

Is Sprawl Dead?

Elena Irwin and Jill Clark

Agricultural, Environmental and Development

Economics Department

Ohio State University

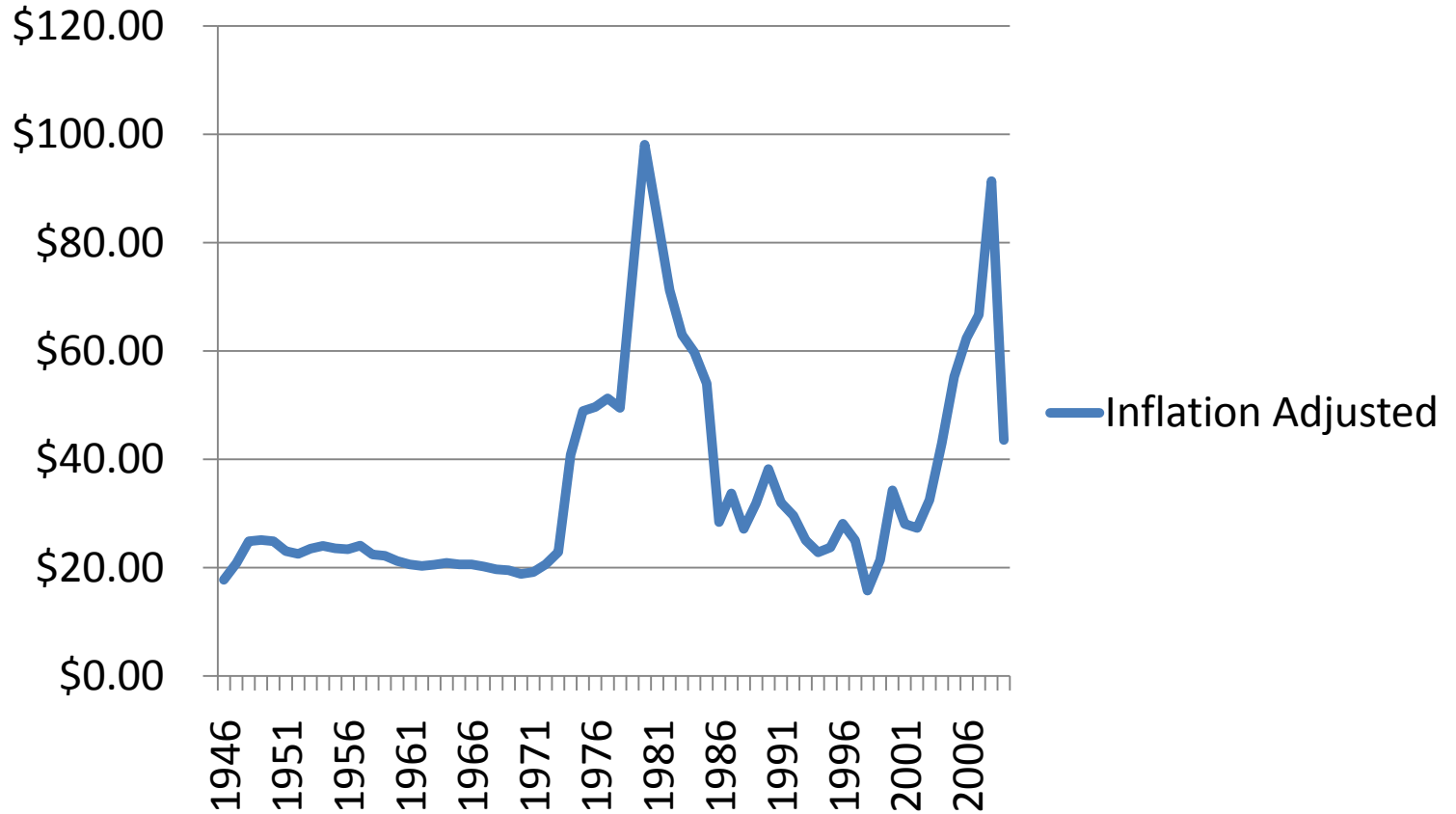
Prepared for the OSU Extension annual Ohio Land Use Conference,
Nationwide and Ohio Farm Bureau 4-H Center, September 16, 2009

Today's Talk

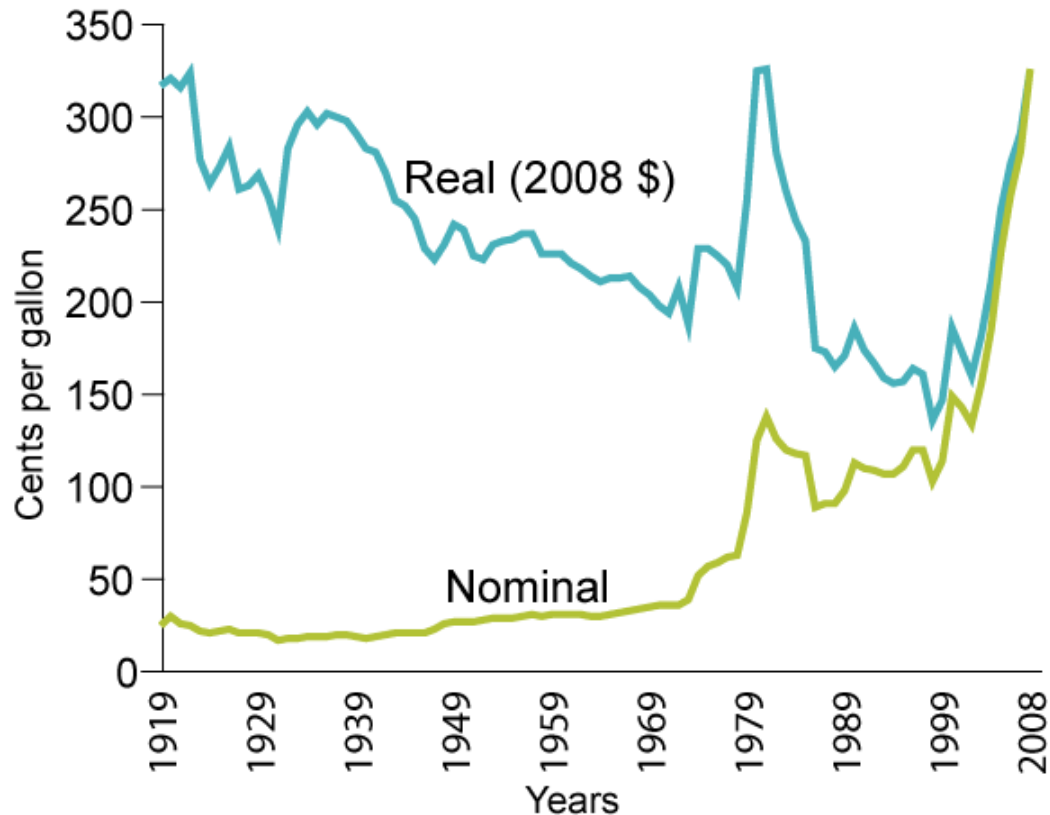
- The current crisis
- Historic trends and underlying factors that have contributed to sprawl
- Recent changes in underlying factors
 1. Demographic changes
 2. Technological changes
 3. Market changes
 4. Policy changes
- Implications of these recent changes for future growth patterns

Recent energy crisis

Annual Average Domestic Crude Oil Prices

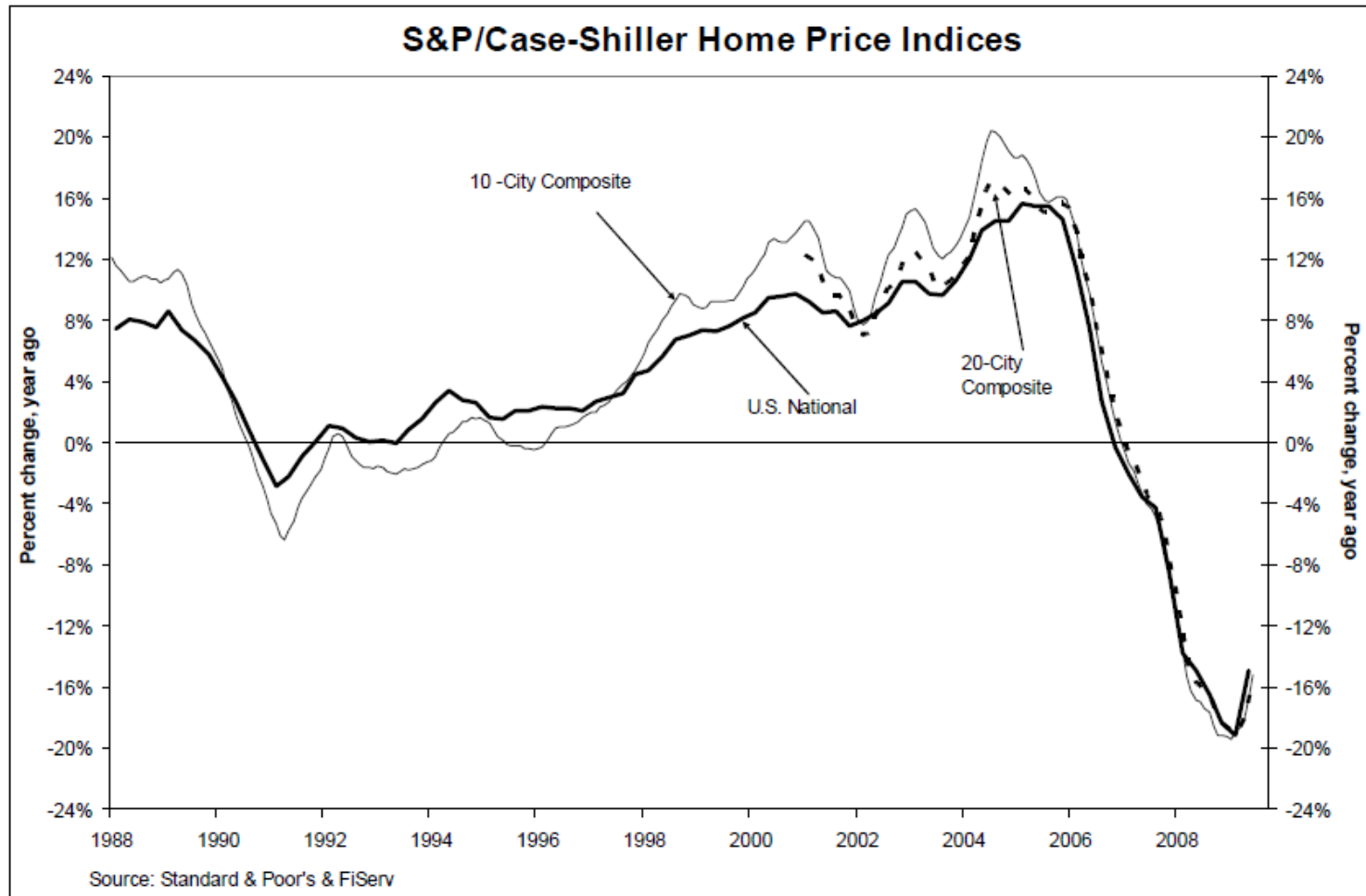


Historical Average Annual Gasoline Prices – Nominal and Real (Regular Grade)



