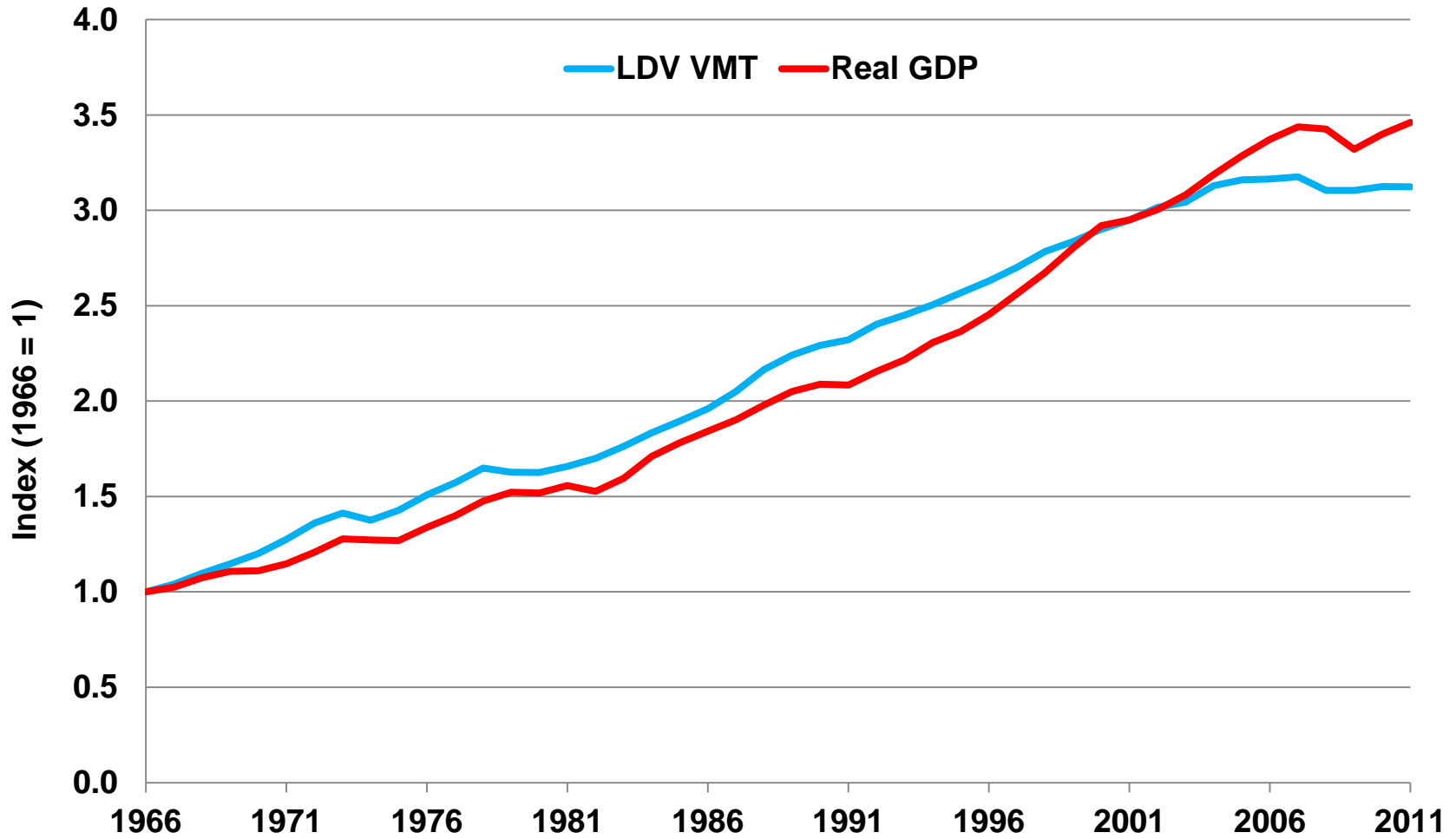


Some Important Details

- ❑ This is a revised version of a presentation delivered by David Pace and Dr. Don Pickrell on May 23, 2013 as part of the Volpe Center's ***Transportation Trajectories*** series
- ❑ This presentation is based on analysis of historical and potential future growth in motor vehicle use conducted by the Volpe Center for the support of the Federal Highway Administration's Office of Highway Policy Information
- ❑ The views expressed in this presentation are those of the authors, and *do not* represent official views or positions of the Volpe Center, the Federal Highway Administration, or the U.S. Department of Transportation

