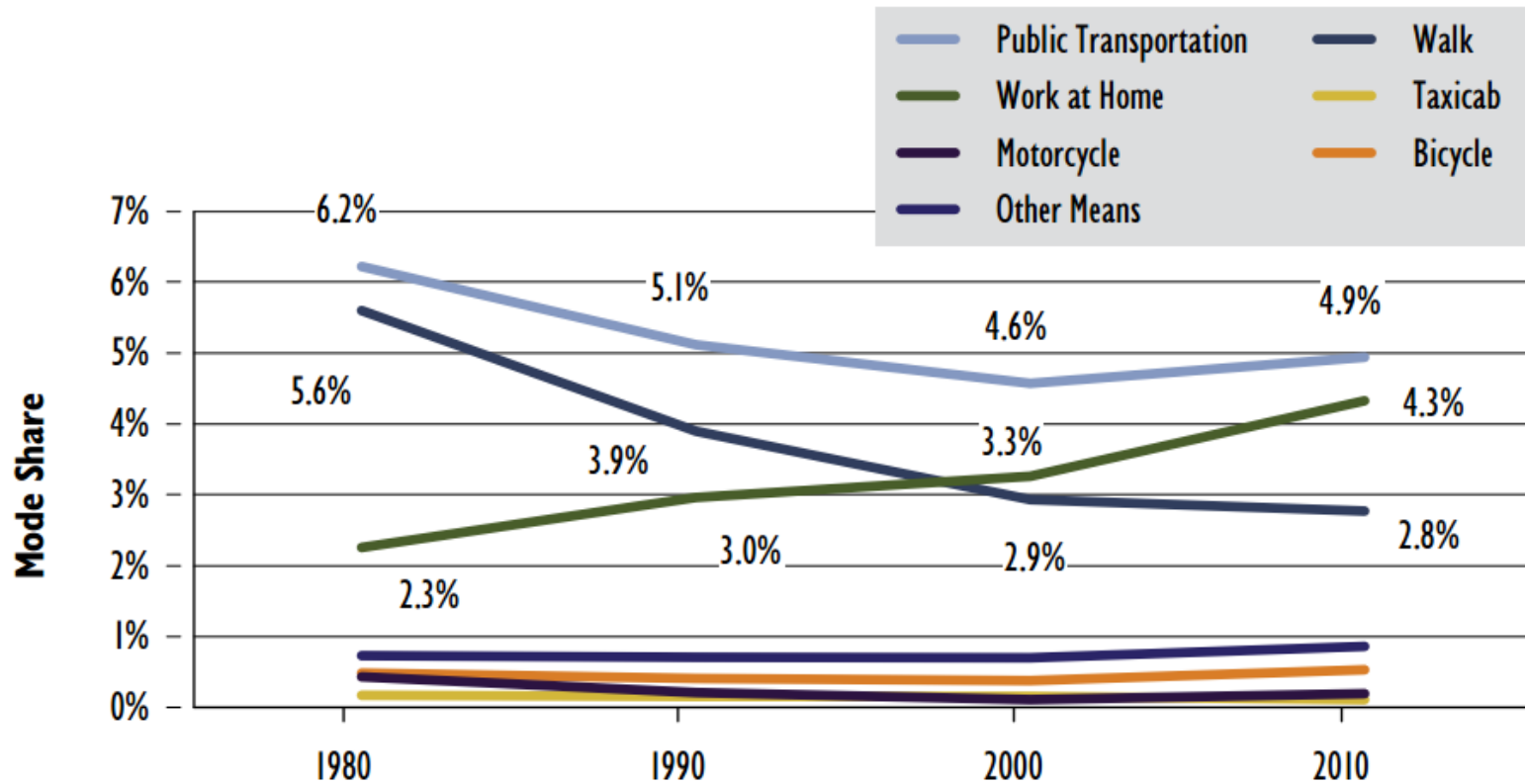


Figure ES-11. Detailed Mode Use Share Trend (Private Vehicles Excluded)

Source: Census, ACS 2010

Q1 – HOME-BASED WORK TRIPS?

CONCLUSION: Commute trip travel time and pattern of commuting traveling have remained **remarkably stable** (aggregate)

- Fixed housing and workplace locations mitigate against rapid change in commuting patterns
- Having a driver's license is nearly ubiquitous
- Only 4% of households with workers have no vehicles
- Limited job accessibility by transit

→ **SUGGESTS: Core of HTS Data relatively stable**

Q2 – TEMPORAL STABILITY IN DATA?

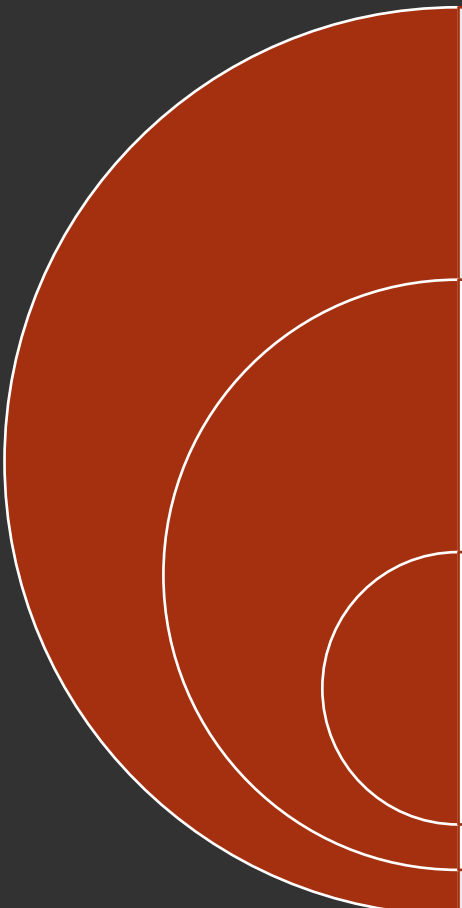
- Huntsinger & Roupail evaluated performance of 6 life-cycle definitions in explaining differences in travel behavior
 - Objective: identify temporal stability in travel demand models
 - Compared 1995 and 2006 Research Triangle Travel Surveys

FINDINGS:

- Greatest temporal stability in **shopping** trips, followed by **work** and **school** trips
- Least temporal stability for **households with children** and **home-based other** trips

Q2 – TEMPORAL STABILITY IN DATA?

Temporal stability of generation choice models



- Income, Vehicle Ownership, and Presence of Other HH Adults improve temporal stability

Life-Cycle, Area Type, and Accessibility variables provide little benefit with respect to temporal stability

More work is needed to understand travel by **Children**

Q3. WHAT ABOUT GEOGRAPHY?

- CIA 2013: Commute distances and times remain **stable** due to **fixed** home and work locations
- Most transferability studies seek donors with **similar** Trip Length Frequencies (distance and time)

→ **SUGGESTS**: Focus sample in areas that have experienced changes in land use or are new to modeling region

Q4: OTHER COST CONSIDERATIONS?

General Travel Survey Practice:

- Transition to Enhanced Address-Based Sampling → improved ability to target sample
- Stratification by HH Size and Income expensive (Income non-response)
- Stratification by HH Size and HH Workers (0/1+) is more cost effective AND results in reasonable demographic distributions that approximate census AND keeps # elderly HH in proportion

→ SUGGESTS: Stratification by HH Size and HH Workers (0/1+)

RECOMMENDATIONS

Base Sample (200-250)

- Random sample of entire region, stratified by HH Size and HH Workers (0/1+)

Target Sample (250-300)

- Target Areas With Changes in Land Use Patterns or New to Modeling Region
- Oversample Large HH with Children

COMMENTS OR QUESTIONS?

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