

# Human Capital & Economic Growth

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# Human Capital & Economic Growth

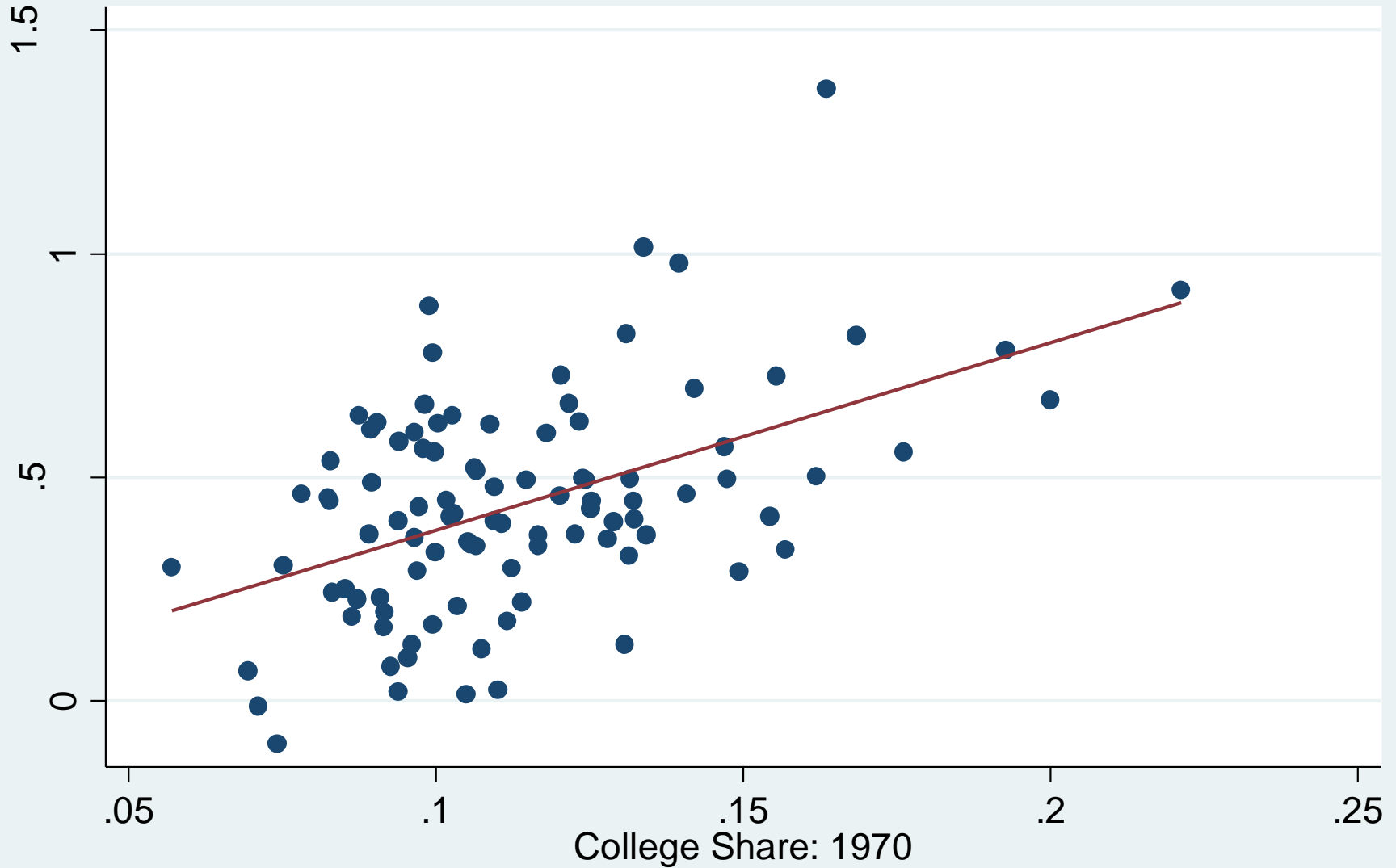
- A central finding in urban economics is that growth in regions is closely linked with the accumulation of human capital or “workforce skill”.
- Our research shows that the accumulation of human capital through education and the ability to commercialize such “*knowledge accumulation*” drive long-term patterns in economic growth.