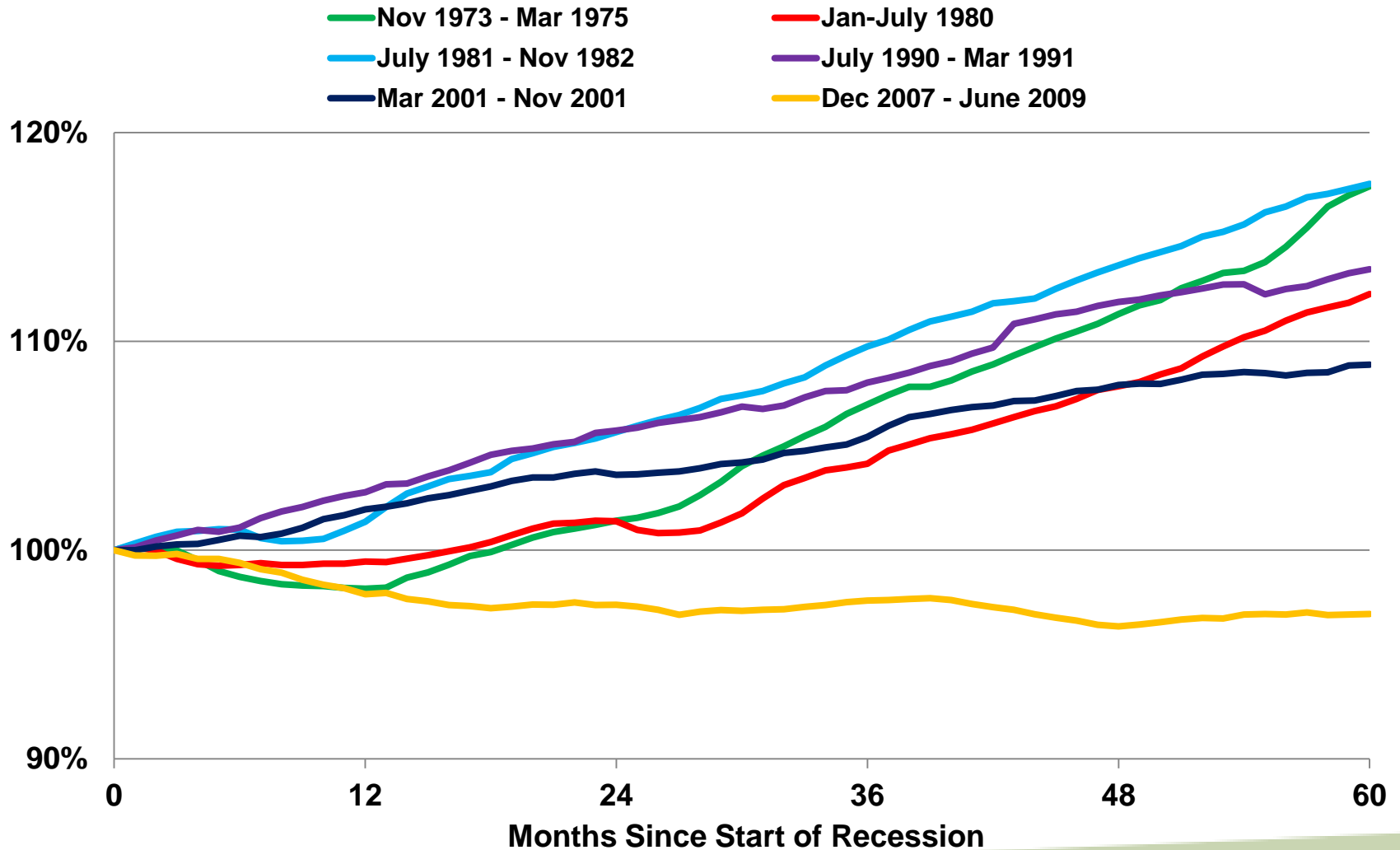
Automobile Use No Longer Tracks GDP

Automobile Travel and Real GDP



This Recession Has Been Different

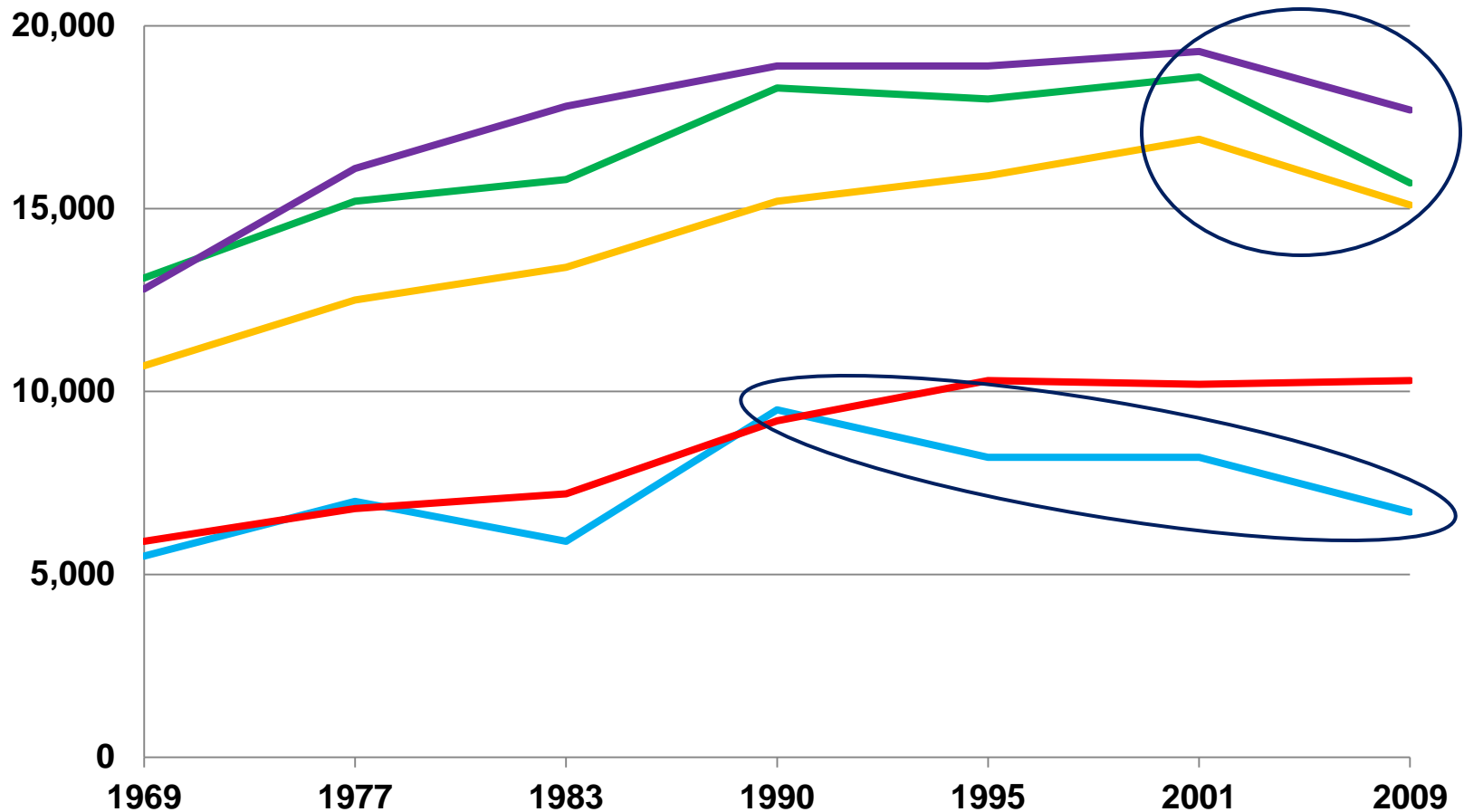
VMT as a Percent of Pre-Recession Level



Who's Driving Less? Almost All Men...

