

# Emerging Trends in US Vehicle Travel Demand

**2014 EIA Energy Conference**

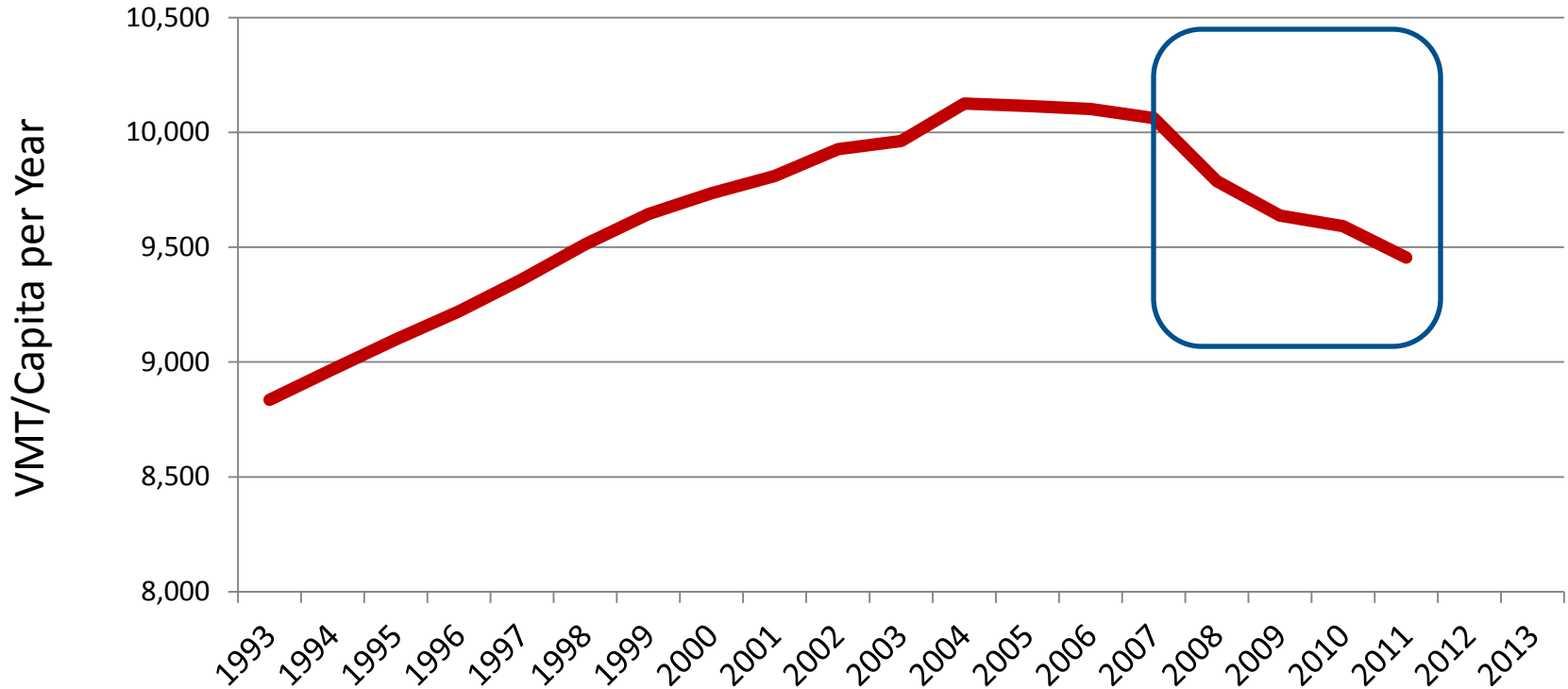
**Nancy McGuckin**

**Travel Behavior Analyst**

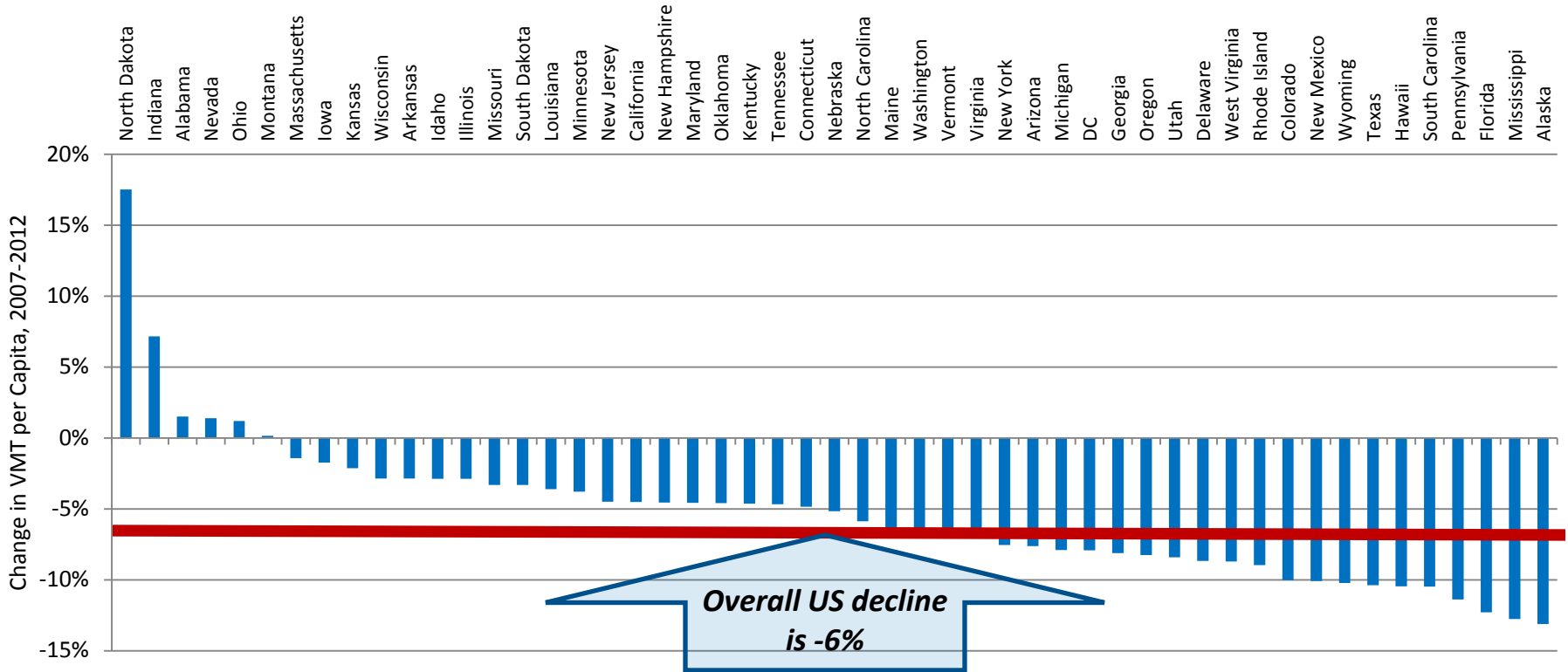
# Overview

- Historic pattern of VMT *per capita*
- Differences in changes since 2007 by State
- Private and Commercial VMT in context
- Why Millennials?