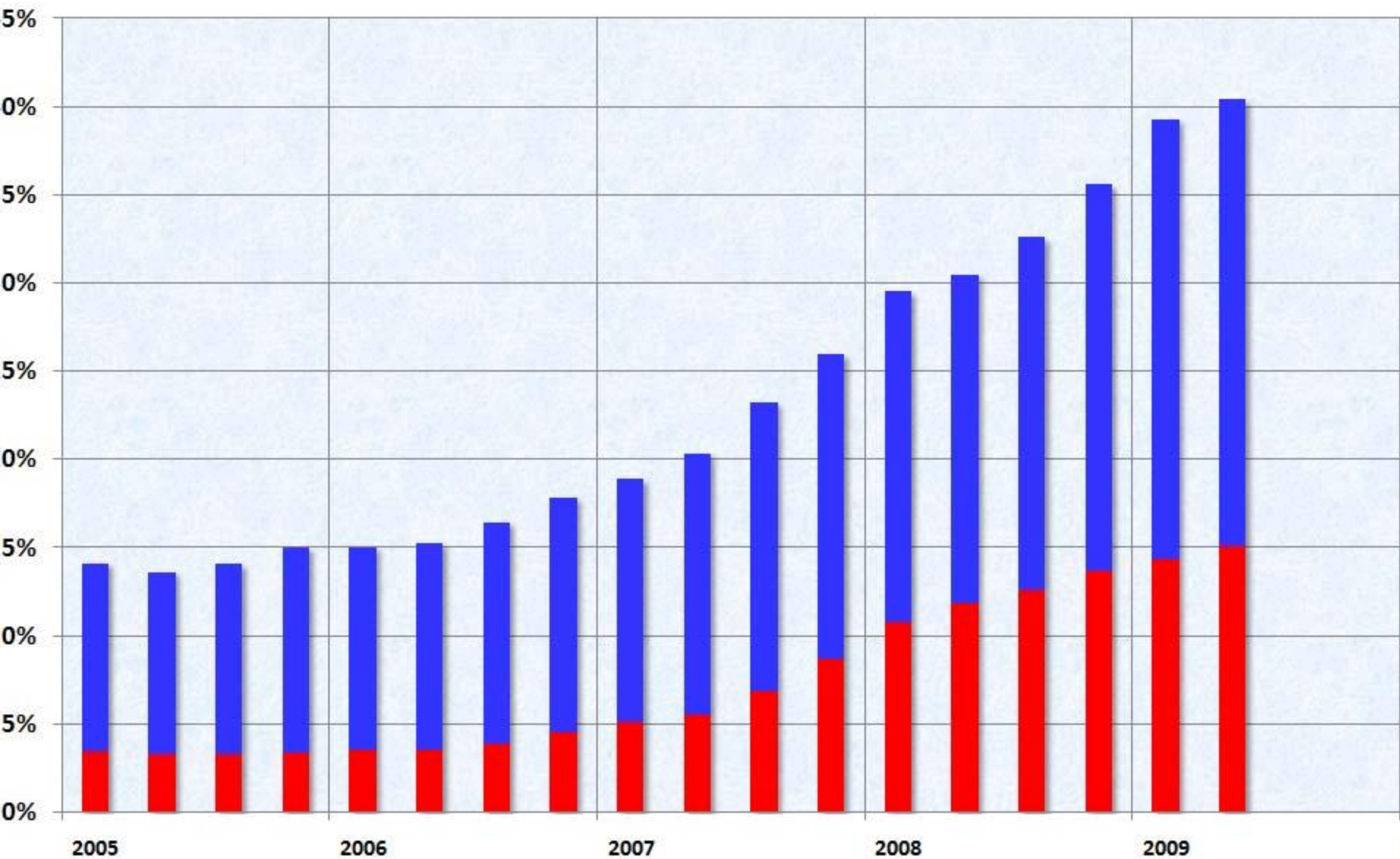
Source: Energy Information Administration, *Short Term Energy Outlook*, July 2009.

Housing market crash



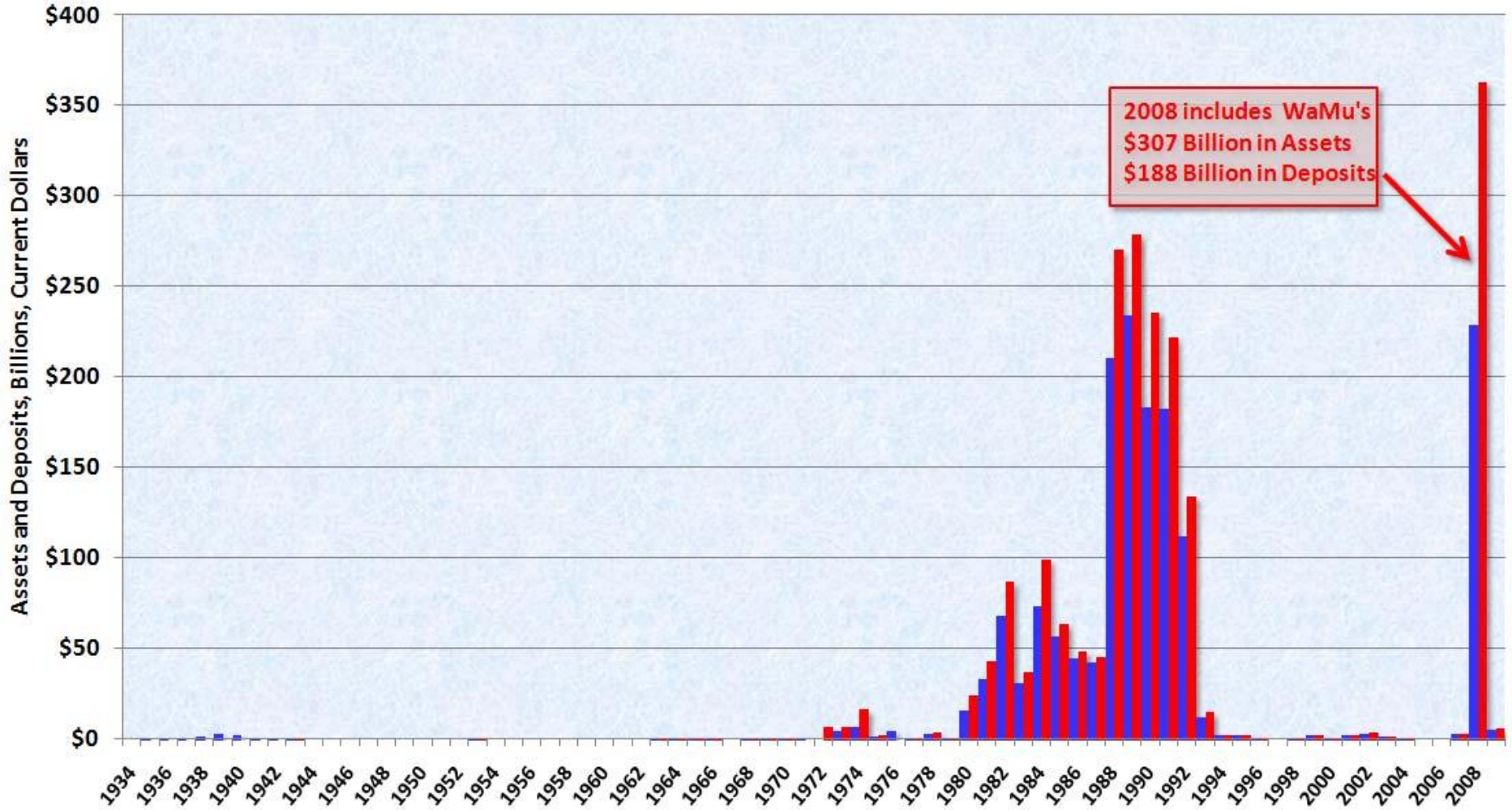
U.S. All Subprime Loans Delinquent and in Foreclosure: Source: MBA Q2 2009 Delinquency Survey

■ Foreclosure Process ■ Delinquent



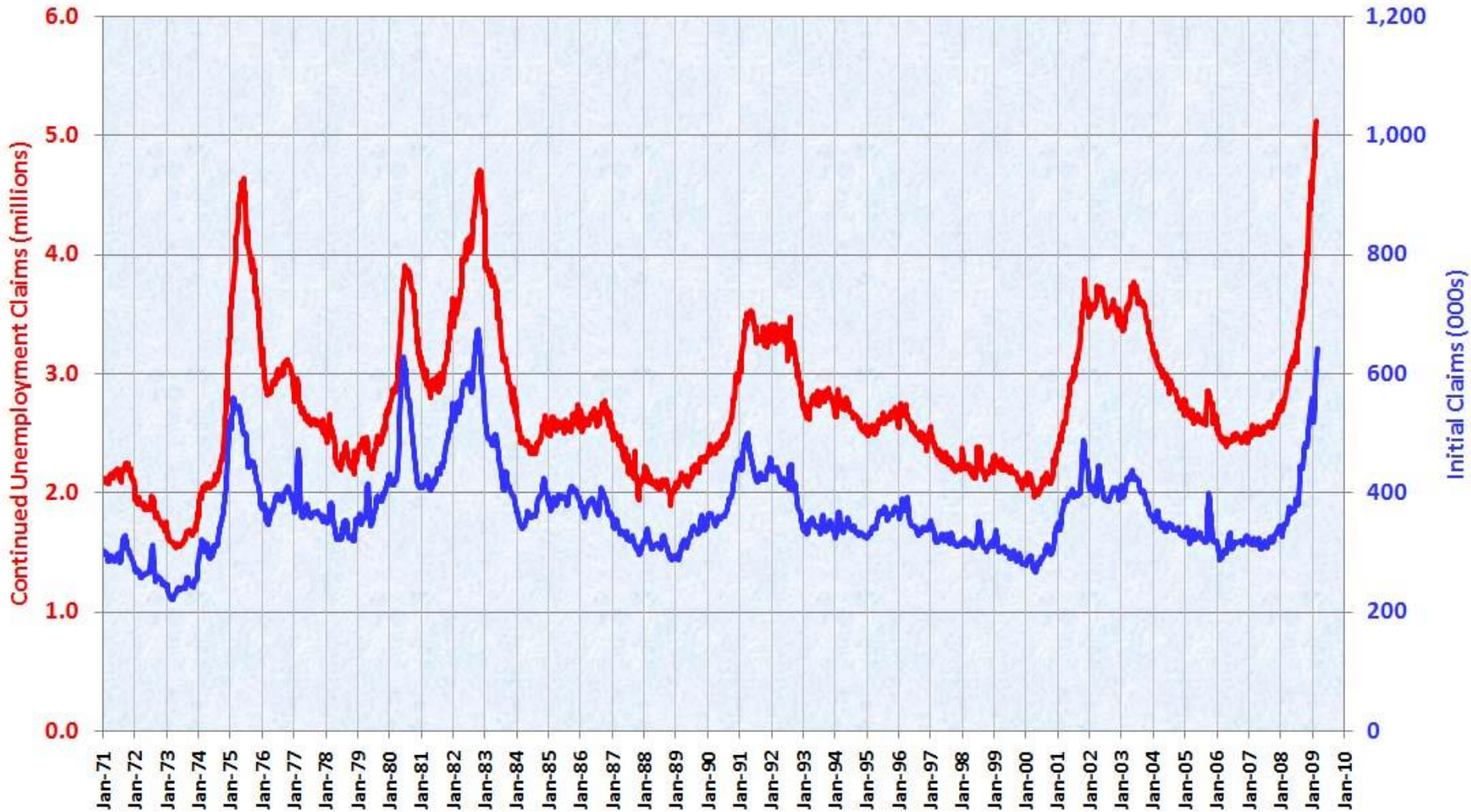
FDIC Bank Failures, Assets and Deposits in Current Dollars