Annual Miles Driven by Age -- Men

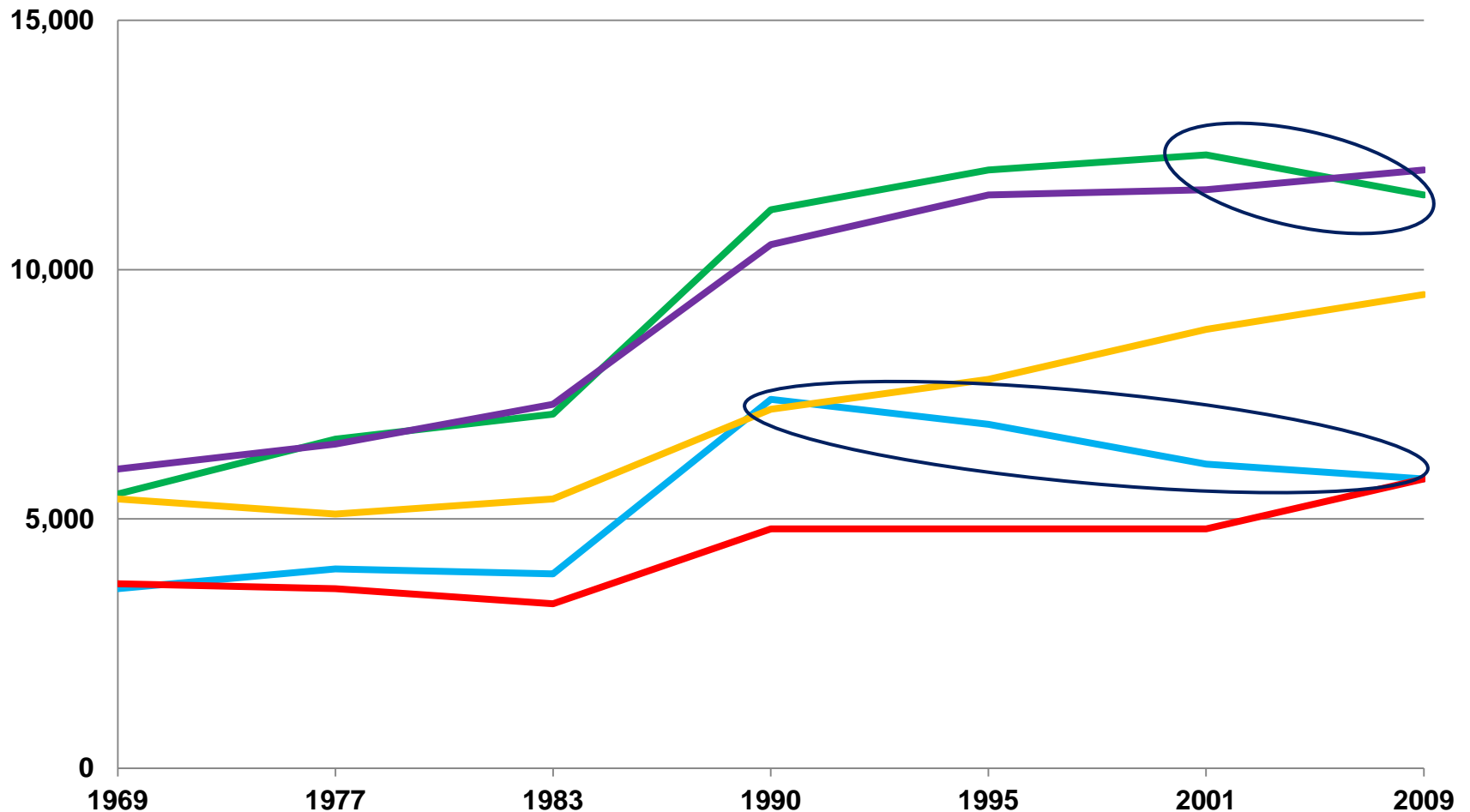
16-19 20-34 35-54 55-64 65+



...but Only Younger Women

Annual Miles Driven by Age -- Women

16-19 20-34 35-54 55-64 65+



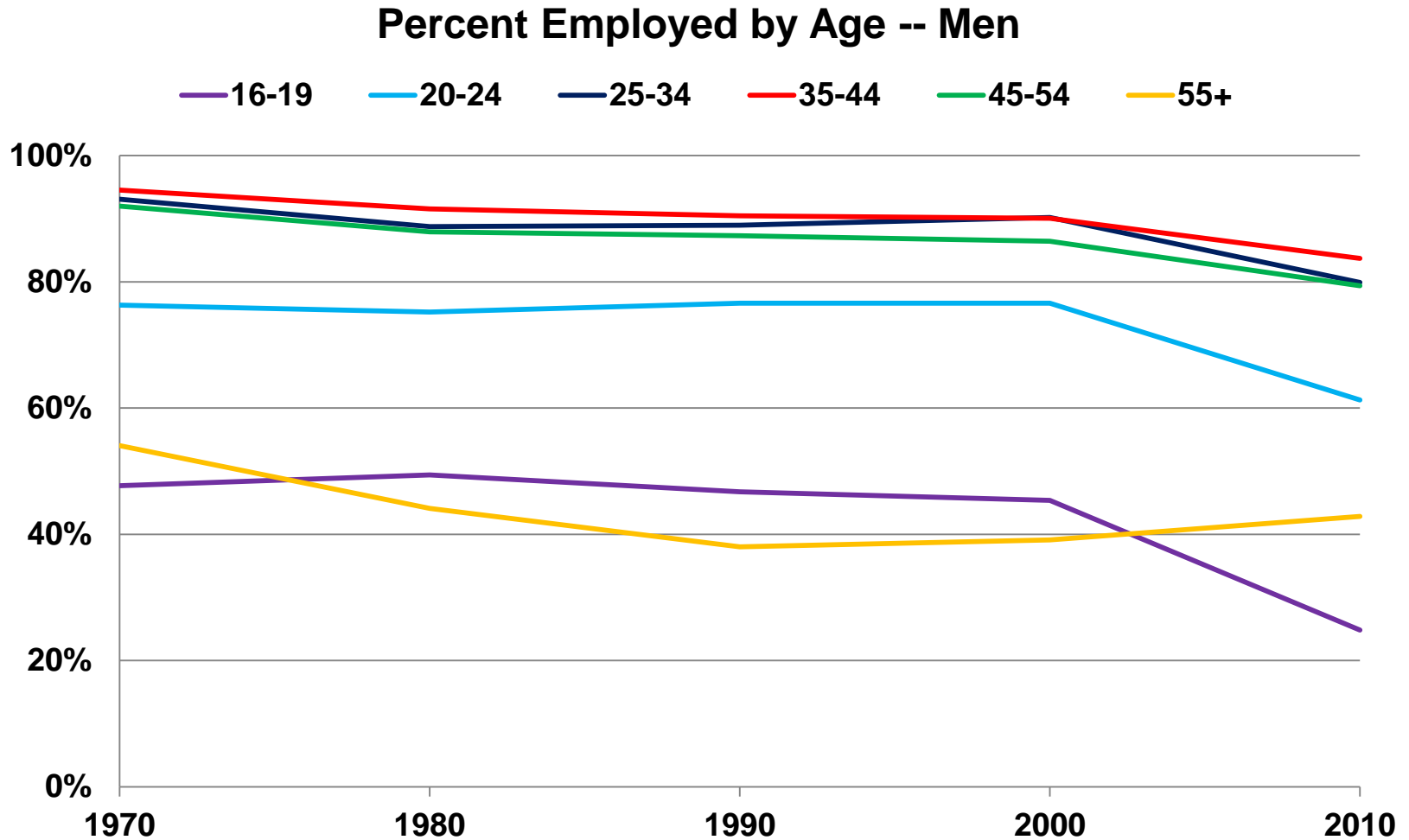
Some Causes Aren't New

- ❑ Baby boom cohort began moving out of peak driving years (mid-30s through mid-50s) by about 2000
- ❑ Rising household income boosted car ownership and use through the 1970s and 1980s, but many households have reached the point where its effect weakens considerably