# VMT per capita: an unprecedented change:

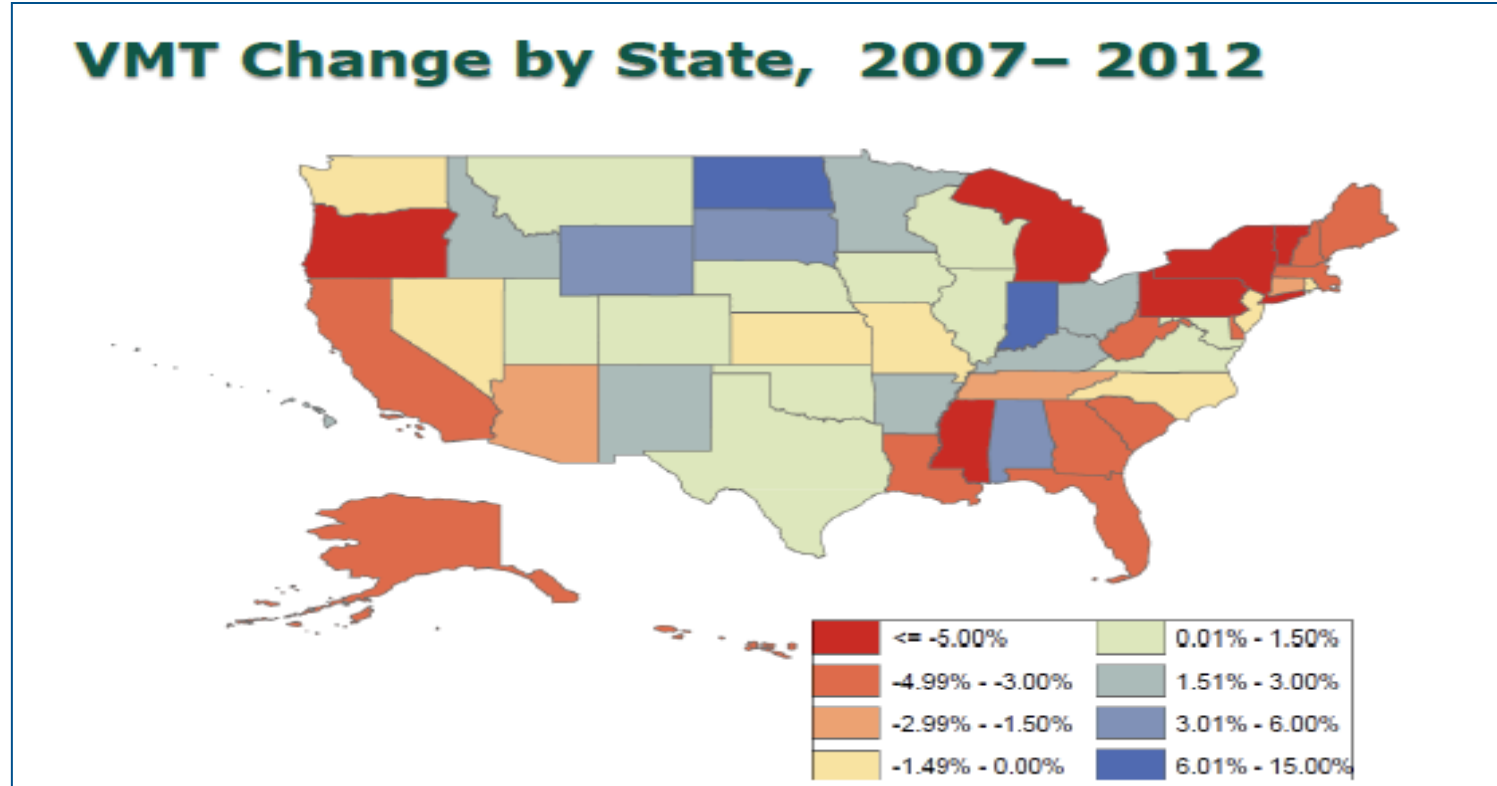


# Changes in per capita VMT by State 2007-2012:



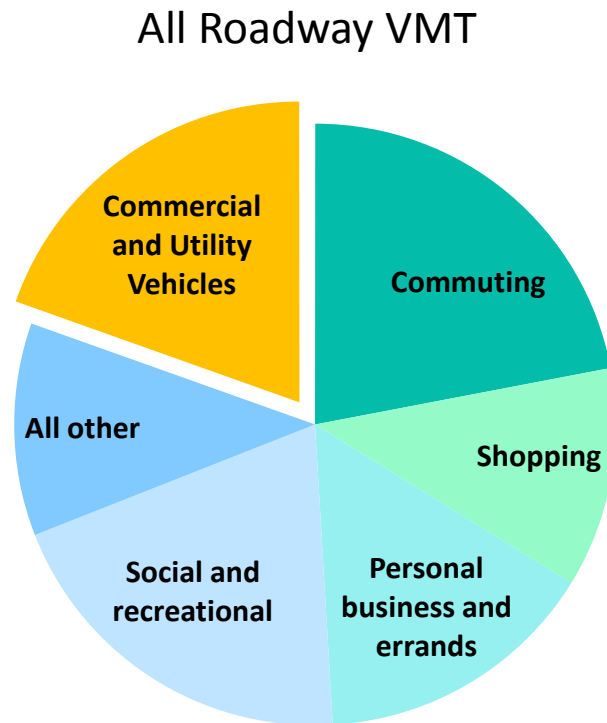
Source: McGuckin's analysis of HPMS VM-2 including all VMT and ACS population estimates by state

# Changes in per Capita VMT by State (graphic):



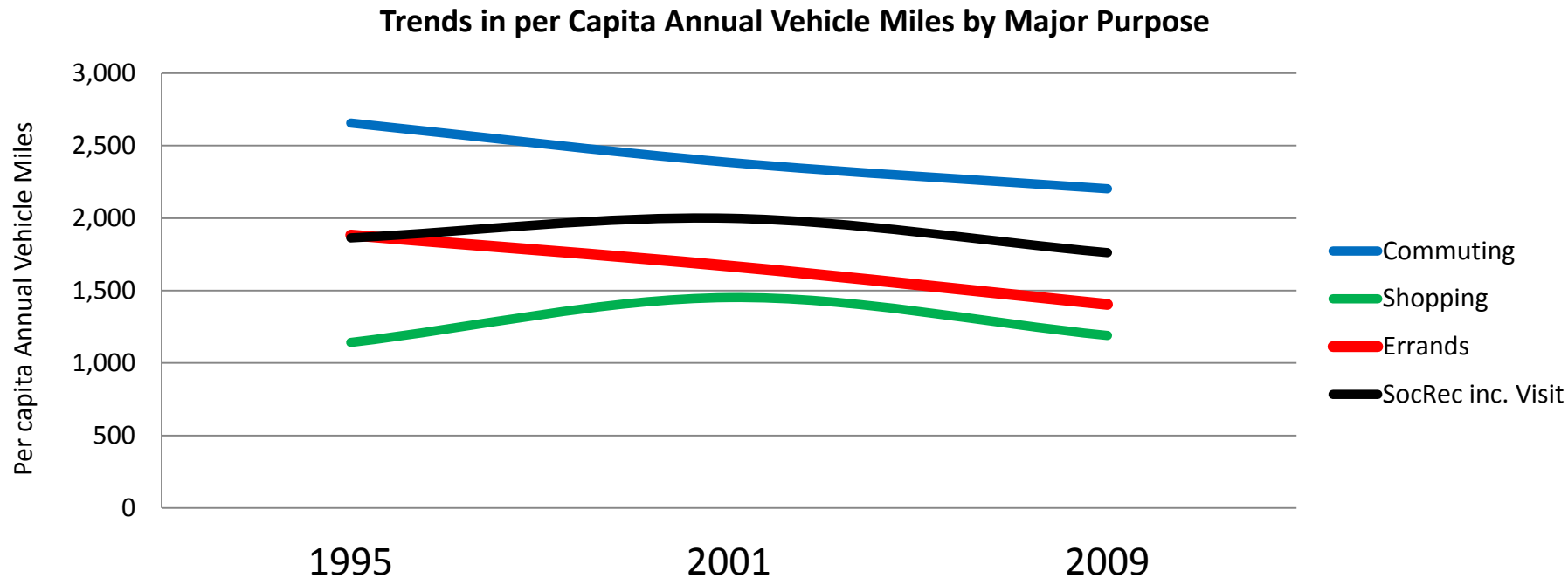
# Sources of Roadway VMT:

	Percent of Household-based VMT	Percent of Total Roadway VMT
Private vehicle travel:		
Commuting	27	76
Shopping	15	
Personal errands	19	
Social and recreational	25	
School/Medical/All Other	14	
Subtotal Private vehicle VMT	100%	
Commercial and Utility Vehicles:		
Total Roadway Vehicle Travel:		100%



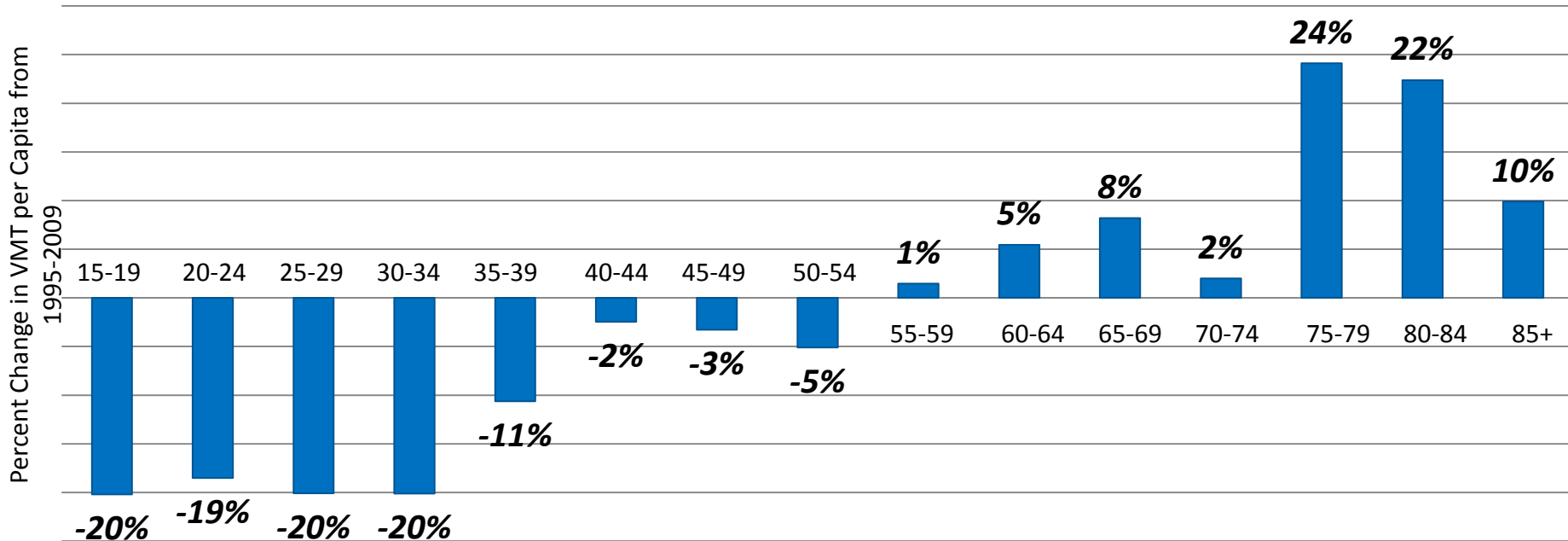
# Private vehicle travel for all purposes has declined:

(Measured in VMT per Capita)