# Two Problems and A Puzzle

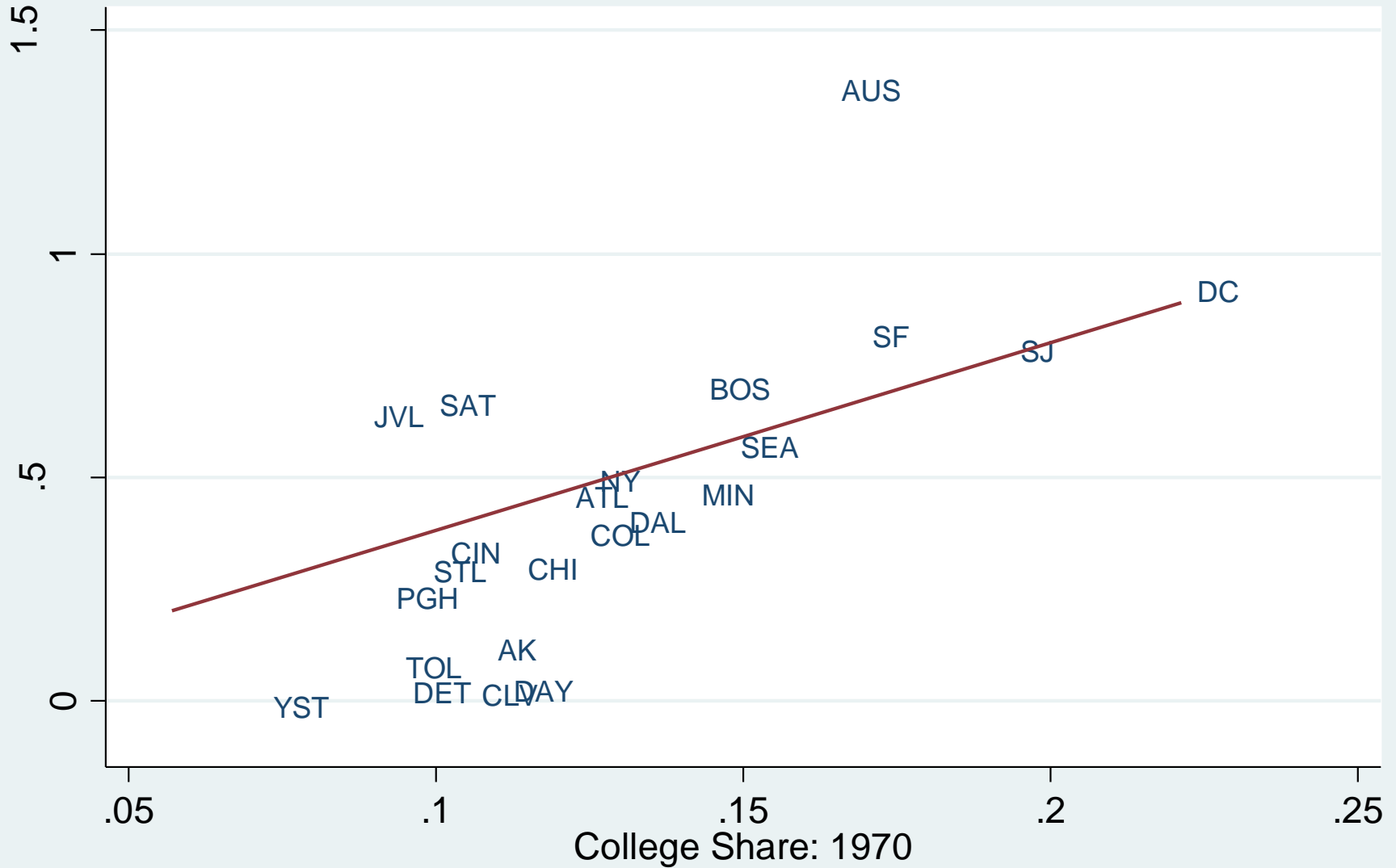
- Problem 1: In a world of scarce resources, how can universities BEST contribute to the accumulation of human capital and commercialize it?
- Problem 2: In a world of scarce resources, how can the public sector BEST contribute to the economic development?
- Puzzle: Why is our country not producing more college graduates, especially males?