■ Total Deposits ■ Total Assets



Initial and Continued Unemployment Claims

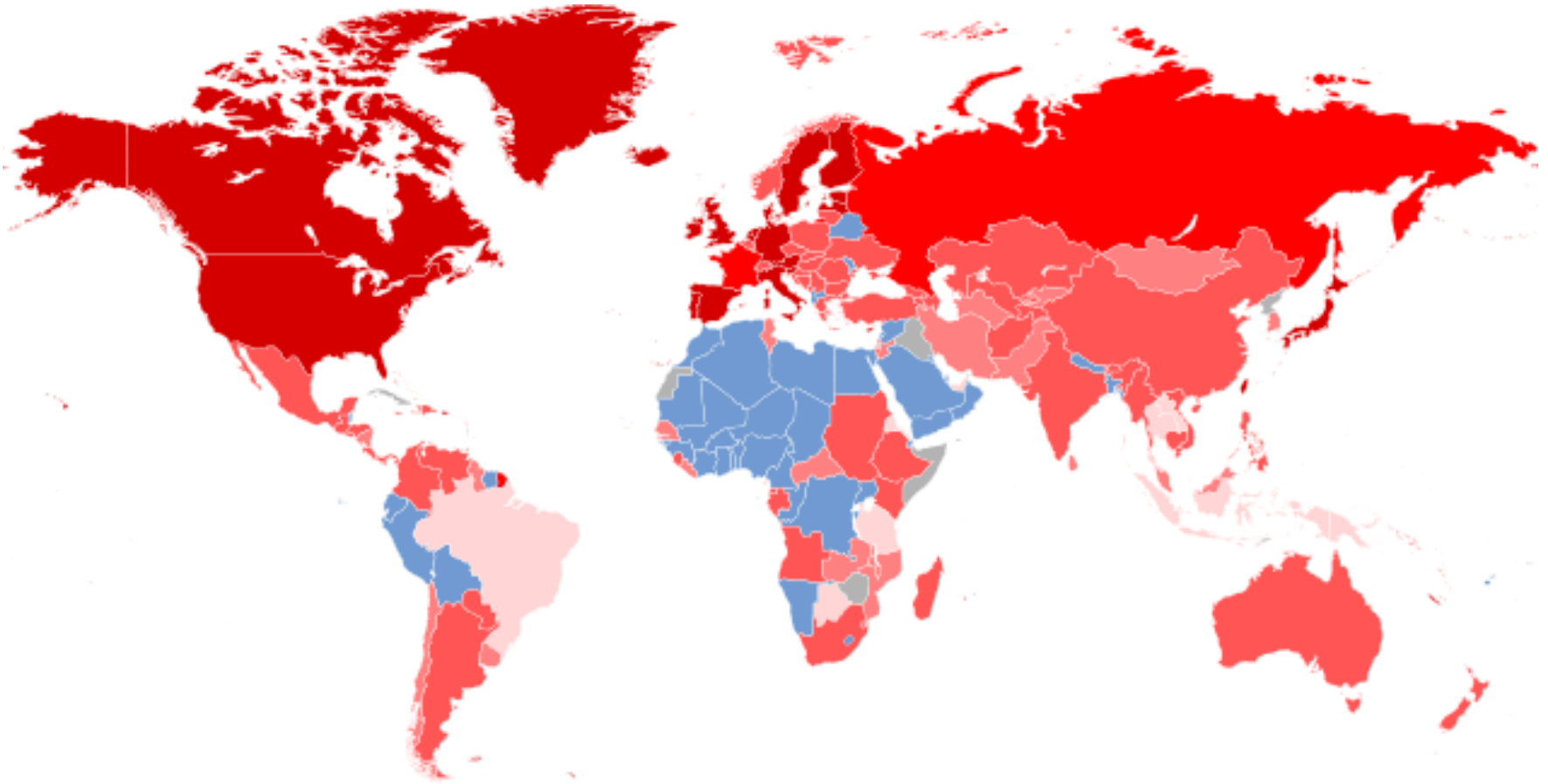
Continued Claims Initial Claims (4 week moving Average)



<http://www.calculatedriskblog.com/>

Global economic crisis 2007-09

(red = economic recession, blue = economic acceleration)



Source: http://en.wikipedia.org/wiki/File:2007-2009_World_Financial_Crisis.svg

So what does all this mean for *sprawl*?






(= decentralized growth in outer suburbs and exurbs)

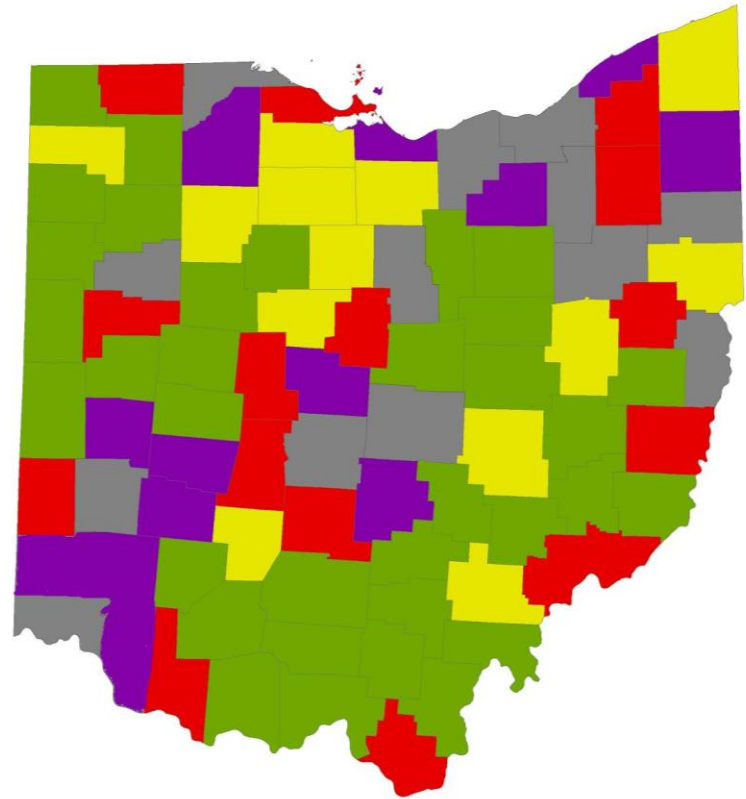
- Sprawl is halted in the short-term
- But, once the credit market thaws and the economy bounces back...
 - Will the fundamental forces that have driven sprawl remain unchanged? **OR**
 - Will changes in these fundamentals render sprawl dead?

To answer this question, we ask...

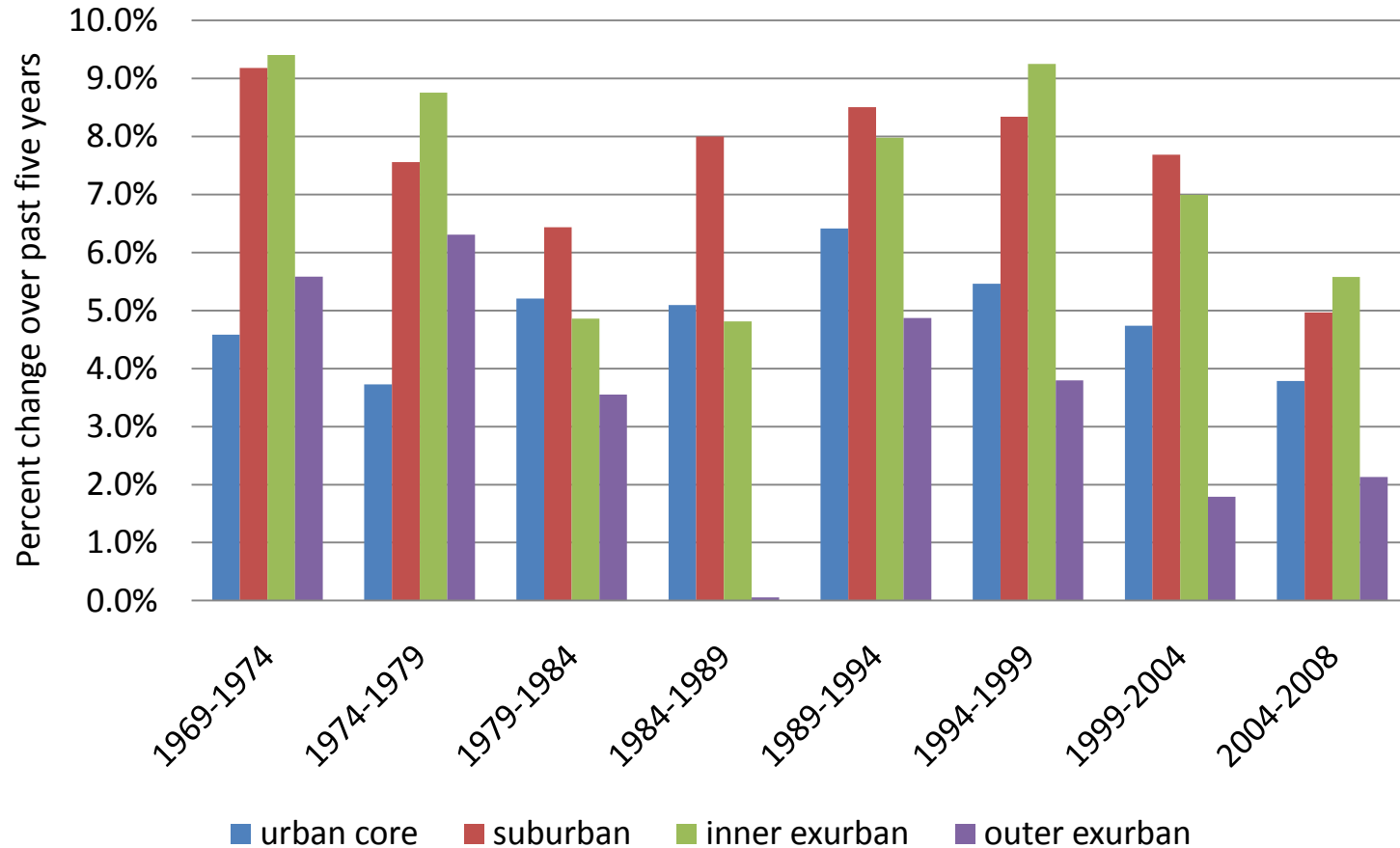
1. What are the historical trends and underlying factors that caused sprawl in the past?
2. Have factors changed in recent times and if so, how might these changes play out on the landscape?

Macro trends in urban, suburban and exurban growth across the U.S....