# Why focus on millennials?

Percent Change in VMT per Capita: 1995 to 2009



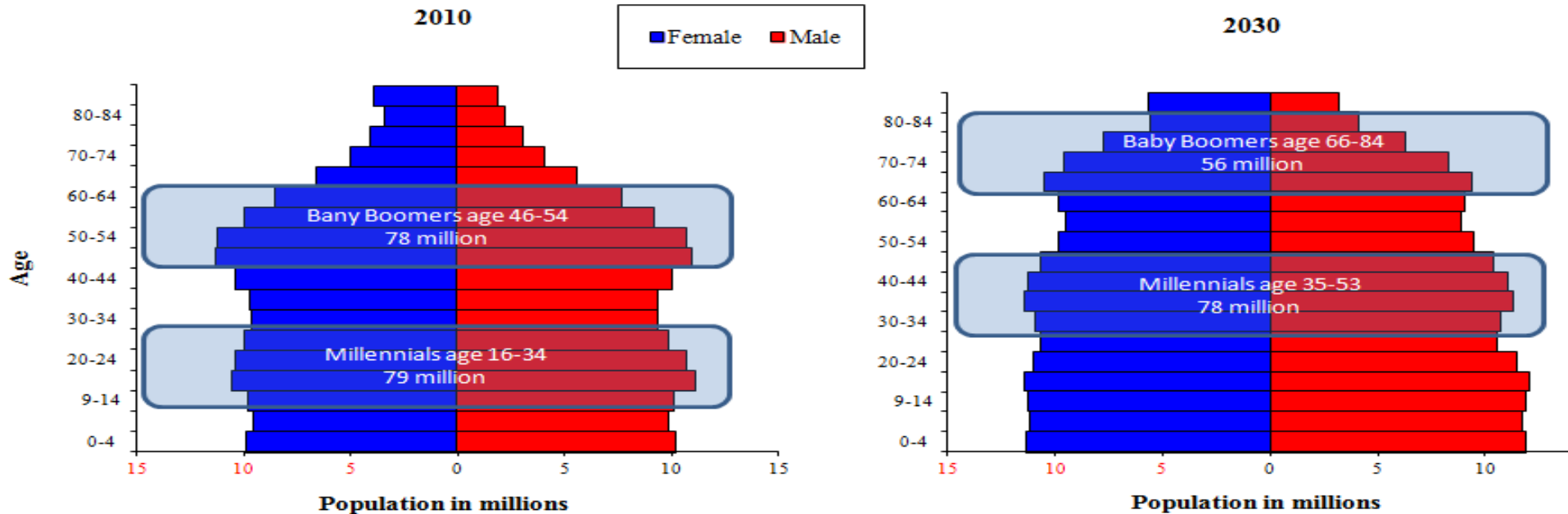


# Changing Markets: The Millennials

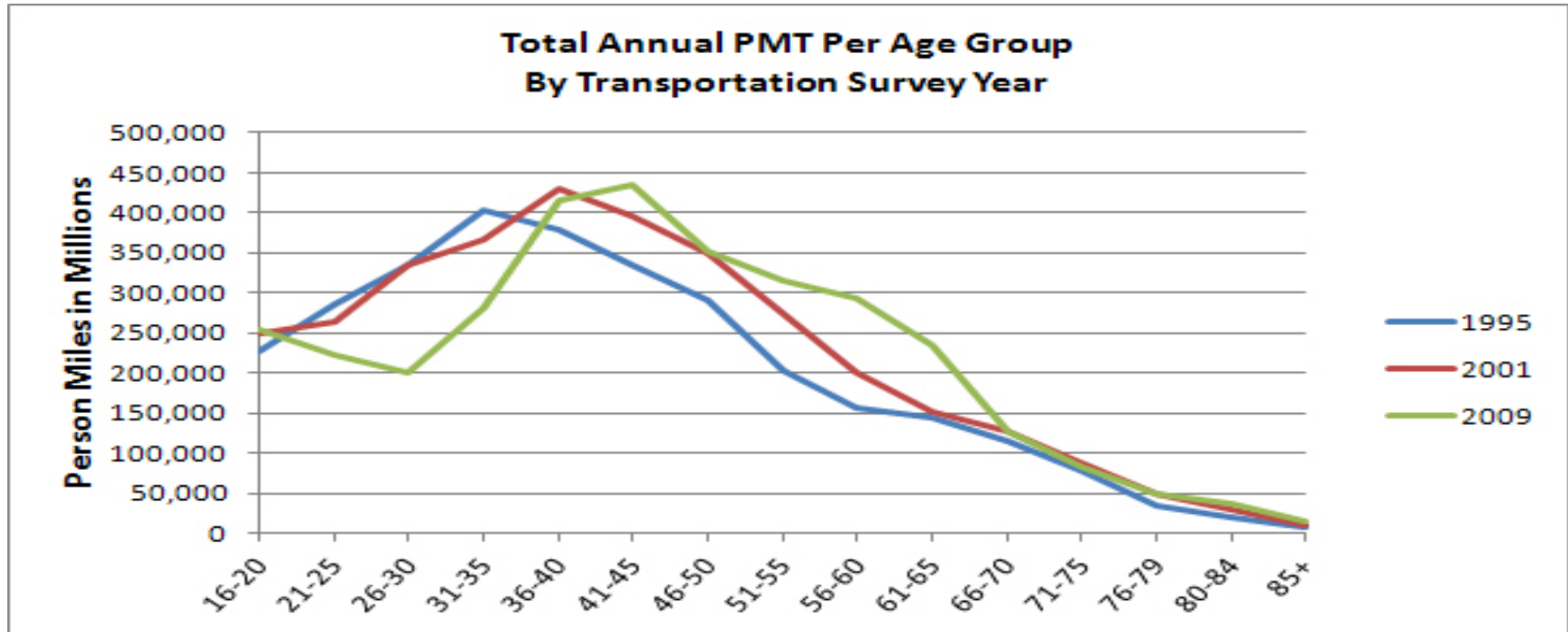
- The Economy
- Social Trends
- Changes in Values
- Information-Communication Technology

# Millenials are a big cohort, as numerous as the baby-boom:

In 2030, Millenials will outnumber Baby-Boomers by 22 million:

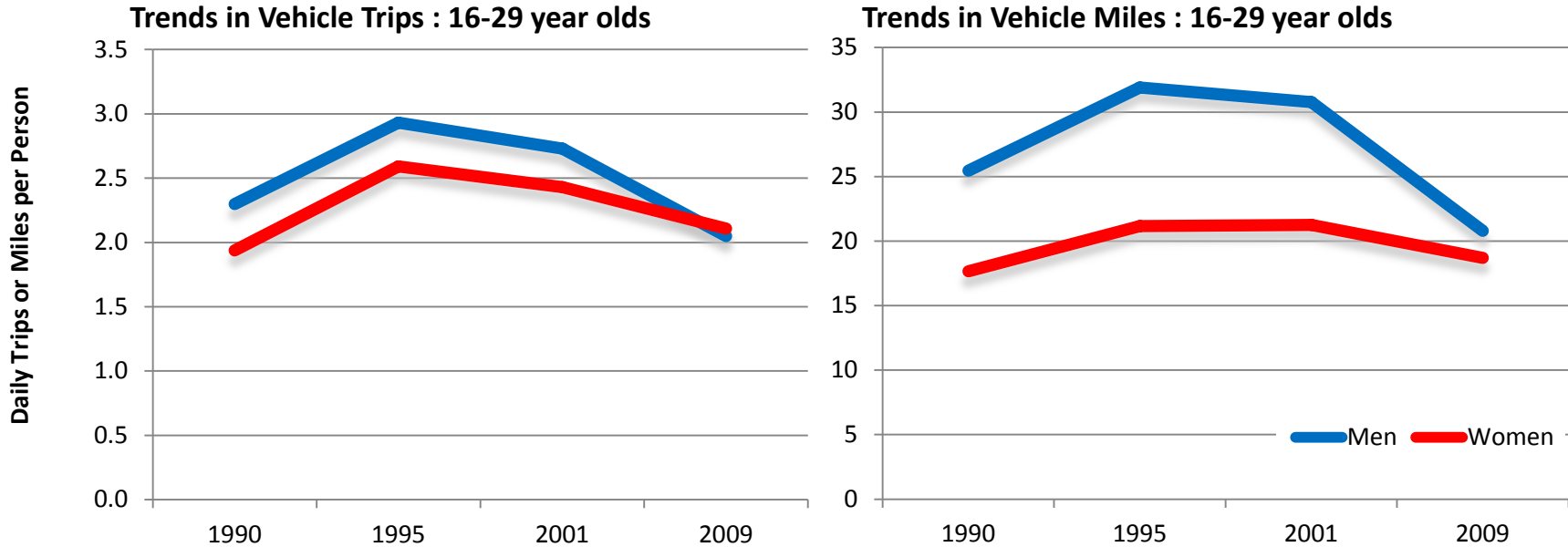


For young people, travel by all means is declining and the shift really took place between 2000 and 2009:

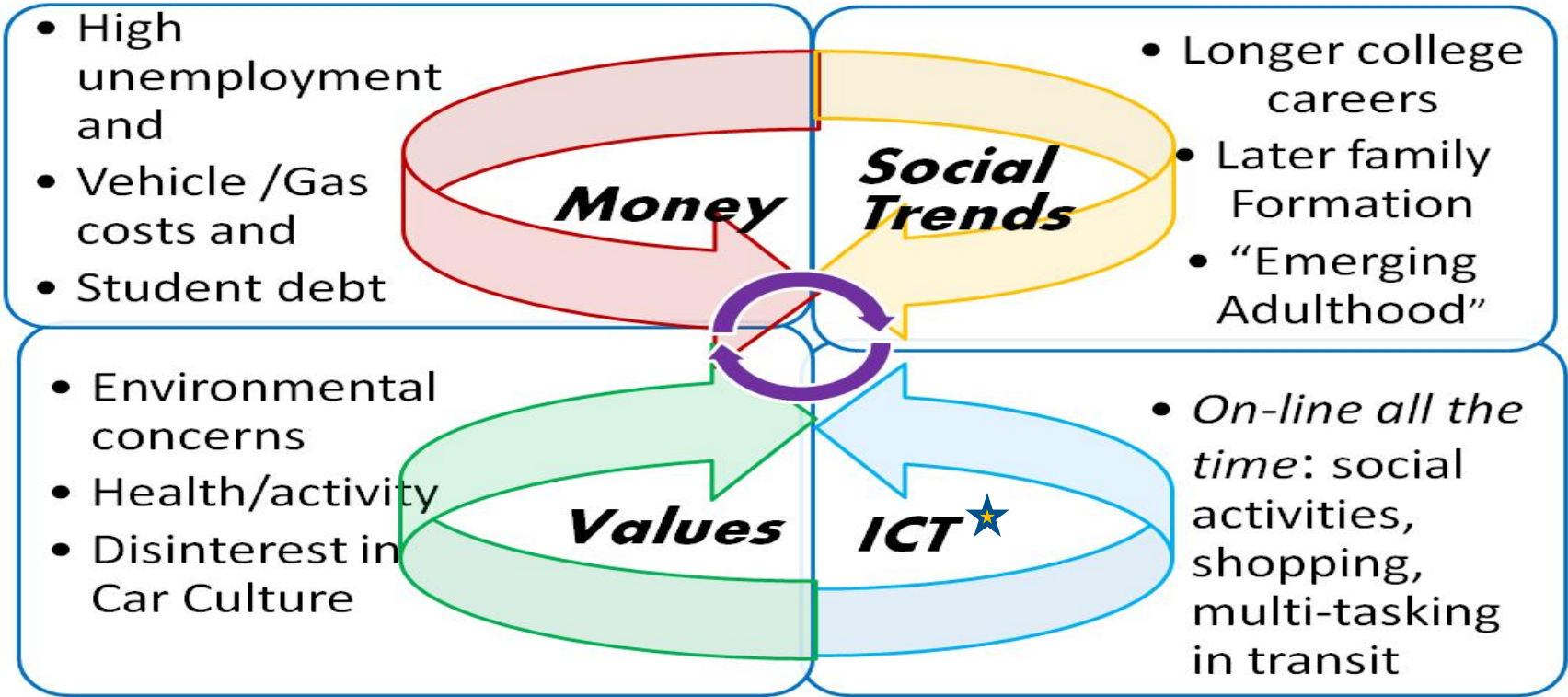


Source: FHWA's "The Next Generation Of Travel", 2011. Note that all travel is included, not just VMT

# Young men's vehicle travel rates declined more than women (16-29 years old):



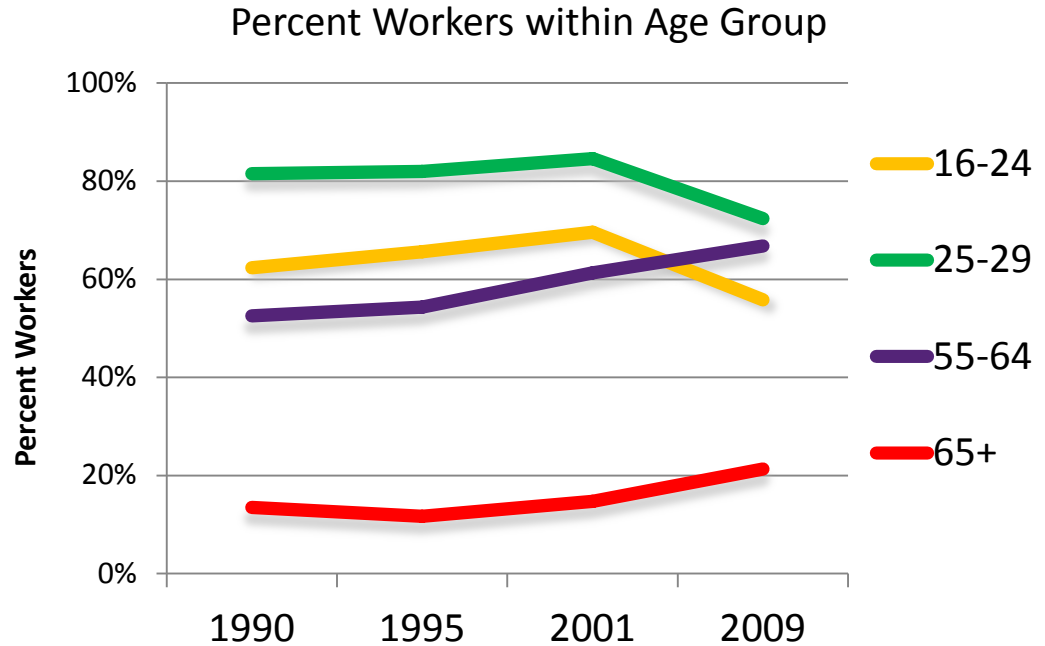
# Factors influencing Millennials changing travel demand:



# Historic low workforce participation among 16-29 year olds (coupled with historic high participation by 55 and older):

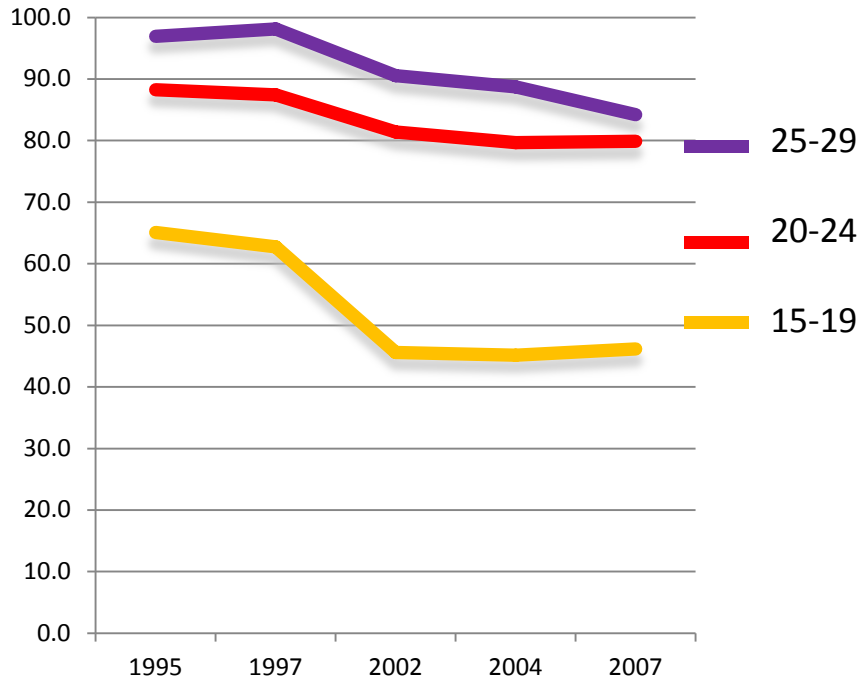
I'm not so sure how much of this has to do with technology or the driving age. I think it has more to do with the fact that young people are one of the largest portions of the population who have been hurt by the recent recession.

-Courtney



# Young people (esp. men) delay licensing:

Men Drivers as Percent of the Male Population



Source: McGuckin's analysis of Table D20 Highway Statistics Historic Summary

- **39 percent** said they'd rather walk/bike or use public transportation
- 37 percent** said they were either too busy or didn't have the time to get a license.
- 32 percent** said that owning and maintaining a vehicle was just too expensive.
- 31 percent** said they could hitch a ride with someone else if needed.
- 9 percent** said they were worried about driving's effects on the environment.
- 8 percent** said they could work or communicate online.