# Metropolitan Income Growth and Education

1970-2009

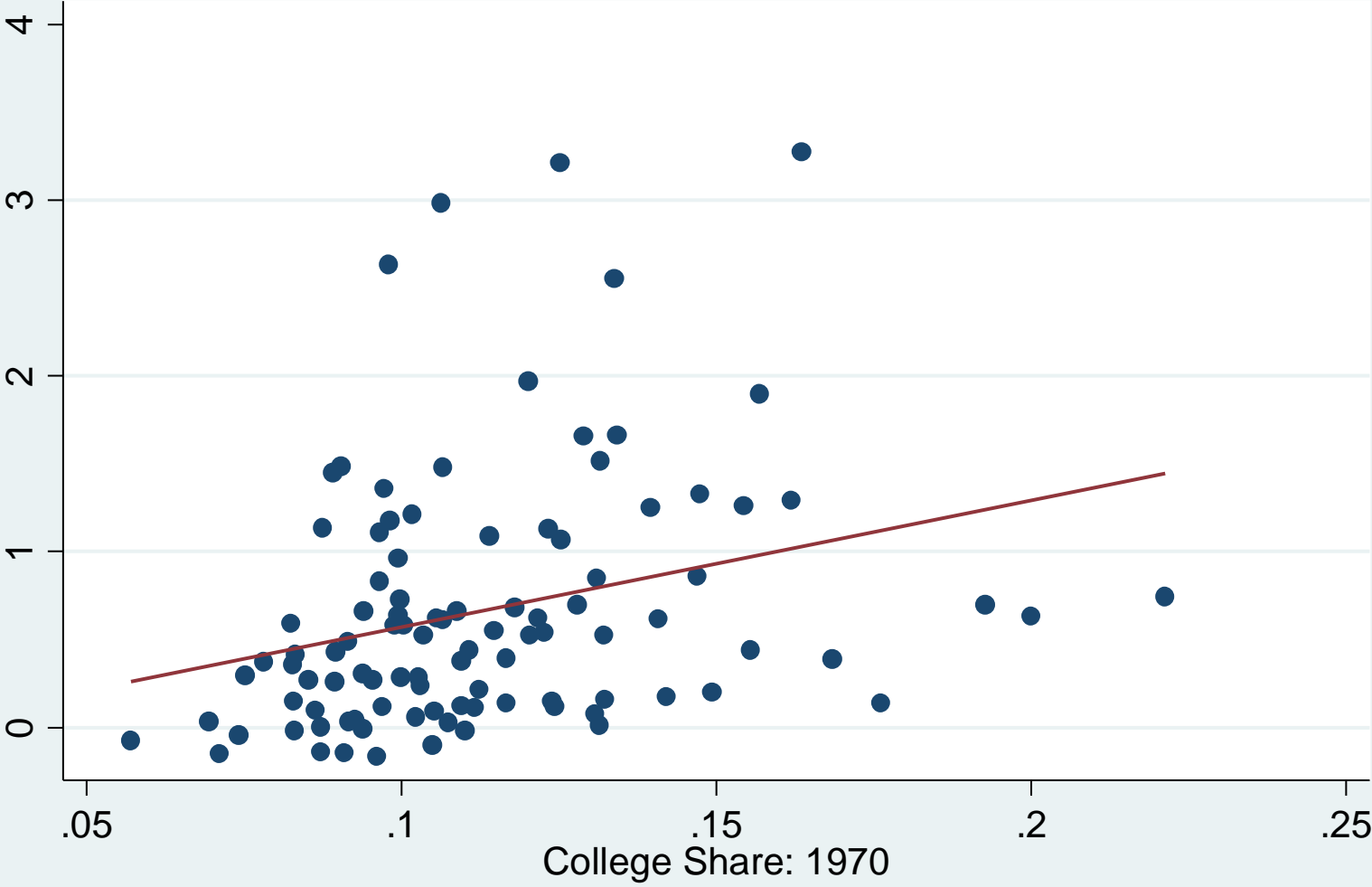


# Metropolitan Income Growth and Education 1970-2009

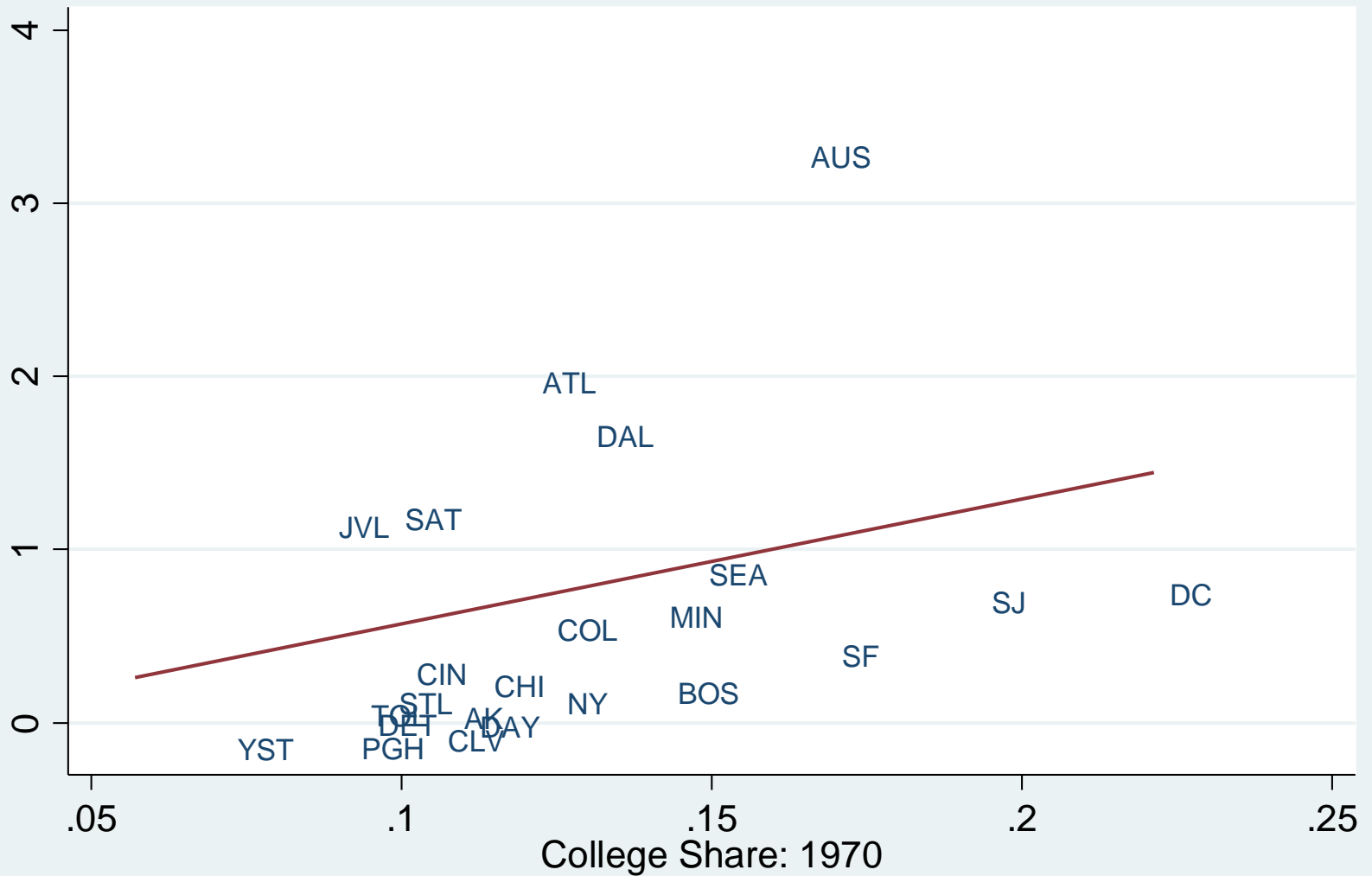


*...this same pattern holds true for population growth*