- Urban (contains central metro city) 
- Suburban (metro co. w/urban pop 2x > rural pop) 
- Inner exurban (metro co. w/urban pop 0-2x \neq > rural pop) 
- Outer exurban (adjacent to metro w urban pop > rural pop) 
- Non-metro, non-outer exurban 

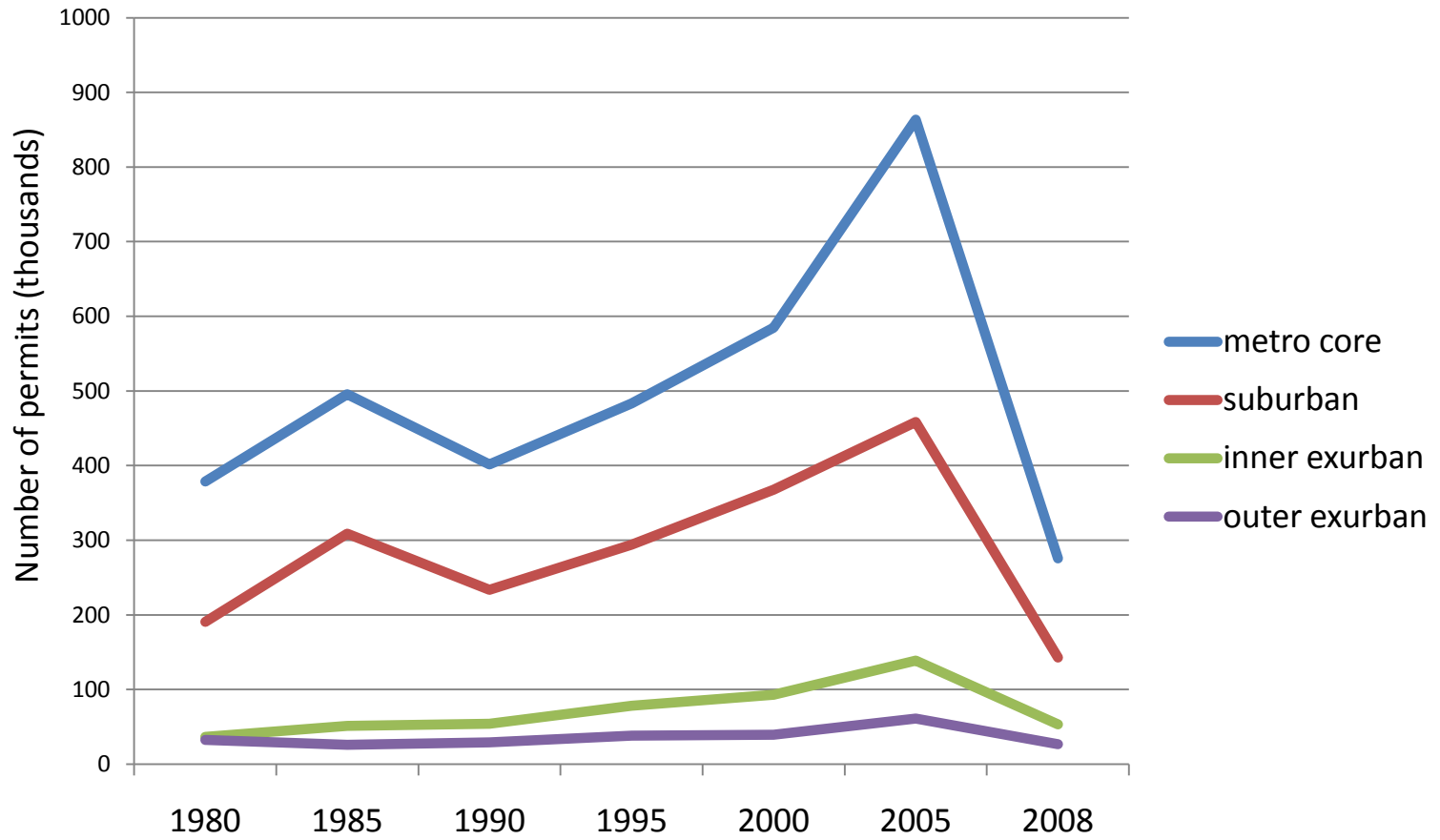


Population growth 1969-2008



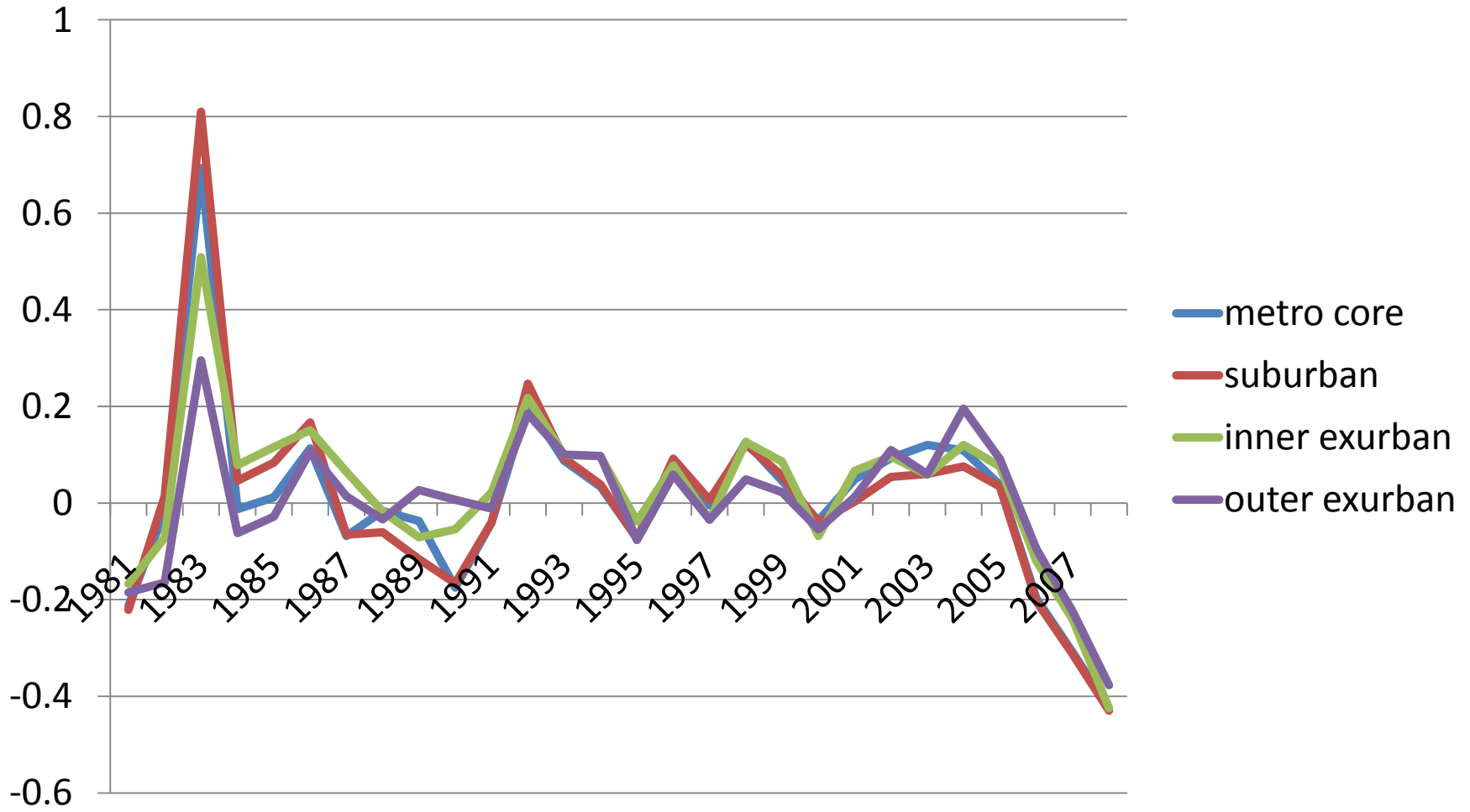
Source: US Census Bureau

Total building permits for residential single family dwelling units (SFDU), 1980-2008



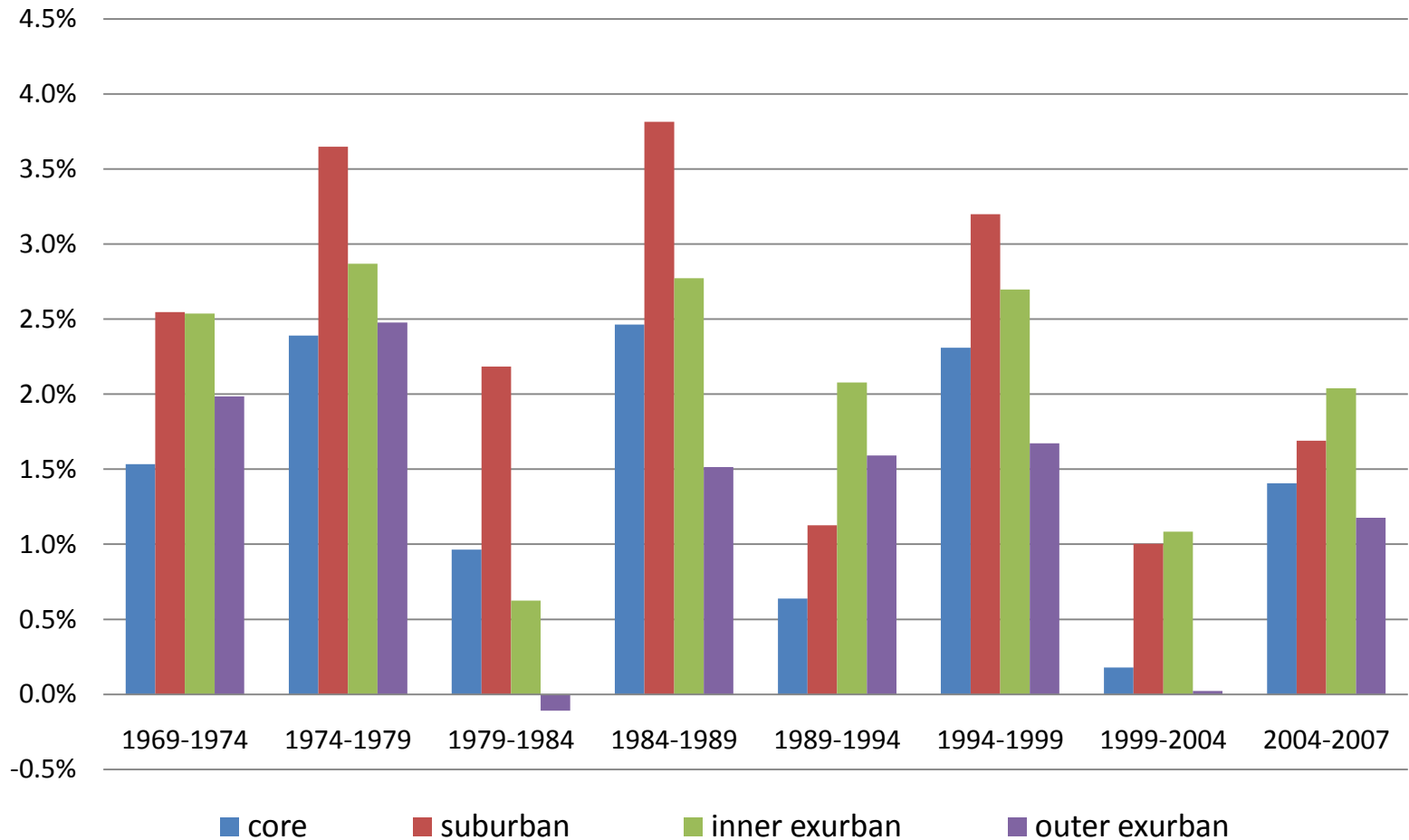
Source: US Census Bureau

Percentage growth in SFDU residential building permits, 1980-2008



Source: US Census Bureau and US Bureau of Economic Analysis

Employment percentage growth, 1969-2007



Source: US Census Bureau and US Bureau of Economic Analysis

Historical trends

- Trends show that suburban and exurban growth is closely tied to growth of urban core areas
- Suggest that once cities start to grow again, urban growth will once again spillover to suburbs and exurbs → sprawl will be back
- ***However***, it would be a mistake to base future predictions on past trends...
...we must look beyond trends to underlying causes

Traditional causes of sprawl

- **Individual preferences** and tastes for large houses , affordable prices, and de-centralized living
- **Inexpensive inputs** (unregulated and accessible land, cheap credit)
- **Government policies** that have favored consumption of new housing and new urban land (Home Interest Mortgage Deduction) in outer areas (Federal support for road building)

Are these factors changing and if so,
how?