Source: The Reasons for the Recent Decline in Young Driver Licensing in the U.S., UMTRI, Schoettle and Sivak m Aug 2013, at: <http://deepblue.lib.umich.edu/bitstream/handle/2027.42/99124/102951.pdf?sequence=1>

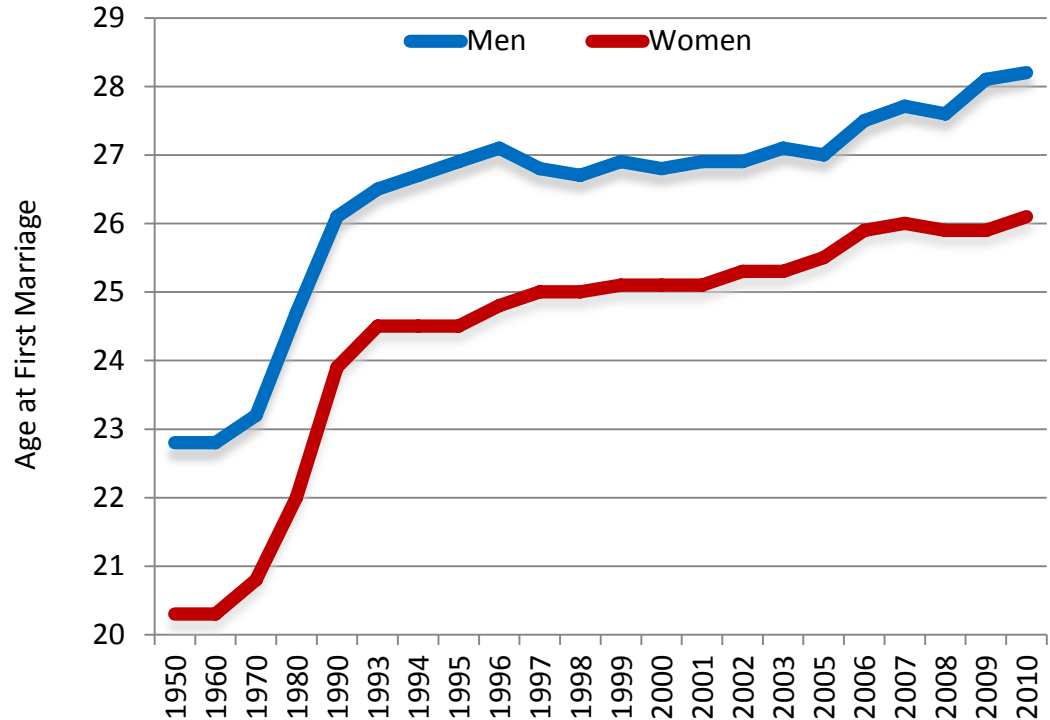
# Delayed marriage is at an unprecedented high:

According to Pew, only 21 percent of 18-29 year olds are married.

“Marriage these days signals that you’ve figured out how to be a grown up. You’ve “arrived,” having finished school, settled into a career path, bought a condo, figured out who you are, and found your soul mate.

The fairytale wedding is your gateway into adult life.”

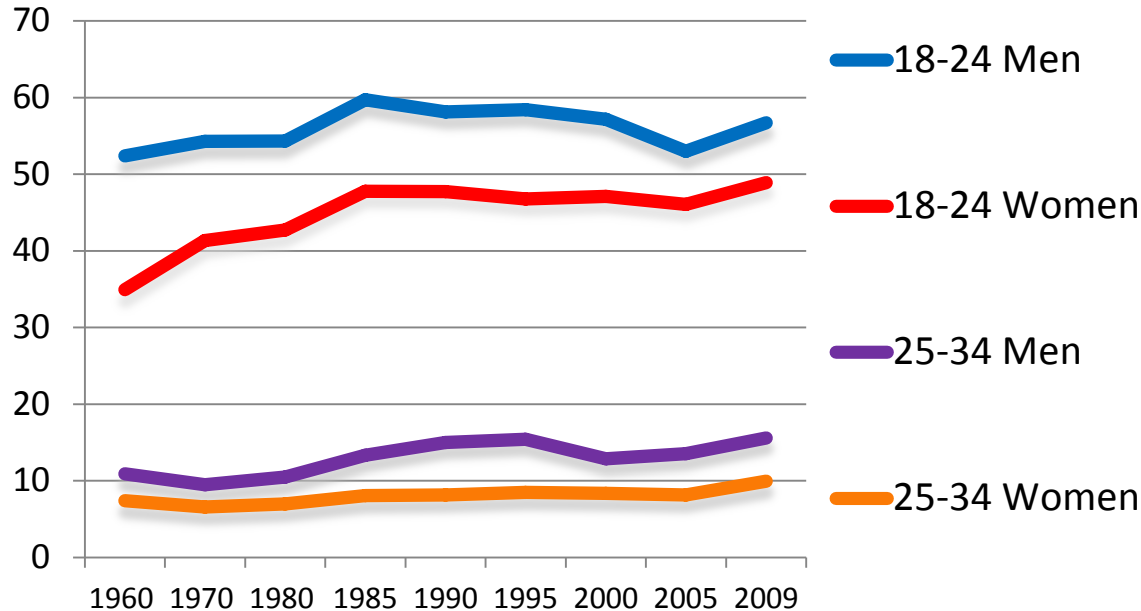
2010 Pew Research Report





# Millenials are more likely to live at home:

Percent of Young People Living at Home



“He could be helping his parents ... maybe they need assistance with paying bills / taking care of the house/etc.

He may have had some financial troubles in the past or he might just be saving up his money to buy a nice home of his own in the near future.

Don't assume the worst!"  
-Eric

Source: McGuckin's analysis of US Census TAD-1. Young Adults Living At Home: 1960 to Present

\* The quote is from an informal survey (web-based) conducted by McGuckin, 2010

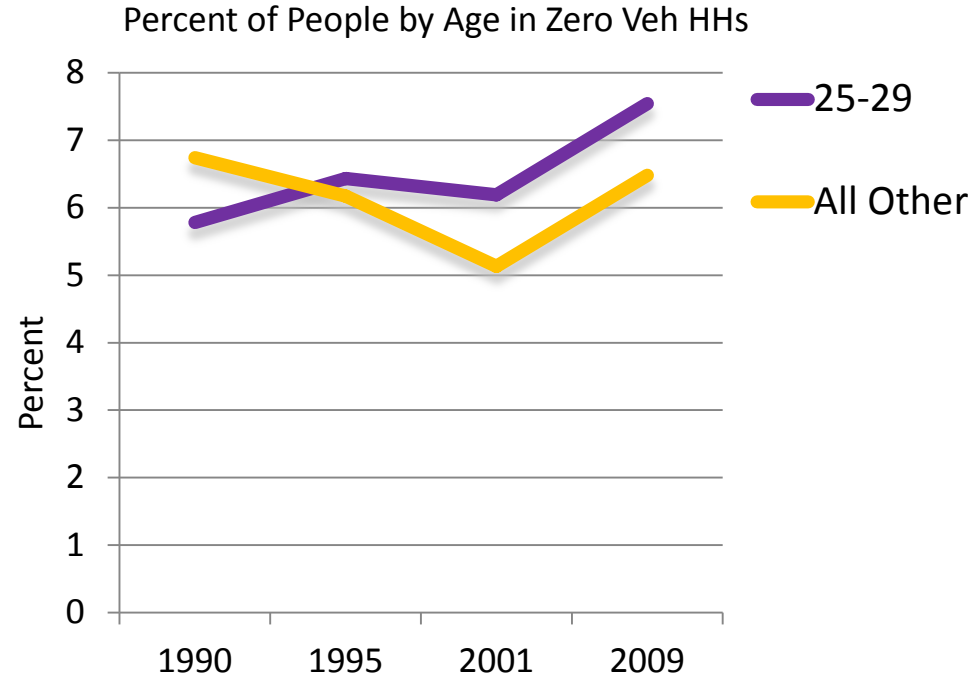
# Some young people may have a different attitude toward auto ownership:

“For Millennials, cars are not status symbols; they are perceived as unnecessary luxuries that are:

- Expensive
- Harmful to the environment
- Antisocial

They would rather own a great smartphone or laptop instead. (Real-time, portable technology helps to confer the sense of “freedom” that owning a car does not)”

Latitudes Report on Phase 1 findings for  
TCRP “Millenials and Mobility”

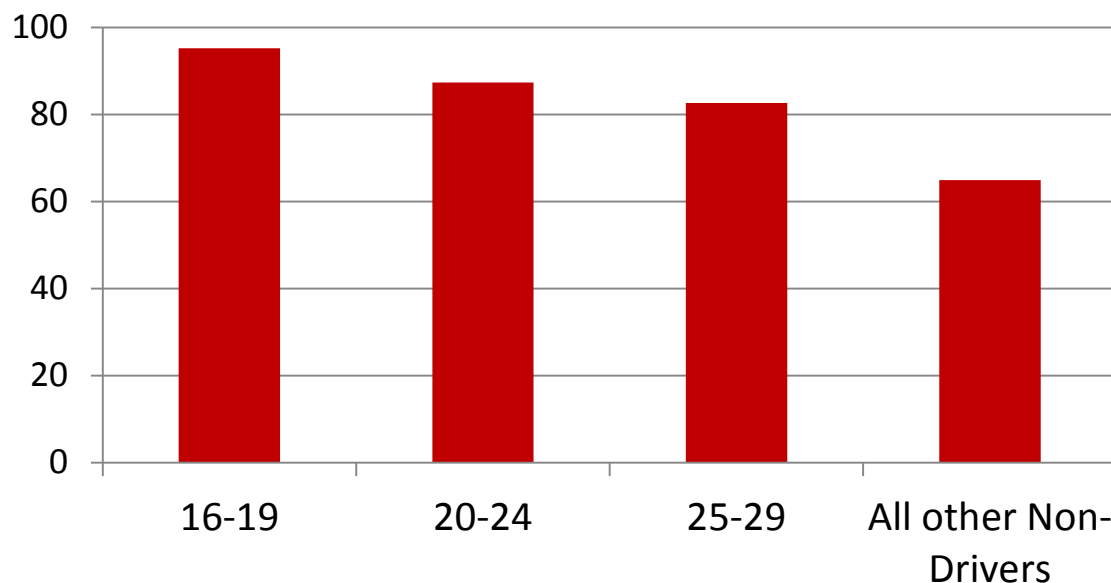


# Most non-drivers live in households with other drivers...part of the car-sharing culture:

“My roommate thinks I'm nuts for not driving a car, but I think he's nuts for going around the block for a half hour just to find a suitable parking spot.”