- ❑ Pace of suburbanization and accompanying shift toward auto travel has been slowing for several decades
- ❑ Costs of owning and maintaining a car have risen rapidly, particularly during the 1980s and 1990s
- ❑ The boom in building *new* highways was mostly over by 1980, although highways have been widened in many urban areas since then
- ❑ Graduated licensing programs began to reduce teen driving in the 1990s

...but Others Are New

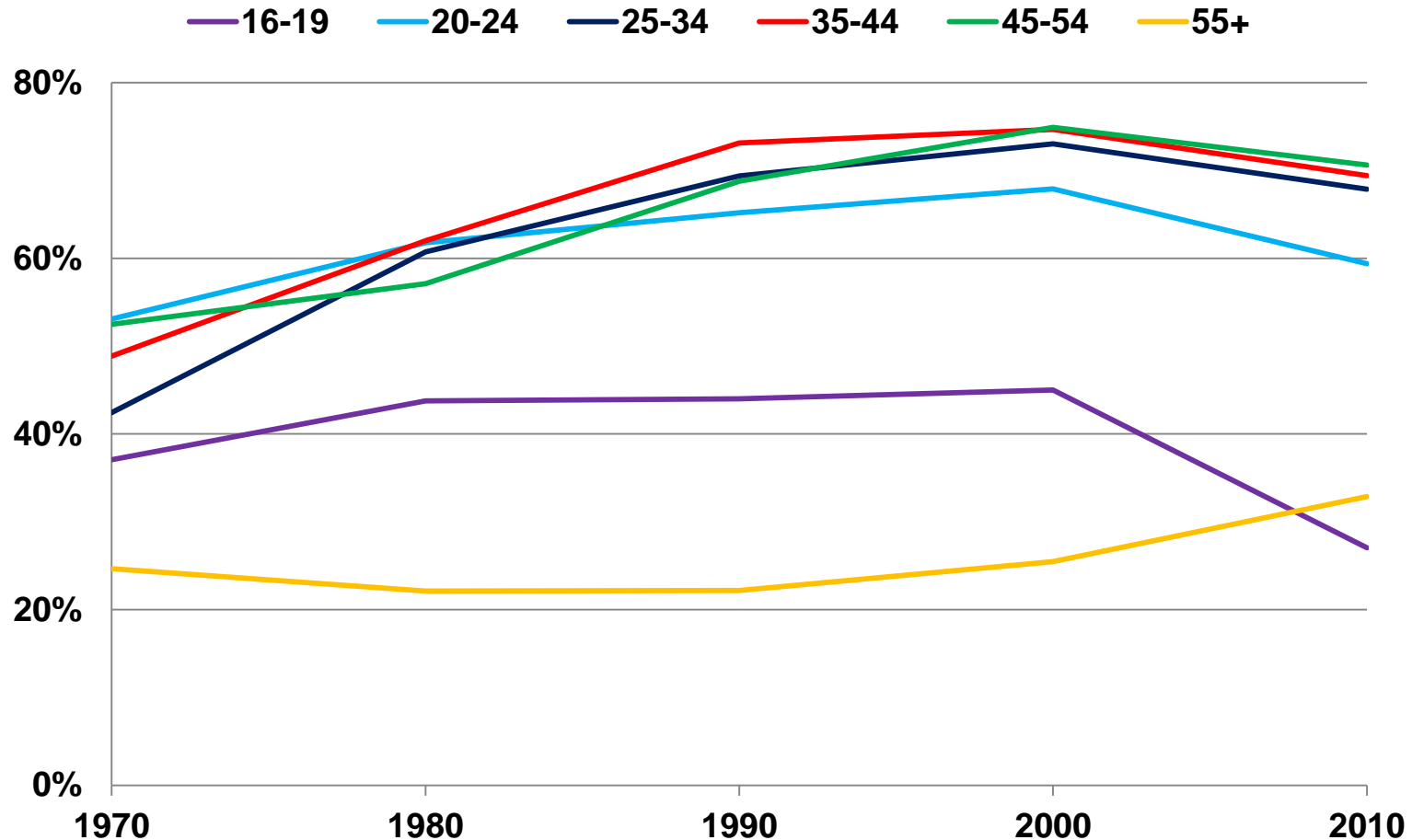
- ❑ Fraction of population holding jobs is down significantly since the early 2000s, particularly among young adults
- ❑ Recent declines in income have been largest among households where its effect on driving remains strong
- ❑ Gasoline prices up sharply since 2005, and *much* more volatile
- ❑ Young households' debt burdens – primarily from student loans – are higher than a decade ago, making home and car purchases difficult
- ❑ Recent college graduates are having difficulty finding high-paying jobs