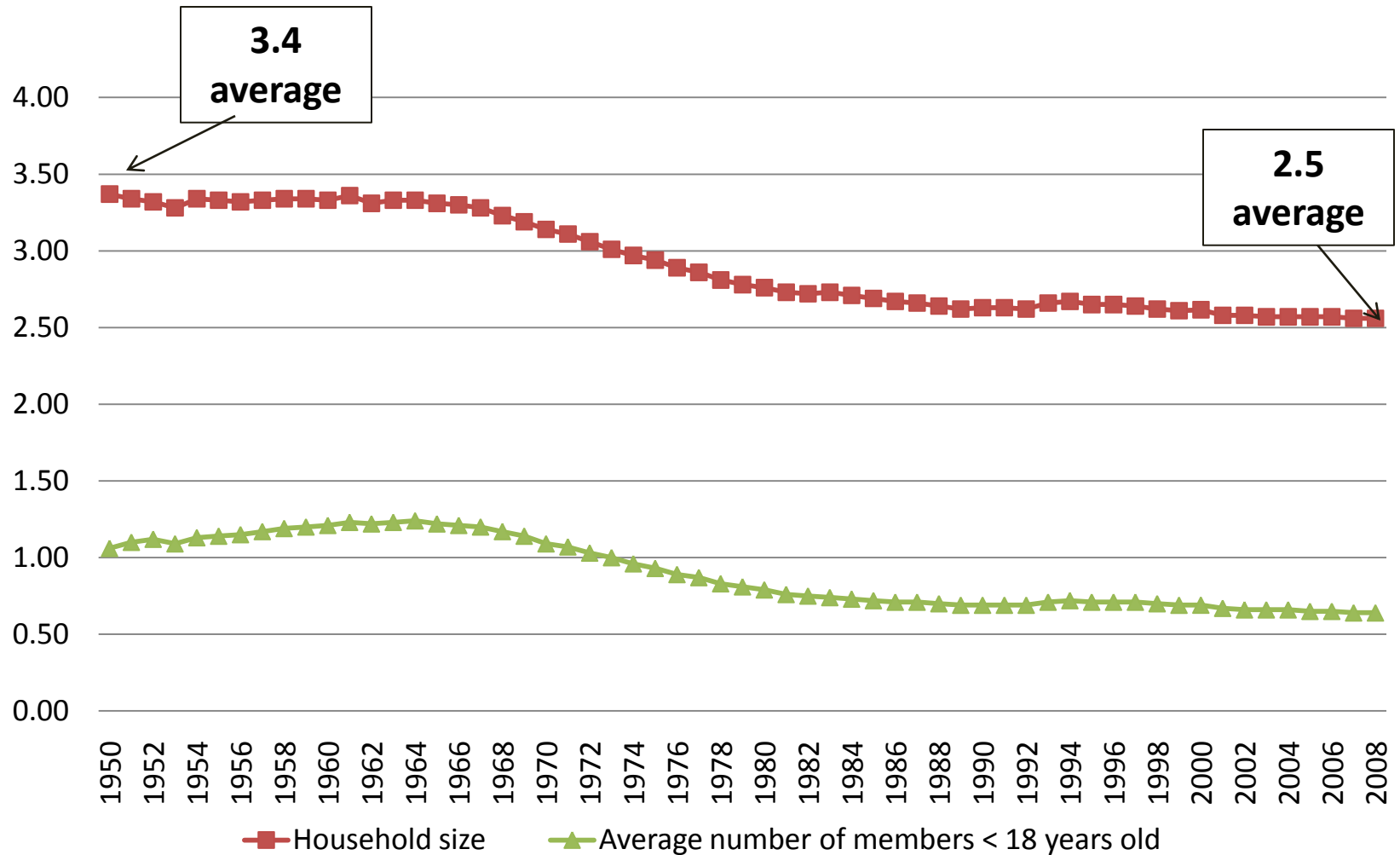
1. Demographic changes

2. Technological changes

3. Market changes

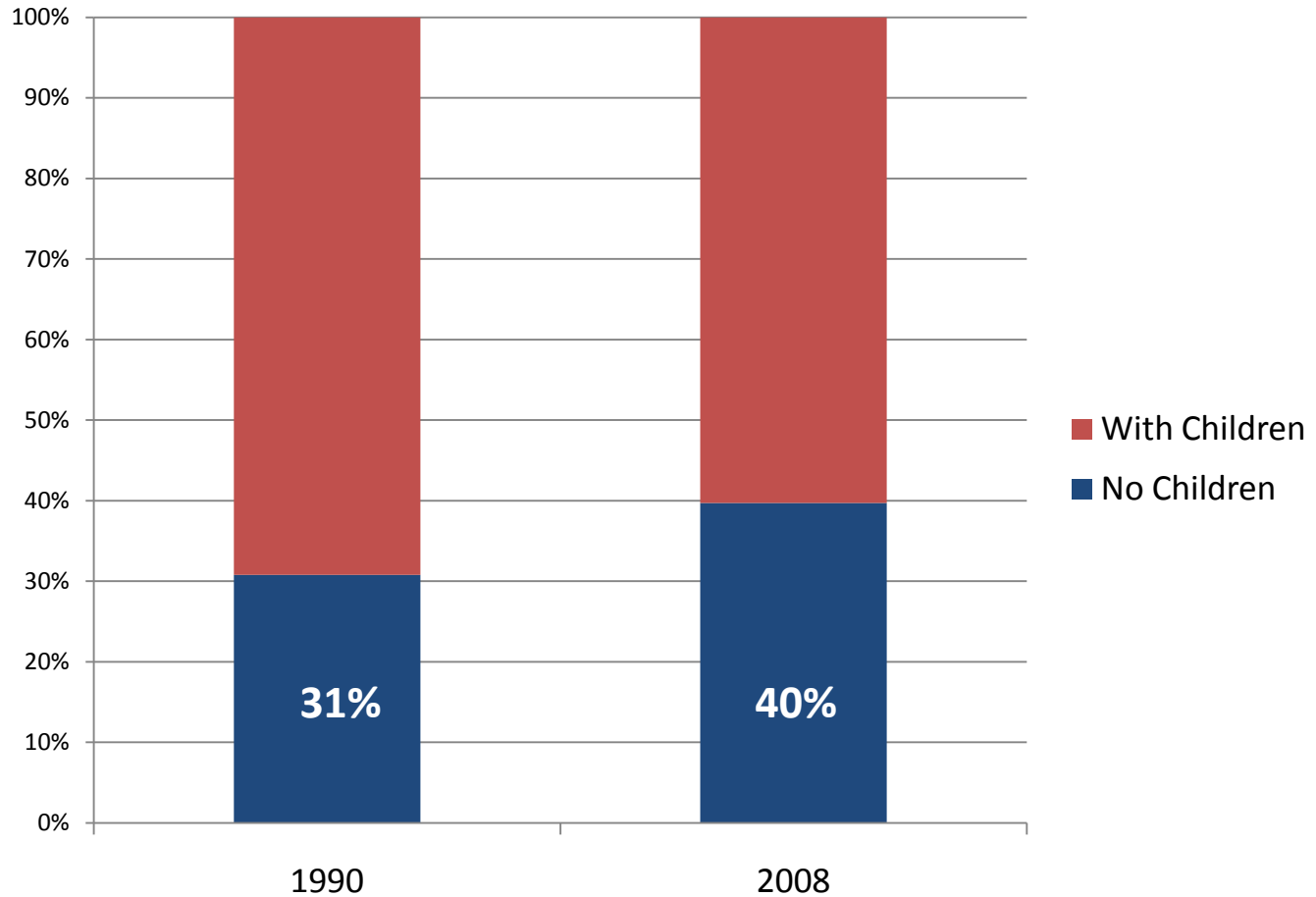
4. Policy changes

Smaller household size, 1950-2008



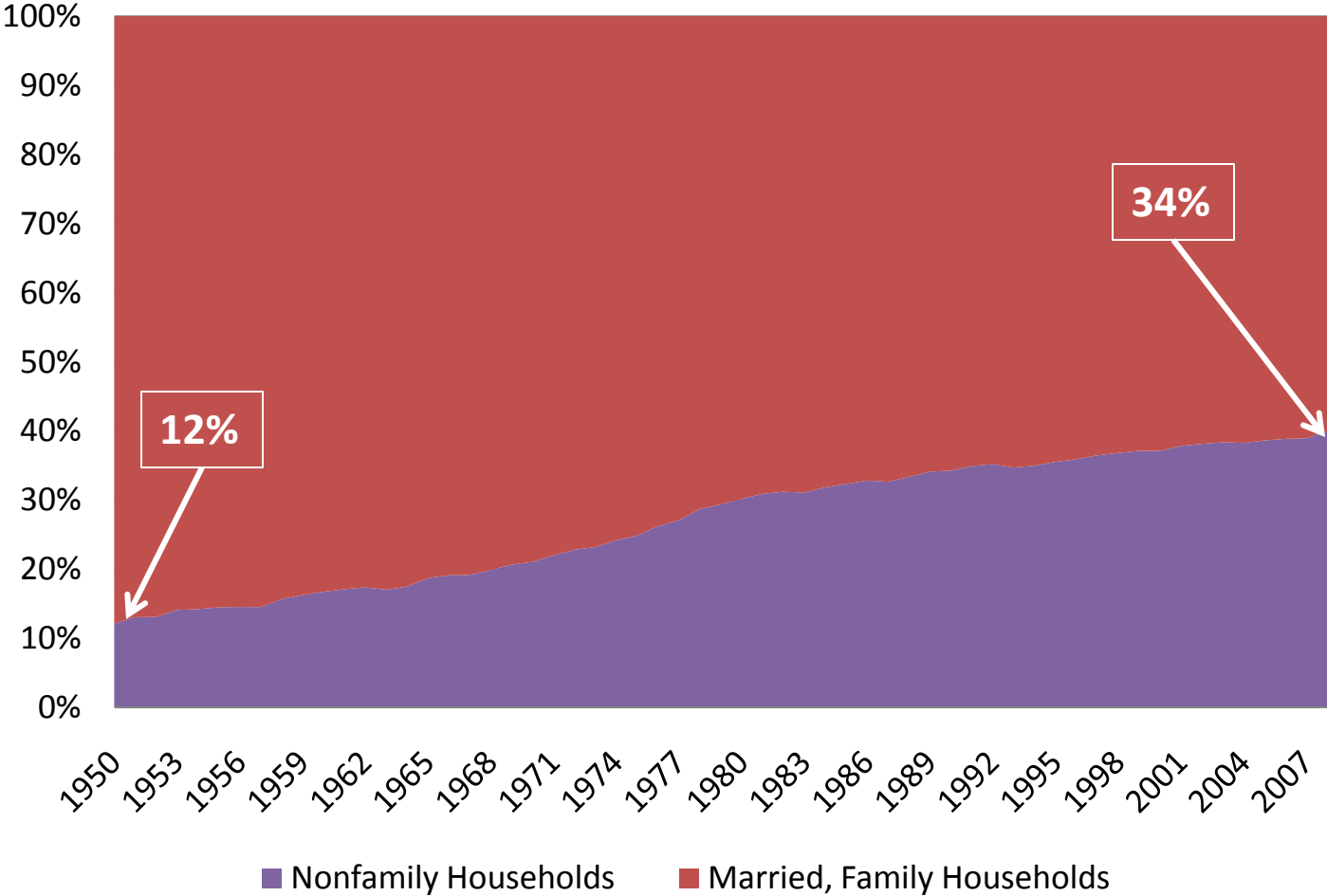
Source: U.S. Census Bureau, Current Population Survey, March 2009