-Jake

Percent of Non-Drivers who Live with Other Drivers



Source: McGuckin's analysis of 2009 National Household Travel Survey

\* The quote is from an informal survey (web-based) conducted by McGuckin, 2010

# Millenials are more likely to use transit:

Millenials who use transit prefer it for both practical and ideological reasons:

**It is significantly more affordable**

It gives them **“me time”** to rest, reflect, or do work

It makes them **feel more ethical:**

**It reduces traffic**

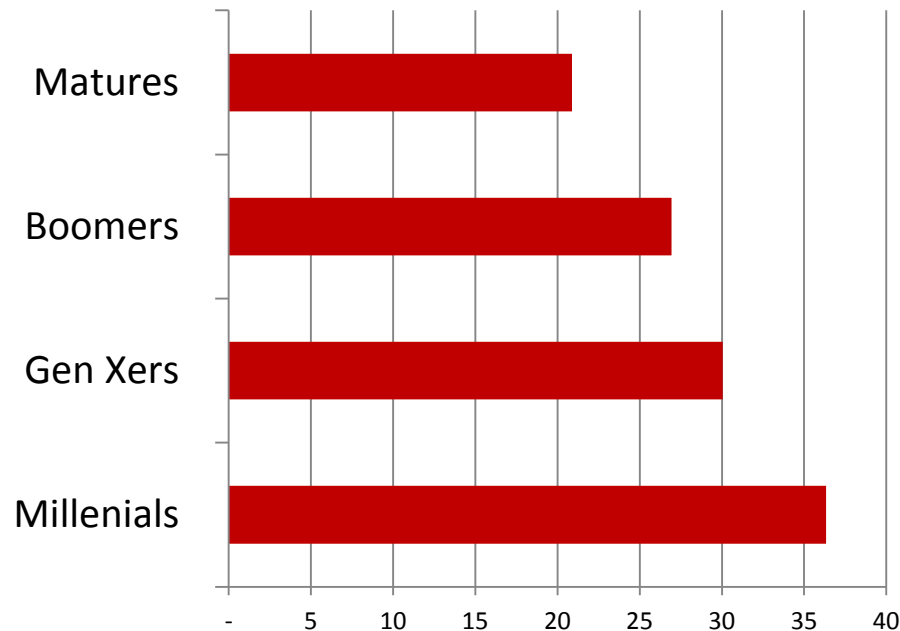
**It benefits the environment**

**It feels more social**, more a part of the community vs. feeling isolated in a car

It allows people to **avoid car hassles (often costly)**, including parking, traffic, and car upkeep

--Latitudes Report on Phase 1 Findings for TCRP  
“Mobility and Millenials”

Annual Trips Per Capita on Transit



Source: McGuckin’s analysis of 2009 NHTS

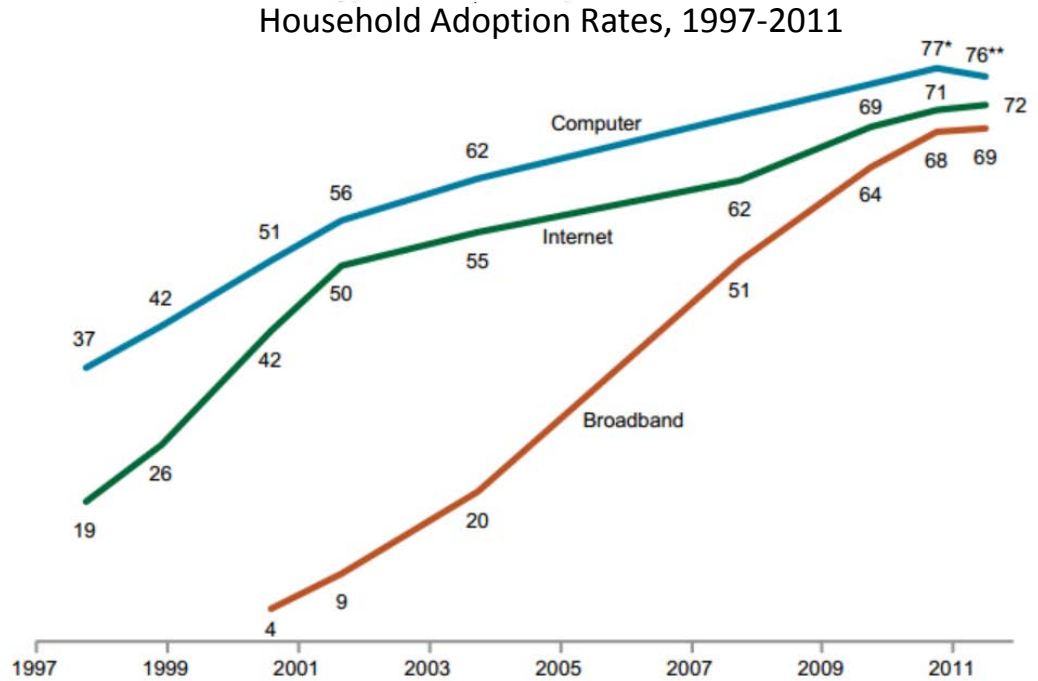
# Changing Demand: Information & Communications Technology

- Widespread adoption of new technology
- Some evidence for substitution effects for social and shopping
- System-wide changes in the brick-and-mortar and delivery for goods and services

# Unprecedented adoption of communications technology:

“The **Internet** is becoming the town square for the global village of tomorrow.”

*Bill Gates  
Business@the Speed  
of Thought*



\* Includes handheld devices, such as smartphones and tablets

\*\* Includes tablets but not smartphones

# The Connected Generation

- 72 percent of US households have internet connection – 83 percent of individuals 18-29 (Census 2011)
- 90 percent of millennials use the Internet daily, compared to 79 percent of boomers
- 75 percent of millennials use social networking sites, compared to only 30 percent of boomers.
- There was a 21 percent increase in online course enrollment in colleges across the country in 2012.

Percent who BYOD (Bring their own device) to the Office—Desk Phones Just Don't Work for Me:

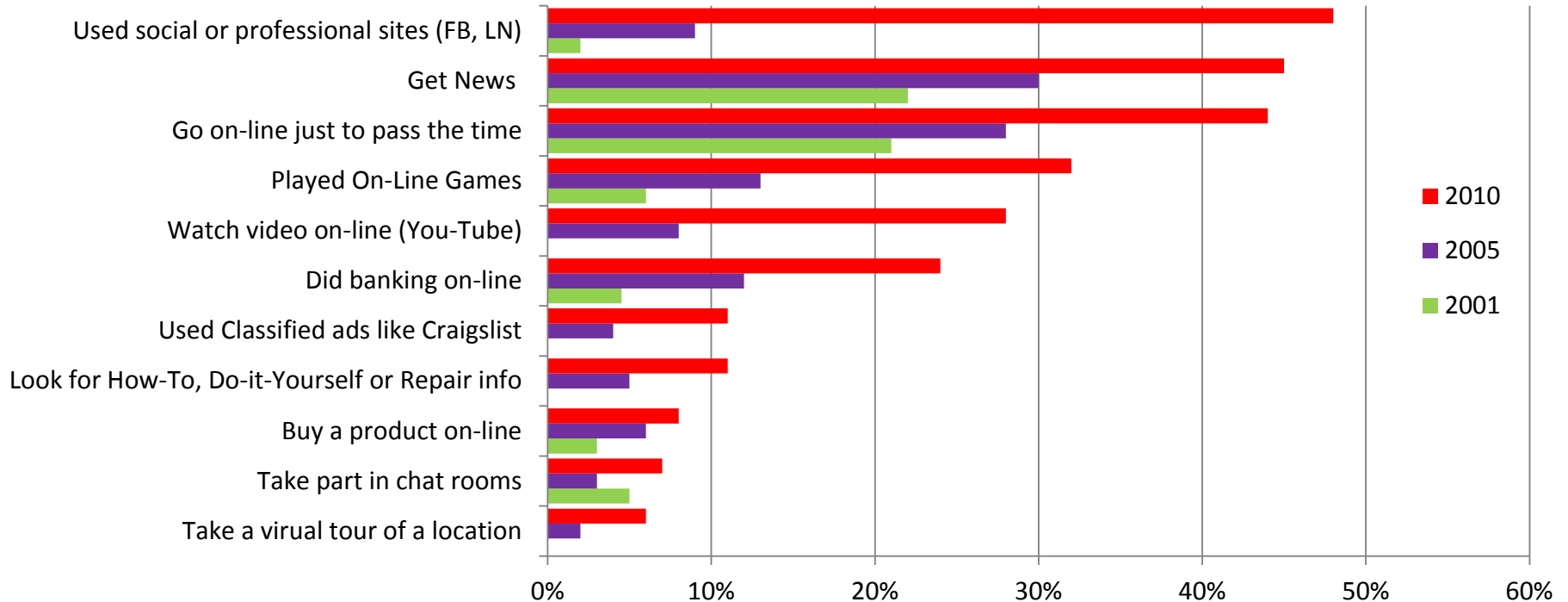


<http://www.eweek.com/mobile/byod-trends-millennials-have-little-use-for-desk-phones-report.html>

The last three bullets from: **Pew Research Center.** *The Millennials: Confident. Connected. Open to Change.*

Over all ages, 72 percent of Americans go on-line everyday, but not all activities have a direct travel substitute:

**On-line activities reported “Yesterday”:**

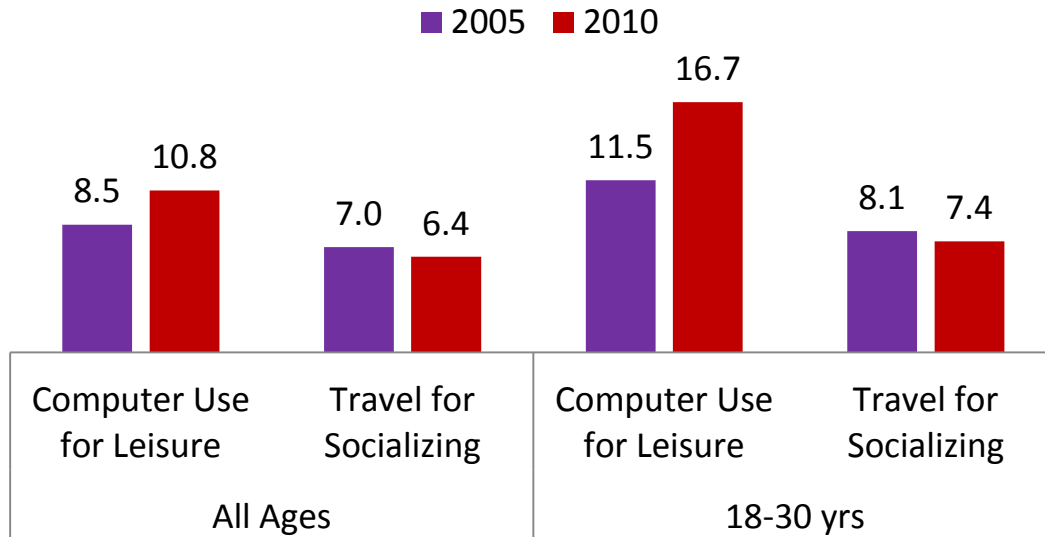


Source: McGuckin’s analysis of the Pew “Usage over Time” data, all ages. Only people reporting on-line activity



There may be a substitution effect in time-use--people are spending more time on-line for leisure and less time in travel for leisure:

Trends in Time Spent on the Computer and for Traveling  
for Leisure and Social Activities  
Minutes per capita per day



“Computers and the internet play a huge role in [millenials’] everyday lives; **they depend on this technology for everything** from work to socializing to getting around.”

--Latitudes Phase 1 findings for TCRP  
“Millenials and Mobility”

# We need to be able to link on-line behavior and travel behavior more conclusively...

**77.1 percent** of millennial respondents reported browsing online before purchasing in the store, nearly **17 percentage points** higher than the general population.

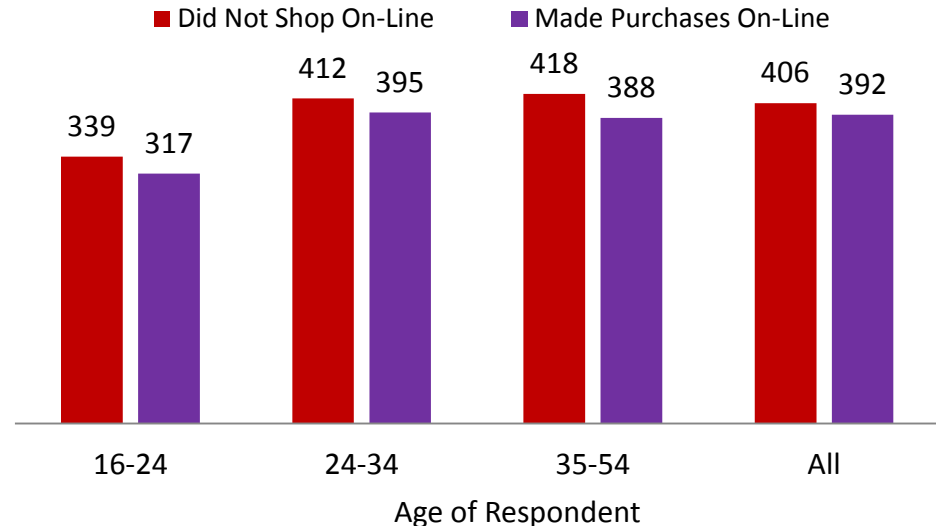
**58 percent** of millennial respondents admitted to 'showrooming', nearly **10 percentage points** higher than older shoppers.

**56.3 percent** of millennial respondents admitted to looking at an item in one store, yet purchasing the item online from a different retailer – **double the rate of the general population.**

★ "Showrooming" is browsing in a brick and mortar shop and then purchasing on-line for lower cost

## Small but significant differences in shopping behavior on-line and on-road

Per capita shopping trips by on-line purchase behavior



Source: McGuckin's analysis of 2009 NHTS, self reports only

# System-wide changes are taking place all around us:

(and faster than I can make a new slide!)

## Old School

- Bookstores
- Travel Agent
- Blockbuster
- Avis/Hertz
- Greyhound
- Taxi

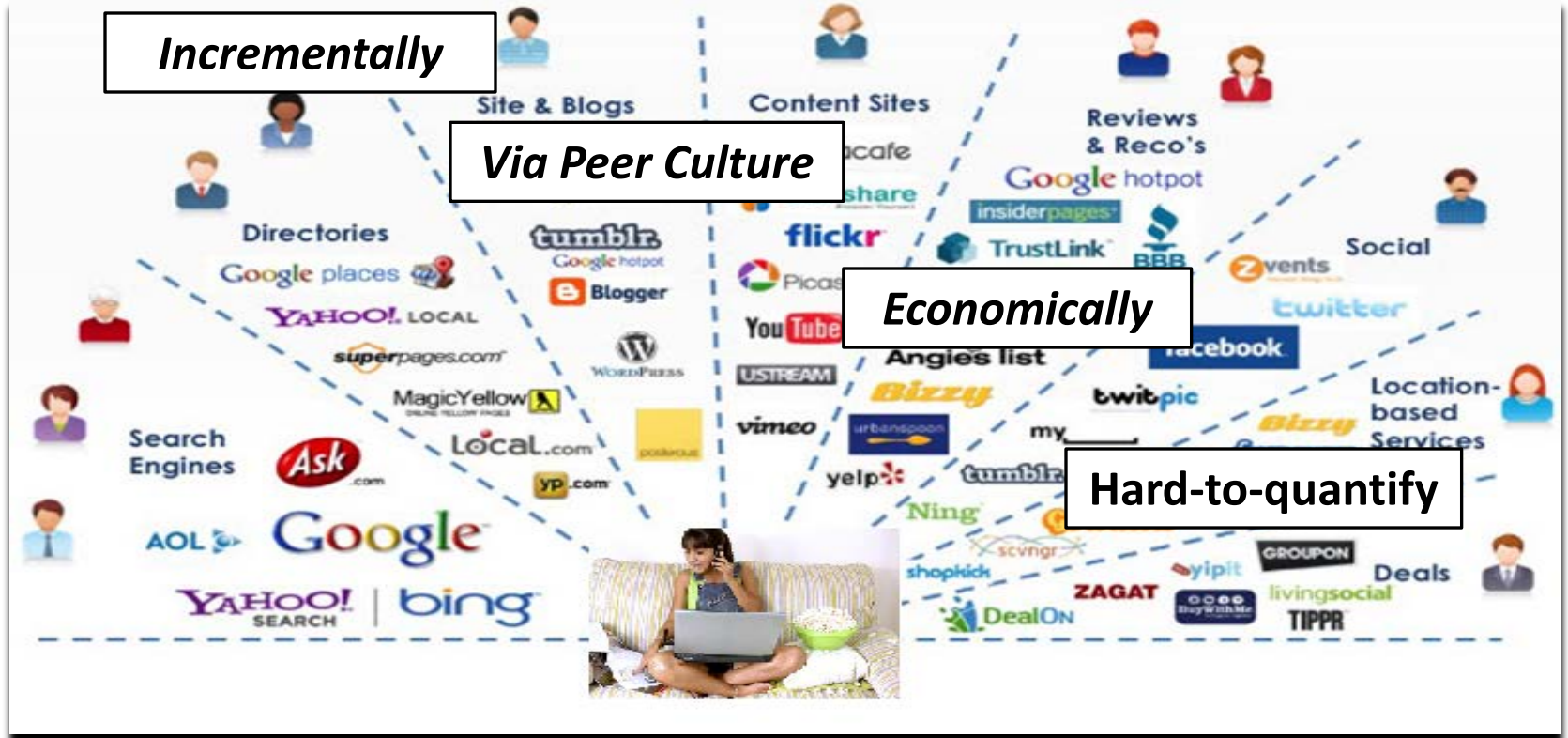
## New School

- Amazon /Kindle
- On-line booking
- Streaming Video
- Zipcar
- Megabus
- Uber/Lyft

- Priceline
- Facebook/Myspace
- Big Data
- The Internet

- Hotel Tonight
- IM/Skype/Vine
- Bigger Data
- The Internet of Things

People are responding to those changes the way people do:

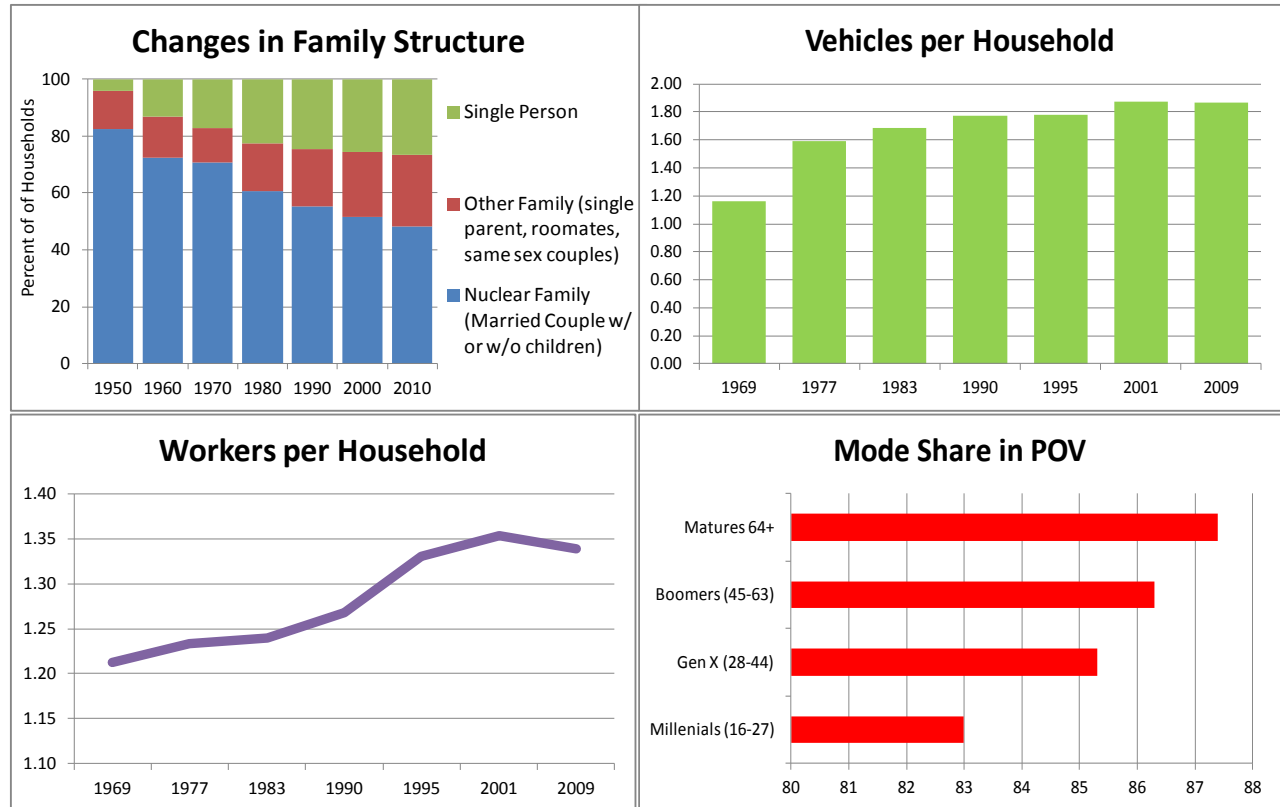


# Concluding Thoughts

- We are at a critical juncture
- Many of the demographic factors that pushed VMT in the last few decades have played out
- Need to re-evaluate our forecasts

# Several demographic 'push' factors for VMT growth have leveled off:

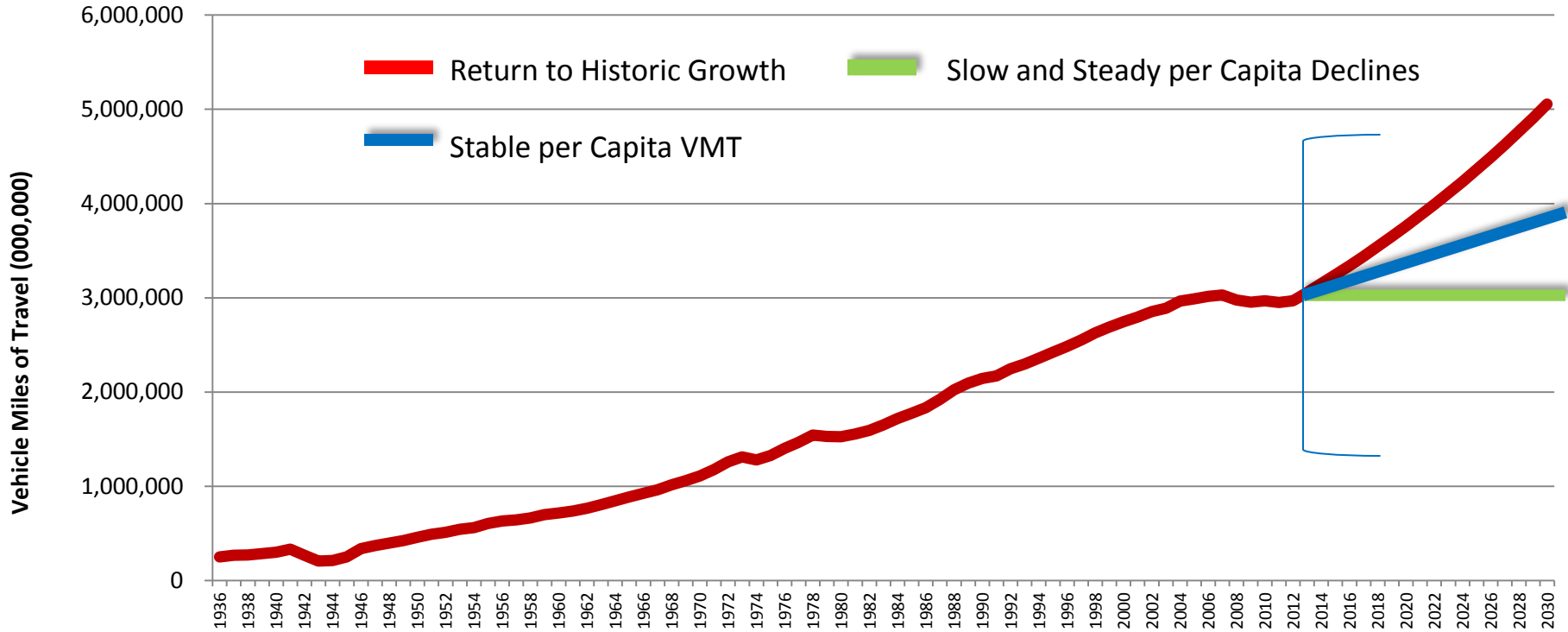
- Percent of Families with Children
- Women's entry into labor force
- Migration from city to suburbs
- Vehicle occupancy (→ Drive alone)



# Millenials: Will their changes persist?

- Emerging adulthood as a life-stage
- A tough economy
- A skeptical eye toward car ownership:
  - Is it affordable? More of a hassle than a convenience?
  - Are other options better (for health, environment, etc)?
- Favorable attitudes toward dense urban living, low-speed modes and car-sharing
- Modest measurable effects from connected-ness and ICT

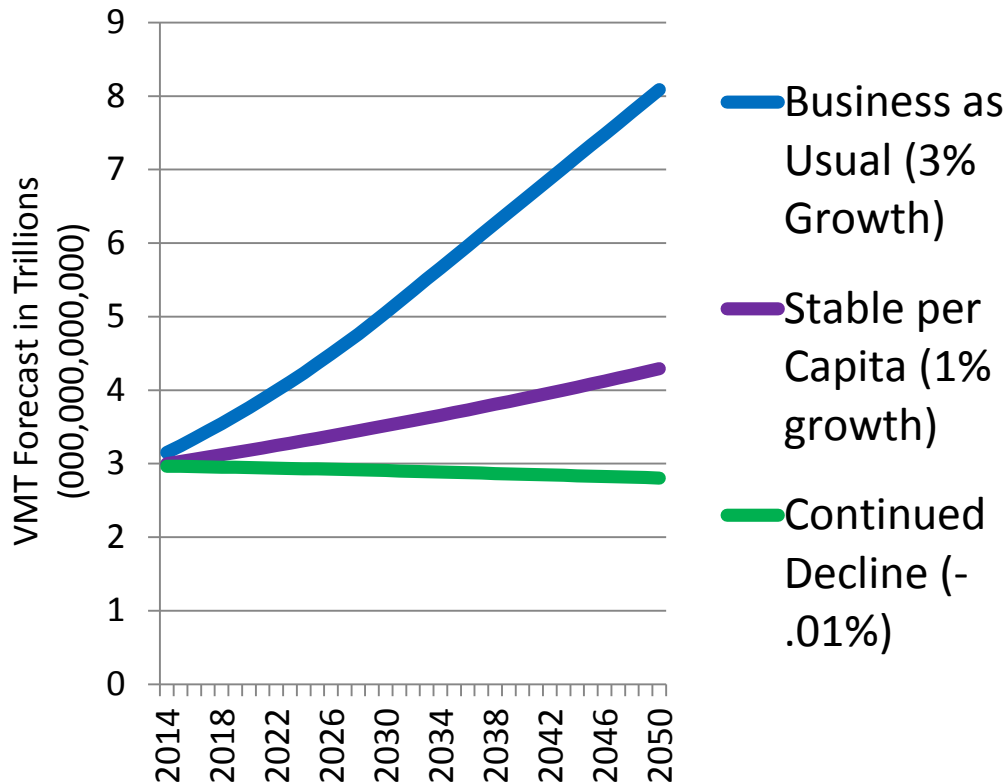
# The Past is history....





# The future is uncertain:

- The evidence suggests that the nation's per-capita decline in driving cannot be dismissed as a temporary side effect of the recession.
- At stable per-capita rates, total passenger VMT would grow about 40% between 2010 and 2050.
- In contrast some 'optimistic' forecasts have 170% increase to 2050.





**Thank you!**

**Emerging Trends in US Vehicle Travel Demand**

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***[www.travelbehavior.us](http://www.travelbehavior.us)***