Declines in Driving Exactly Mirror Job Losses among Men



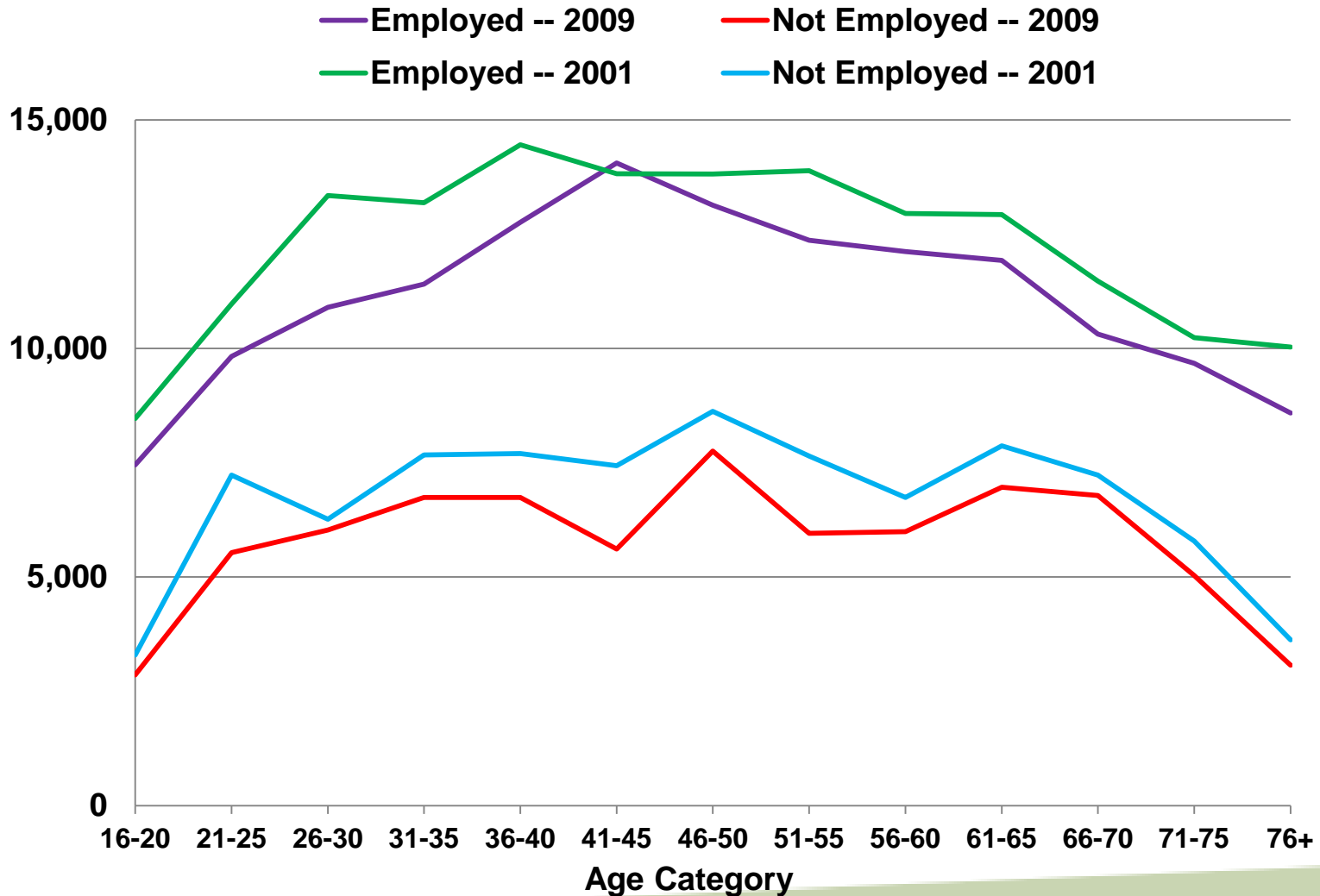
Story is Similar – but a Little Less Clear – among Women