Fewer households with children



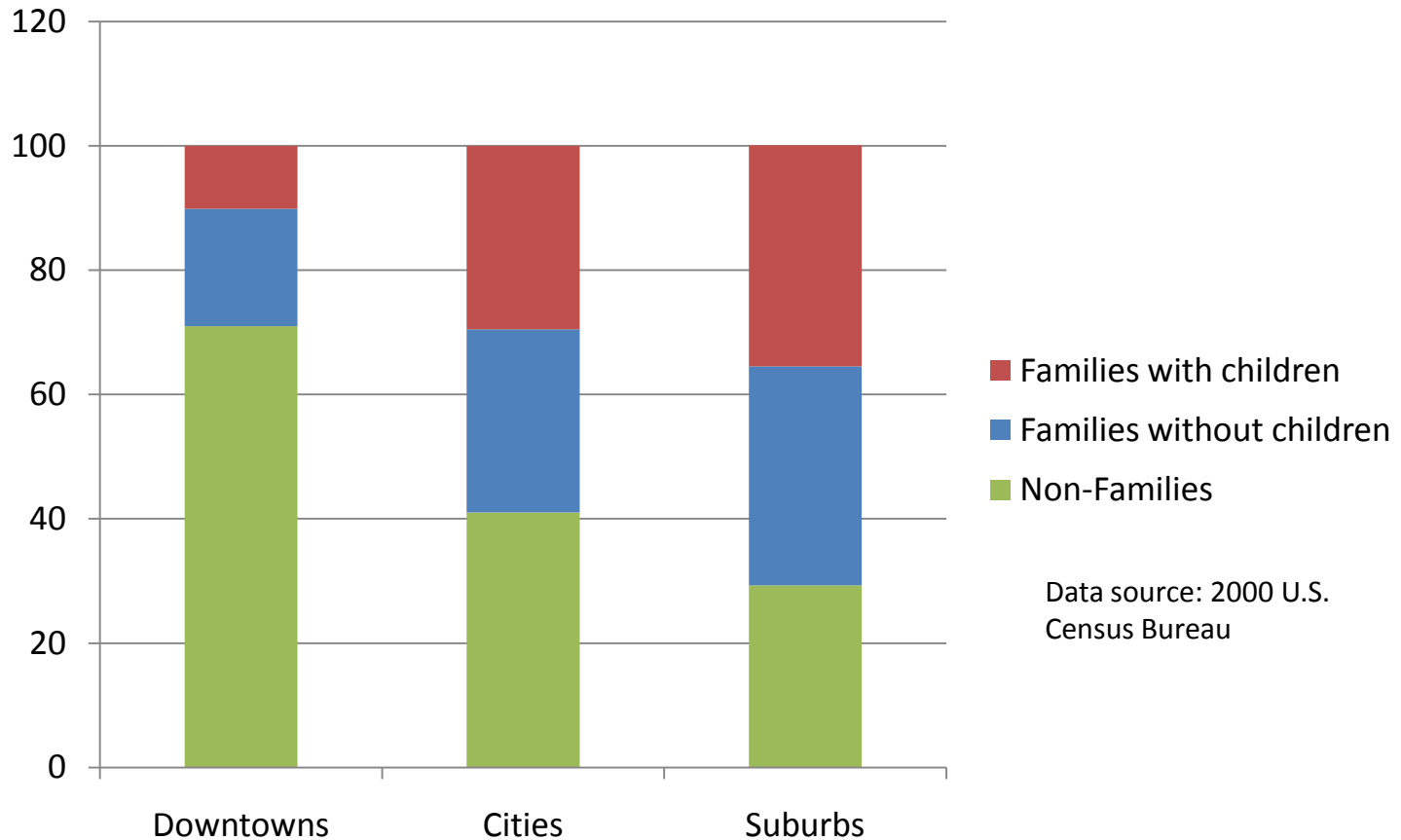
Source: U.S. Census Bureau, Current Population Survey, March 2009 and U.S. Census Bureau, 1990 Census

Greater proportion of non-family households



Source: U.S. Census Bureau, Current Population Survey, March 2009

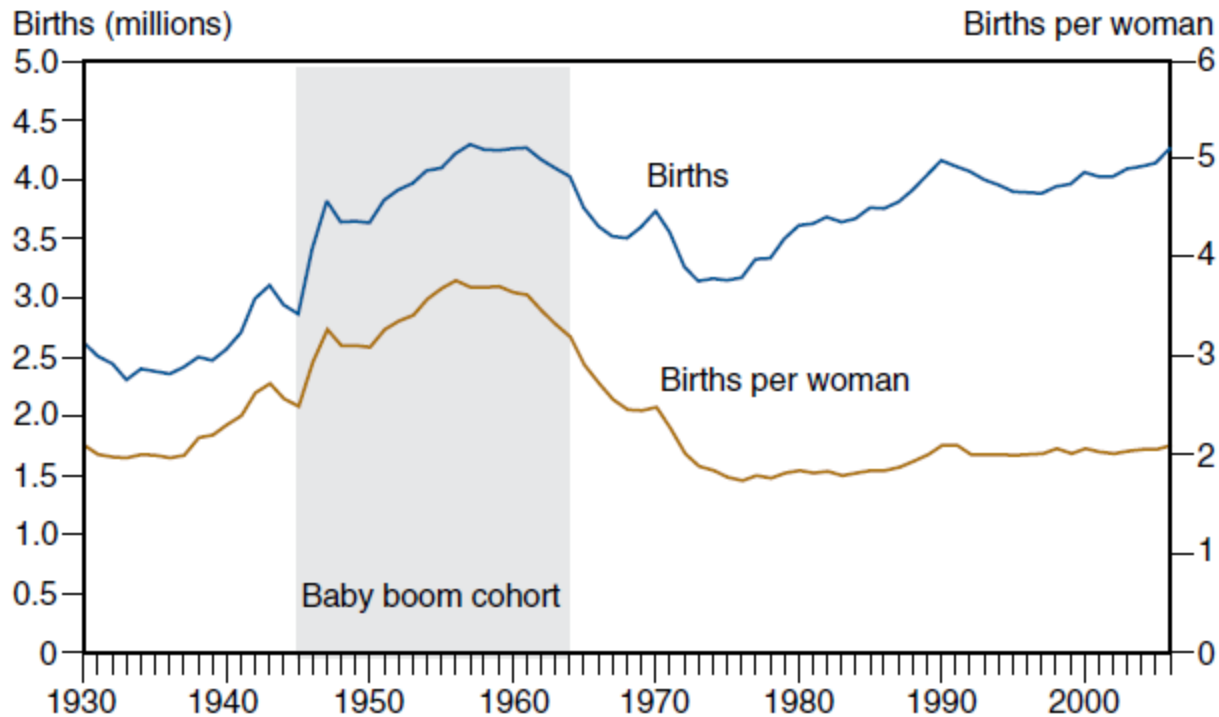
Implication: Increased demand for urban living



Source: Birch "Who Lives Downtown" from Urban and Suburban America: Evidence from the 2000 Census, Berube, Katz and Lang , eds. (2006)

Aging baby boomers

Figure 1
U.S. live births and total fertility rate

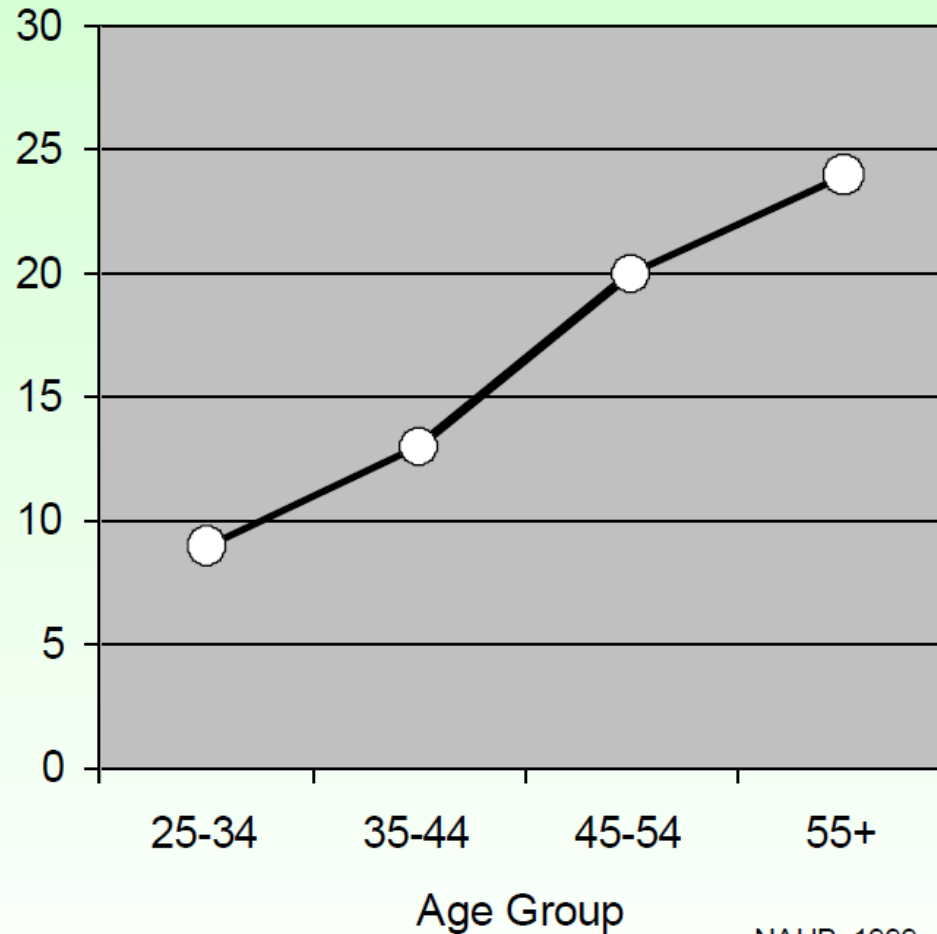


Note: Total fertility rate (births per woman) is the sum of age-specific birth rates for women ages 15-44.

Source: USDA, Economic Research Service, using data from the National Center for Health Statistics.

Some aging baby boomers prefer urban living...

Percent preferring a town house in the city

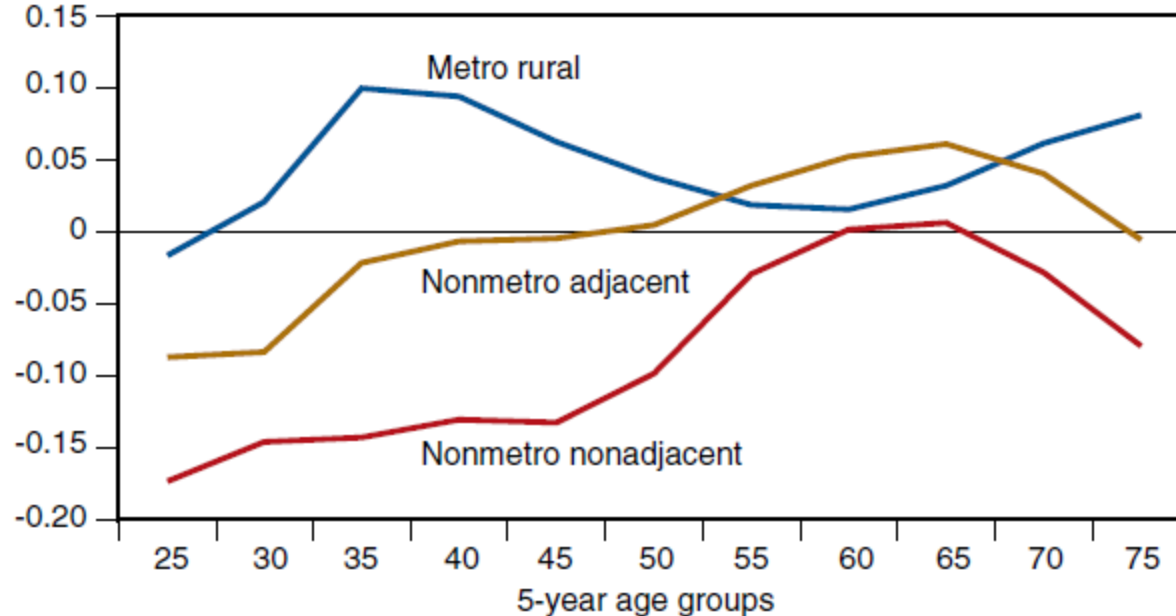


NAHB, 1999

...but others are attracted to high-amenity rural areas

Figure 6
Effects of metro and nonmetro county types on net migration by age, 1990-2000

Standardized regression coefficients



Source: USDA, Economic Research Service, using data from the U.S. Census Bureau.