Percent Employed by Age -- Women

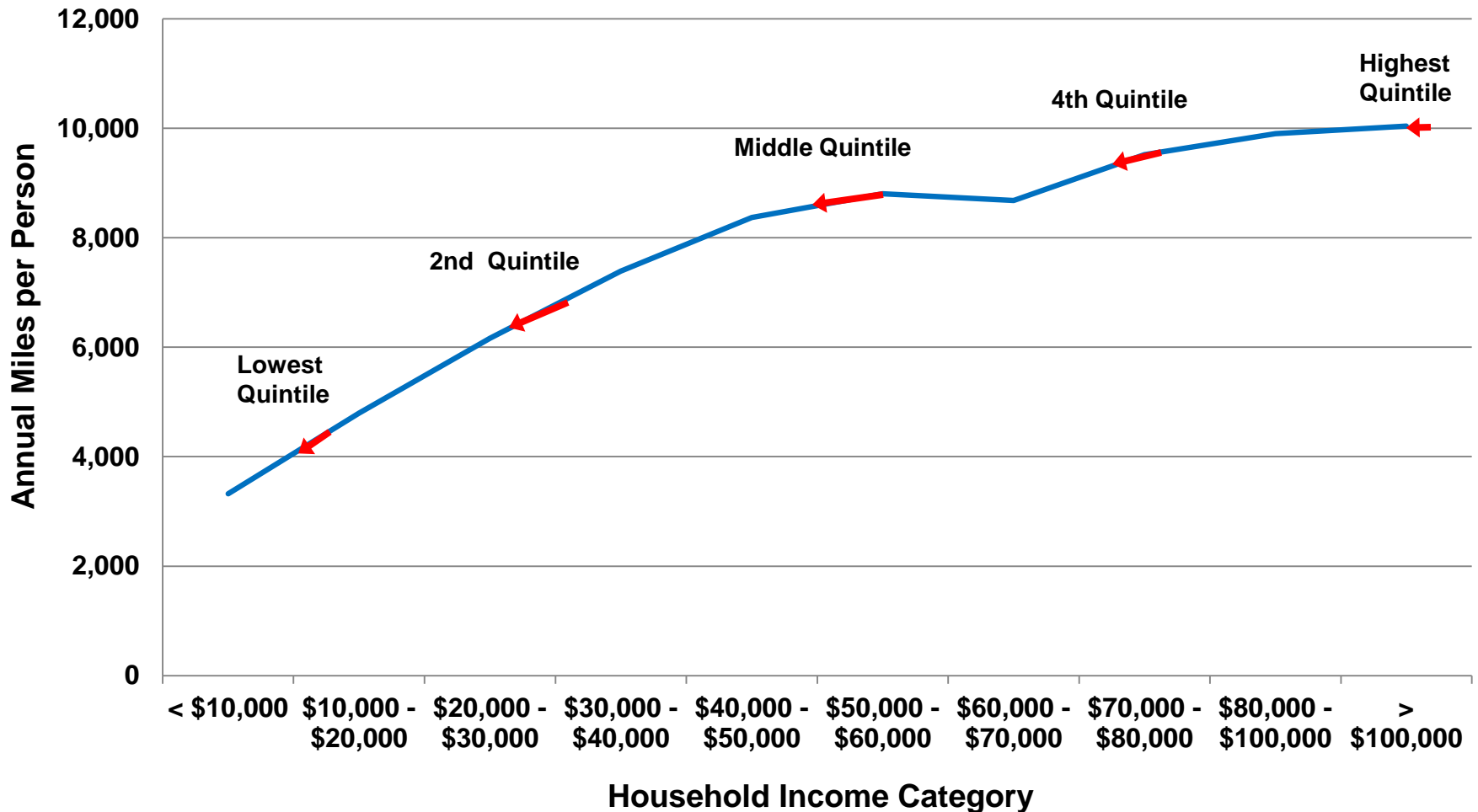


...but Even the Employed are Driving Less

Annual Miles Driven by Employment Status



Income Losses Have Been Largest where they Affect Driving the Most



Some Popular Explanations

❑ New Travel Choices

- Even if *all* new transit trips since automobile use peaked were formerly made by car, increase in transit use accounts for only about 1% of decline in automobile travel
- Data aren't ideal, but increases in bicycle and walk trips appear to account for only another few percent of decline in driving since its peak