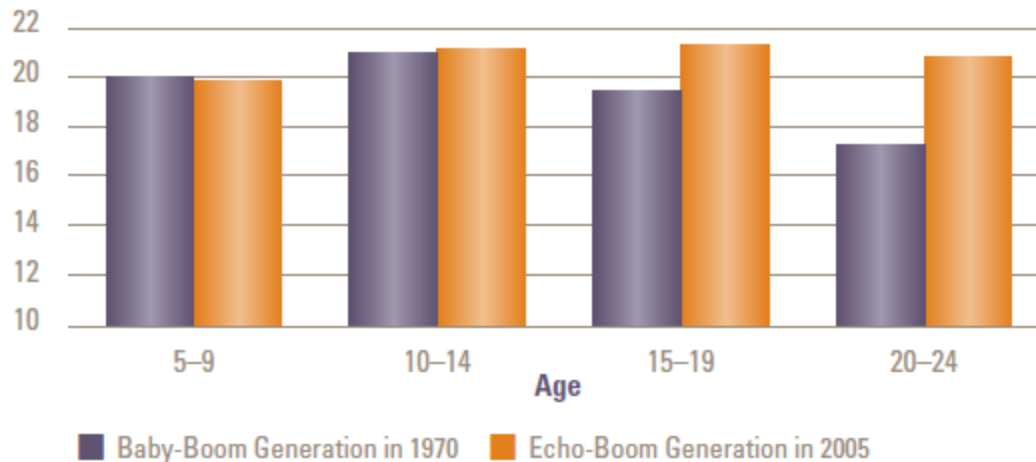
From: Cromartie and Nelson (2009) USDA ERS report 79 <http://www.ers.usda.gov/Publications/err79/>

Coming next: Generation Y (“Echo Boomers”)

Figure 16

The Echo-Boom Generation Is Even Larger than the Baby-Boom Generation

Population (Millions)



Notes: Members of the baby-boom generation were born 1946–64. Members of the echo-boom generation were born 1981–2000.

Source: US Census Bureau, 1970 Decennial Census and 2005 population estimates.

Source: State of the Nations Housing, Joint Studies for Housing Studies of Harvard University (2009)

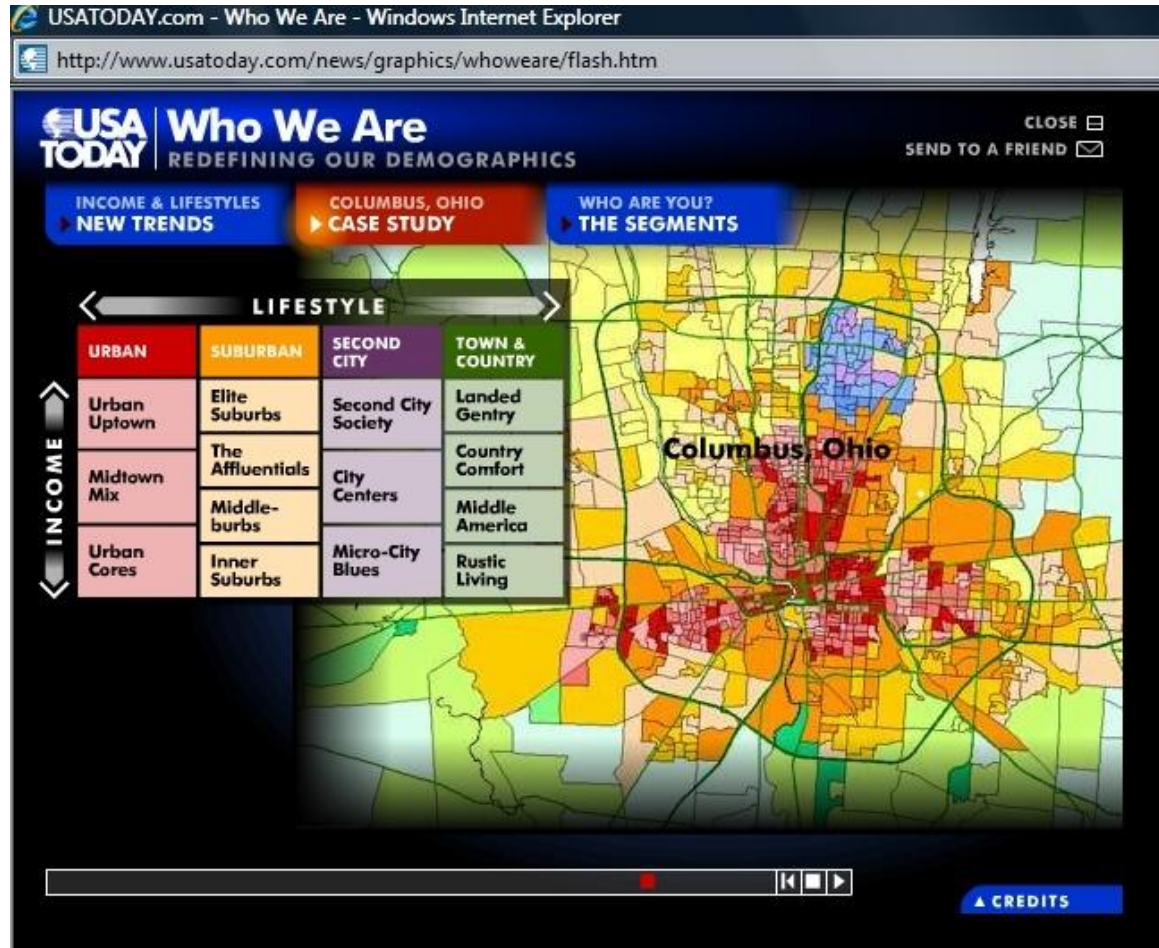
Young and trend-conscious
Idealistic, optimistic, and flexible .Hard workers; highly entrepreneurial Socially responsible; particularly concerned about the environment .More ethnically diverse than any prior U.S. generation .Very comfortable with technology; like to multi-task. Spiritually traditional: 89% of Gen Y state that they believe in God.

Source: USA Today
http://www.usatoday.com/money/workplace/2005-11-06-gen-y_x.htm

Implications for household location: The big sort

With increasing diversity among mobile households, households are sorting themselves by “type” across different locations

Zip code
look-up from
Claritas



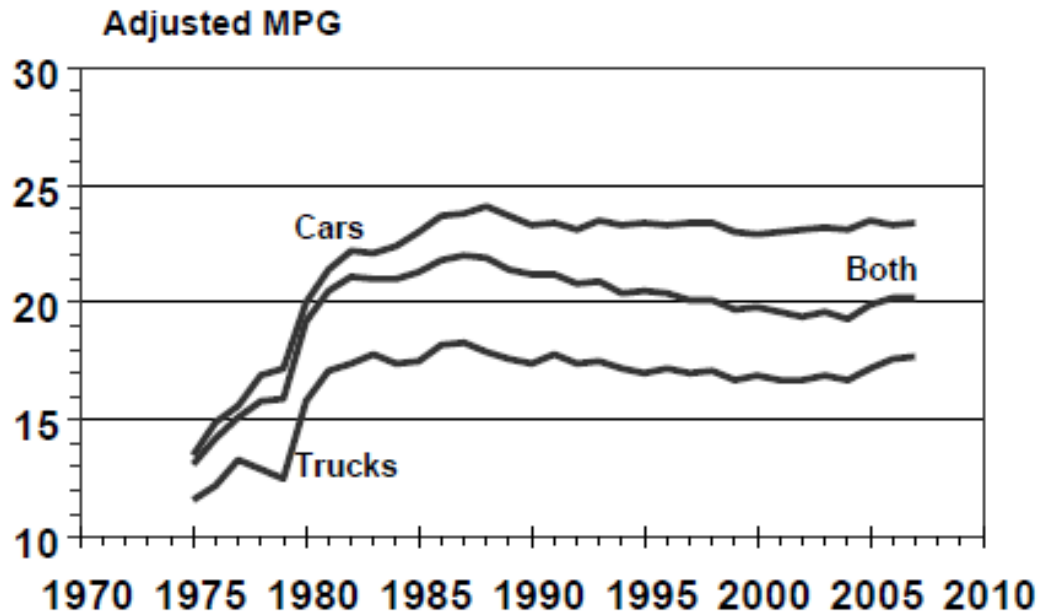
Source: <http://www.usatoday.com/news/graphics/whowere/flash.htm>

1. Demographic changes
- 2. Technological changes**
3. Market changes
4. Policy changes

Cars and trucks

- Fuel efficiency has changed very little historically...

**Adjusted Fuel Economy by Model Year
(Annual Data)**



Source: U.S. EPA EPA420-S-07-001, September 2007

But fuel efficiency is likely to increase dramatically as manufacturers respond to:

- **Consumer demand** driven by long-term higher gas prices
 - Chevrolet Volt coming in late 2010: extended-range electric vehicle, 230 MPG
- **New government policies**, ex: National Fuel Efficiency Policy (May 2009)
 - Standard for new cars and light trucks from 25 to 35.5 MPG
 - \$2.4 billion invested in electric/hybrid vehicle technology

Future forms of transportation

- **Transportation alternatives** on the market now or in the future include: electric skateboards, scooters, power boots, electric bicycles, robotic drones, and a variety of mass transit systems. “These amount to interesting niche businesses, but so far none are even close to disrupting traditional buying patterns for the automobile industry.”
- **On-demand transportation services with automated navigation** will “lessen the need for individual car ownership. Rather than having to conform to the route and timing of today’s mass transit systems, people will simply be able to request a vehicle through their cell phones or handheld devices whenever they need it and a driverless vehicle will show up, on-demand, and take the passengers to wherever they desire to go.”