❑ Rise of Internet shopping

- Households averaged only 3 on-line purchases per month in 2009 (vs. 40 shopping trips by car), and 80% required added truck travel for delivery
- Shopping trips were the only category of driving to increase in the last decade
- But on-line shopping does appear to be putting competitive pressure on conventional retailing, particularly for certain products, so can't rule this out

❑ Substitution of teleworking for commuting

- Census data show that share of employees who work at home only increased from 3.5% in 1970 to 4.3% in 2010, although other sources report more
- Annual commute trips by car has averaged about 350 per worker for decades

It's too Early to Tell about Other Things

□ Growth in mobile technology use

- Little question that the young use social media *a lot* more, but how much do they substitute for personal contact?
- Other mobile technologies can facilitate use of transit and other non-auto modes, while also reducing auto trip lengths

□ Resurgence in urban living

- So far, it seems concentrated among higher-income young adults (mostly without children), plus a few of the affluent retired
- Meanwhile, the rest of the population – and increasingly, their jobs – continues to disperse

□ Car sharing as an alternative to ownership

- Data are still scarce, but car sharing and other short-term rental arrangements do appear to be growing rapidly
- It's not yet clear whether they substitute for car ownership or supplement it, so we can't yet tell whether they raise or lower *total* auto use

Will Growth in Driving Resume?

- ❑ A “bounce” in driving is likely once the economy finally recovers fully, but that could take a couple of more years
- ❑ Even if growth in driving does resume, its pace will continue to slow down over the future – just like before the recession
- ❑ Most future growth in driving will result from population increases, rather than from increased driving per person
- ❑ Major uncertainties remain
 - How soon will employment prospects improve, particularly for young adults?
 - Will earnings growth resume among lower-income workers?
 - Future immigration rates and auto use patterns among recent immigrants
 - How much more will employment and auto use increase among older Americans, particularly women?
 - How will household locations adjust to continuing suburbanization of jobs?
 - How will driving respond to continuing increases in car ownership costs and fuel prices?

Why Should We Care?

- ❑ Auto use continues to generate significant externalities – CO₂ emissions, air pollution, fatalities and injuries – so reducing these is a bonus
- ❑ Declining Highway Trust Fund revenues can't support budgeted investment levels, but maybe we don't need them
- ❑ Congestion is unlikely to grow dramatically, except in selected locations
- ❑ Long-range transportation planning process has evolved to support capacity expansion and accommodate continuing growth, and may need to be redesigned

Data Sources

❑ Slide 3

- U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Account Historical Tables, Section 21: Domestic Product and Income
<http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1>
- Federal Highway Administration, Highway Statistics, Table VM-1, various years
<http://www.fhwa.dot.gov/policyinformation/statistics.cfm>

❑ Slide 4

- National Bureau of Economic Research, U.S. Business Cycle Expansions and Contractions
http://www.nber.org/cycles/US_Business_Cycle_Expansions_and_Contractions_20120423.pdf
- Federal Highway Administration, Travel Volume Trends, various issues
http://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm

❑ Slides 5 and 6

- 2009 National Household Travel Survey (NHTS), Summary of Travel Trends, Table 23, p. 43 <http://nhts.ornl.gov/2009/pub/stt.pdf>

Data Sources (continued)

- ❑ Slides 9 and 10
 - U.S. Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey <http://www.bls.gov/data#employment>
- ❑ Slide 11
 - Tabulations from household data files of the 2001 and 2009 National Household Travel Surveys (NHTS) using on-line analysis tools table designer <http://nhts.ornl.gov/tables09/Login.aspx?ReturnUrl=%2ftables09%2fae%2fTableDesigner.aspx>
- ❑ Slide 12
 - Tabulation from household data file of the 2009 National Household Travel Survey (NHTS) using on-line analysis tools table designer <http://nhts.ornl.gov/tables09/Login.aspx?ReturnUrl=%2ftables09%2fae%2fTableDesigner.aspx>
 - U.S. Bureau of the Census, Historical Income Tables, Table H-3, "Mean Household Income Received by Each Fifth and Top 5 Percent, All Races: 1967 to 2011." <http://www.census.gov/hhes/www/income/data/historical/inequality/index.html>