Source: Quoted from futurist **Thomas Frey**, <http://www.davinciinstitute.com/papers/the-future-of-automobile-transportation-by-futurist-thomas-frey/>

Implications for outer growth

- Higher gas prices in long run will lessen the demand for outer living, but this will be offset by increased fuel efficiency
 - the “Volt” effect could mean a major boost to sprawl
- Future modes of transportation are likely to be based more on individual demand and location
 - lower costs to locating far away, but a technological divide could keep many close to urban areas

Information Technology (IT)

- Increasing use of IT **reduces the costs of living far away work** by allowing people to work remotely
- Increasing IT use among firms has **fueled globalization of manufacturing and services**
- On the other hand, increasing use of IT among firms appears to have **encouraged clustering of some firms**
 - e.g., [Sohn, Kim and Hewings](#), Geographical Analysis (2002)
- New innovations in IT are likely to do both: facilitate decentralization and encourage clustering → smaller urban clusters distributed across landscape

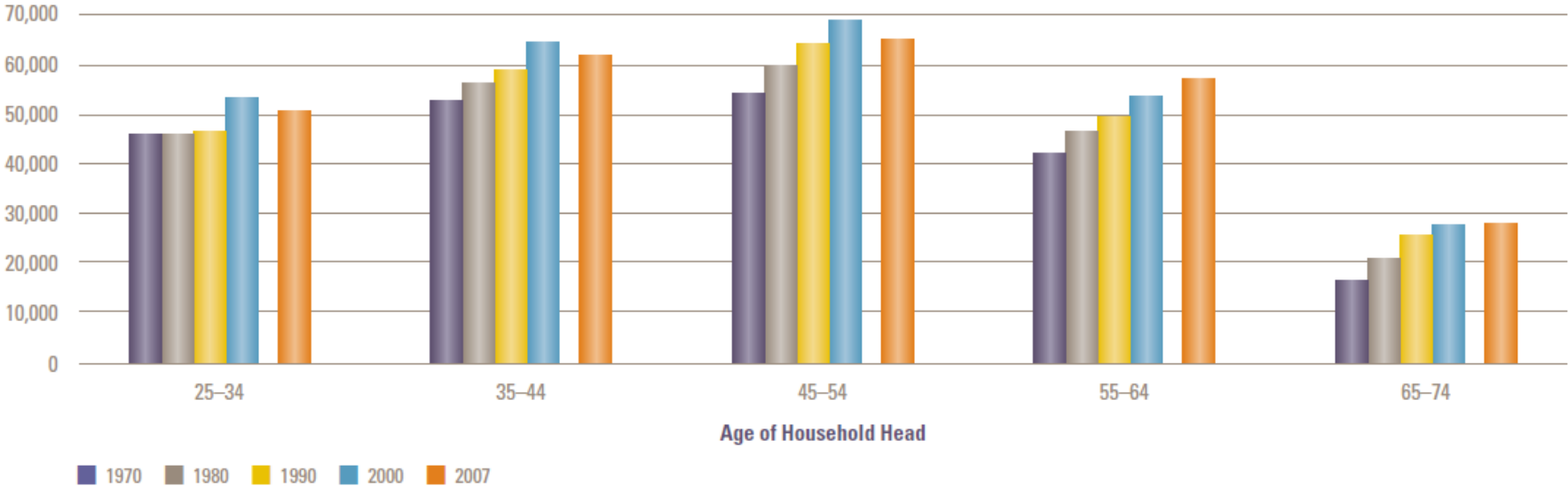
1. Demographic changes
2. Technological changes
- 3. Market changes**
4. Policy changes

Real income growth may be stagnating

Figure 12

For the First Time in Generations, Households Under Age 55 Are on a Path to End the Decade with Lower Real Incomes than Their Predecessors

Median Household Income (2007 dollars)

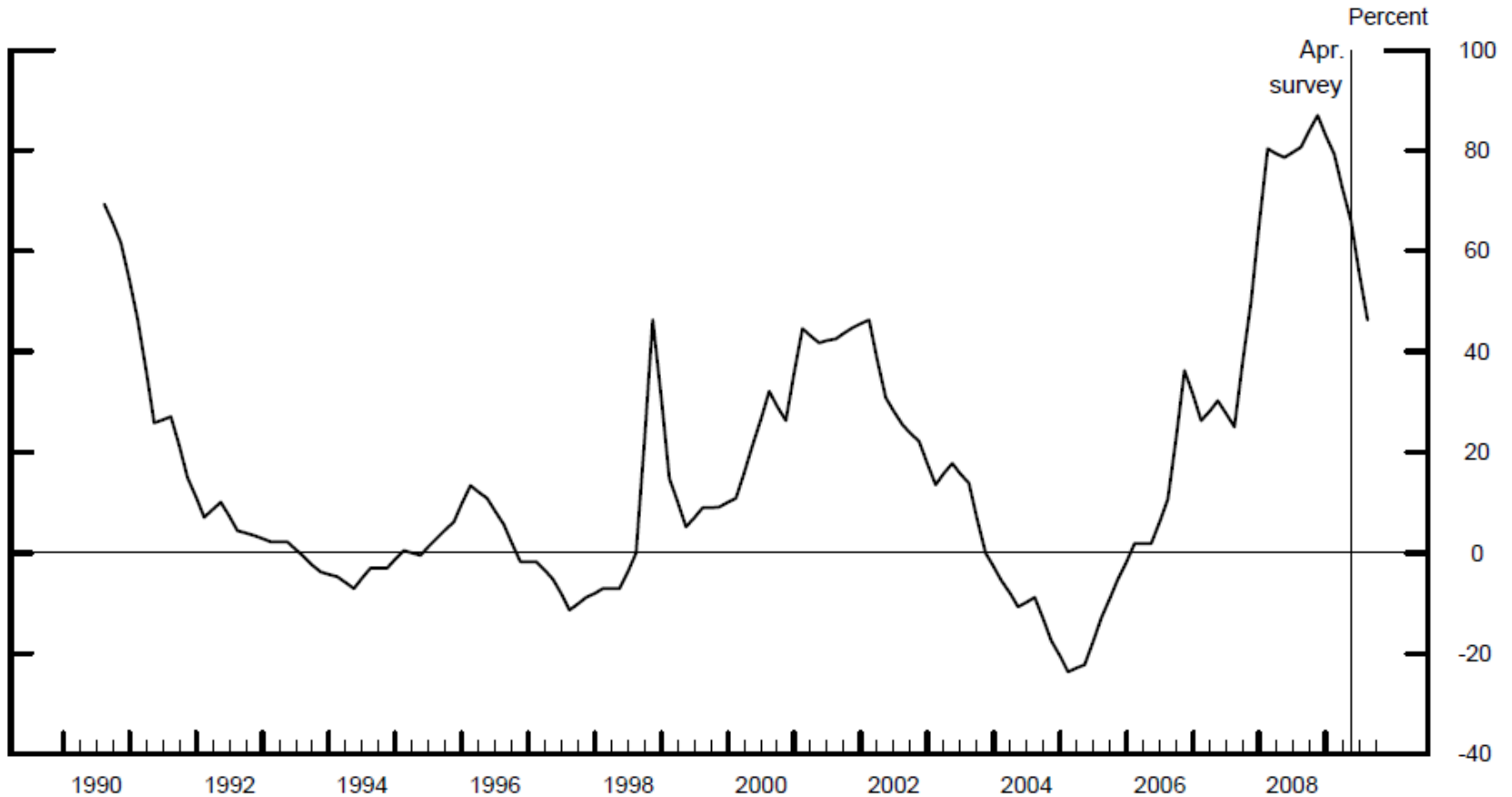


Note: Dollar values are adjusted for inflation by the CPI-U for All Items.
Source: US Census Bureau, Current Population Survey.

Source: State of the Nations Housing, Joint Studies for Housing Studies of Harvard University (2009)

Tightening credit markets

Net Percentage of Domestic Respondents Tightening Standards for Commercial Real Estate Loans



Source: Senior Loan Officer Opinion Survey on Bank Lending Practices, Federal Reserve Board (July 2009)

Oversupply of existing housing stock

- Approximately 1 in 9 houses are empty (USA Today, April 2009)
- Are the exurbs the next slums?
 - In 2006: Based on predictions of future demand for various housing types, Arthur C. Nelson (director of the Metropolitan Institute at Virginia Tech) forecasted a likely surplus of 22 million large-lot homes (houses built on a sixth of an acre or more) by 2025—that's roughly 40 percent of the large-lot homes in existence today.
 - (quoted from Atlantic Monthly, March 2008)

Implications for housing markets

- Less household mobility
- Lower demand for new housing
- Long-run decline in supply of new builds

→greatest impact on exurban areas

Changing demands for undeveloped land: Alternative energy production

- Many alternative energy sources (biofuels, solar, wind) use land as a production input
- This will increase demand for undeveloped land and increase the opportunity cost of developing land
 - Keep undeveloped land in non-urban production
 - Bring new land into non-urban production

Changing demands for undeveloped land: New incentives to use land as pollution sink

- Examples: carbon sequestration, nutrient trading
- Nutrient trading pilot projects in Ohio
 - Sugar Creek watershed: Phosphorus trading between the Alpine Cheese factory and farmers in the watershed
(<http://ohiowatersheds.osu.edu/trythis/trythis-3-2007.html>)
 - Great Miami River watershed: Phosphorus and nitrogen trading among farmers
(http://www.miamiconservancy.org/water/quality_credit.asp)

Changing demands for undeveloped land: Increasing demand for local foods

- Between 2002-2007, **direct sales** from farms increased by 26.8% in Ohio (\$54.2 million in 2007) (NASS Agricultural Census, 2007)
- Nearly two-thirds of Ohioans indicate it is very important for state and local governments to work to develop **stronger local food systems** (64%); another third indicate it is somewhat important (34%) (Sharp and Bean, OSU Social Responsibility Initiative, 2008 - <http://ohiosurvey.osu.edu/>)
- Governor Strickland's Ohio Food Policy Council (established August 2007): helping Ohioans who do not have **access to healthy and fresh foods** (<http://ohiosurvey.osu.edu/>)

Implications for land markets

- Higher opportunity cost to developing land
 - Decrease supply of developable land
 - Slow rate of land development
- However...
 - ...These affects depend on local and regional markets for undeveloped land and are will not affect all exurban regions equally

1. Demographic changes
2. Technological changes
3. Market changes
- 4. Policy changes**

National: Emerging energy policies

- H.R.2454 - American Clean Energy And Security Act of 2009 (Waxman-Markley energy bill)
 - Cap-and-trade program to reduce economy-wide greenhouse gas emissions by 17% by 2020
 - New renewable requirements for utilities
 - Incentives for new carbon capture and sequestration technologies
 - Energy efficiency incentives for homes and buildings
 - Grants for green jobs
- National Fuel Efficiency Policy (May 2009)

Regional: Sustainable development and balanced growth strategies

- Example: NE Ohio Balanced Growth Program “best local land use practices” include
 - Identify priority development areas
 - Identify priority conservation areas
 - Plan for open space preservation
 - Plan for transfer of development rights
 - Plan for agricultural protection

Source: <http://balancedgrowth.ohio.gov/>

Implications of new policies

- Energy policy will increase the cost of producing electricity, refining gasoline
 - Higher electricity and gas prices for consumers will reduce demand for large houses and car travel
 - However, advances in fuel efficiency may ameliorate the effects of rising gas prices
- More stringent land use controls may lower the supply of developable land in outer areas and slow growth
 - However this depends on how the policies are implemented

In summary: What are the implications of these changes for future patterns of urban growth?

In other words... *is sprawl dead or not?!*

The future of sprawl?

	Underlying causes likely to <i>promote</i> sprawl	Underlying causes likely to <i>hinder</i> sprawl
Demographics	For some households: growing pull of natural amenities in rural areas	Increasing diversity of household types
Technology	Continued IT advances and greater fuel efficiency	Some alternative forms of transportation
Markets	Renewed economic growth	Stagnate income and tighter credit markets; oversupply of housing; long-term increases in gas prices
Markets		Increasing demands for undeveloped land
Policies		Carbon reduction policies and increased land use regulations

Conclusion: The future of sprawl?

- Unfettered sprawl is a thing of the past (largely due to changing markets and emerging government policies)
- “Selective sprawl” and new forms of sprawl (ex: so-called “rurbia”) are likely in the future
- Current patterns sprawl are persistent over time: even in places that don’t add new sprawl, it will take a long time to change current patterns

Some implications for planning

- Plan for ...
 - changing demographics 21
 - changing housing preferences
 - smaller and more energy efficient housing
 - the future of obsolete, unnecessary or redundant existing housing and infrastructure
- Plan for shocks, ex: think of housing stock as a stock portfolio; diversity of housing stock provides protection against risk
- Reconsider local regulations in the face of trends
- Opportunity in times of crisis
 - Economic recession provides needed time for planning
 - Given the impacts on individual home prices from the housing crisis, residents may be more willing to consider the benefits of planning and plan implementation

Written report coming soon...

<http://exurban.osu.edu/deathofsprawl.htm>

Thank you to Ying Wang and Tripti Upreti, AEDE
graduate students, for research assistance