# Metropolitan Population Growth and Education 1970-2009



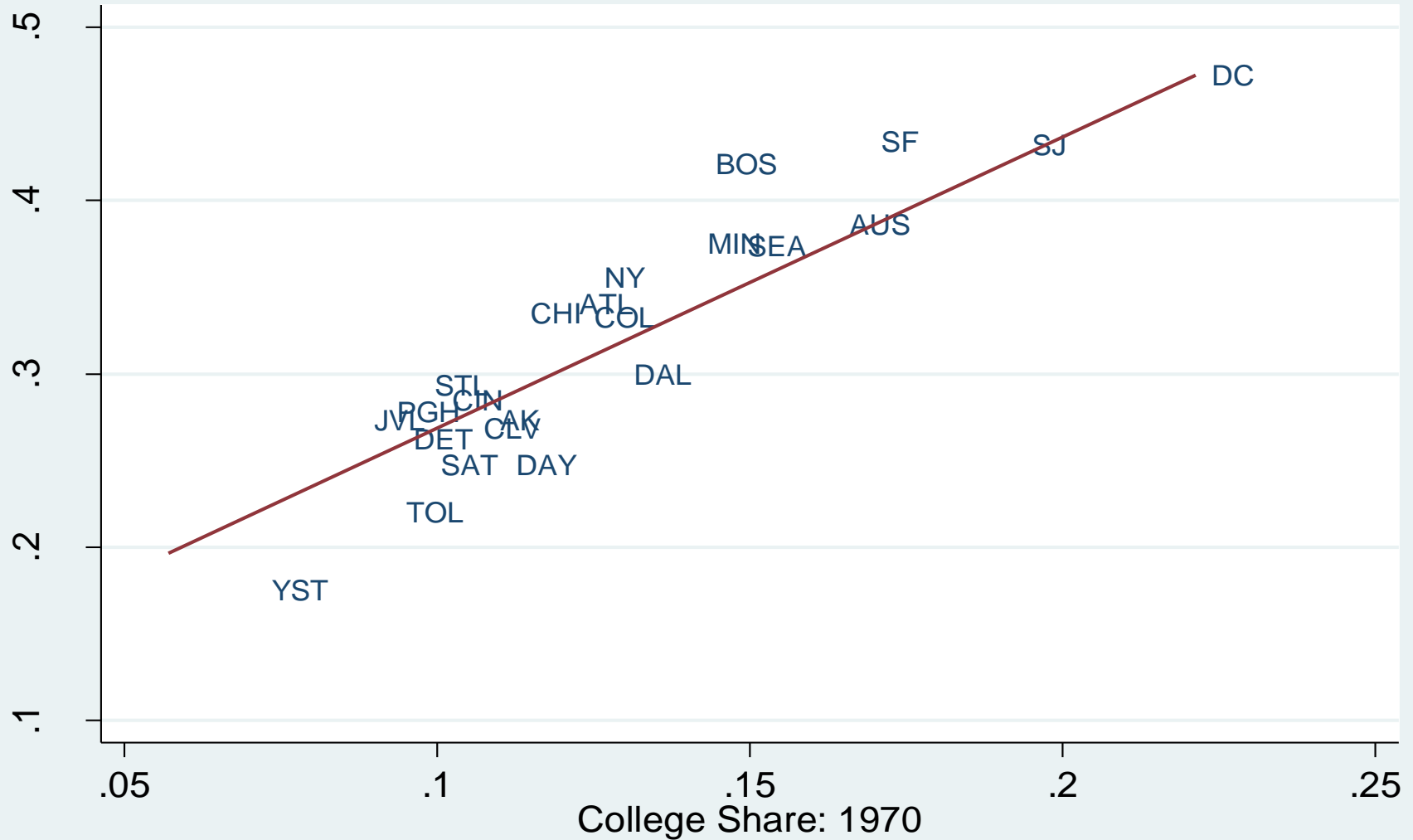
# Metropolitan Population Growth and Education 1970-2009



*...there is also persistence in differences in human capital across regions*



# Persistence of Educational Differences 1970-2009



# Human Capital & Metropolitan Growth

- Metropolitan areas with greater amounts of human capital experienced:
  - Higher income growth
  - Higher population growth
  - Higher growth in human capital

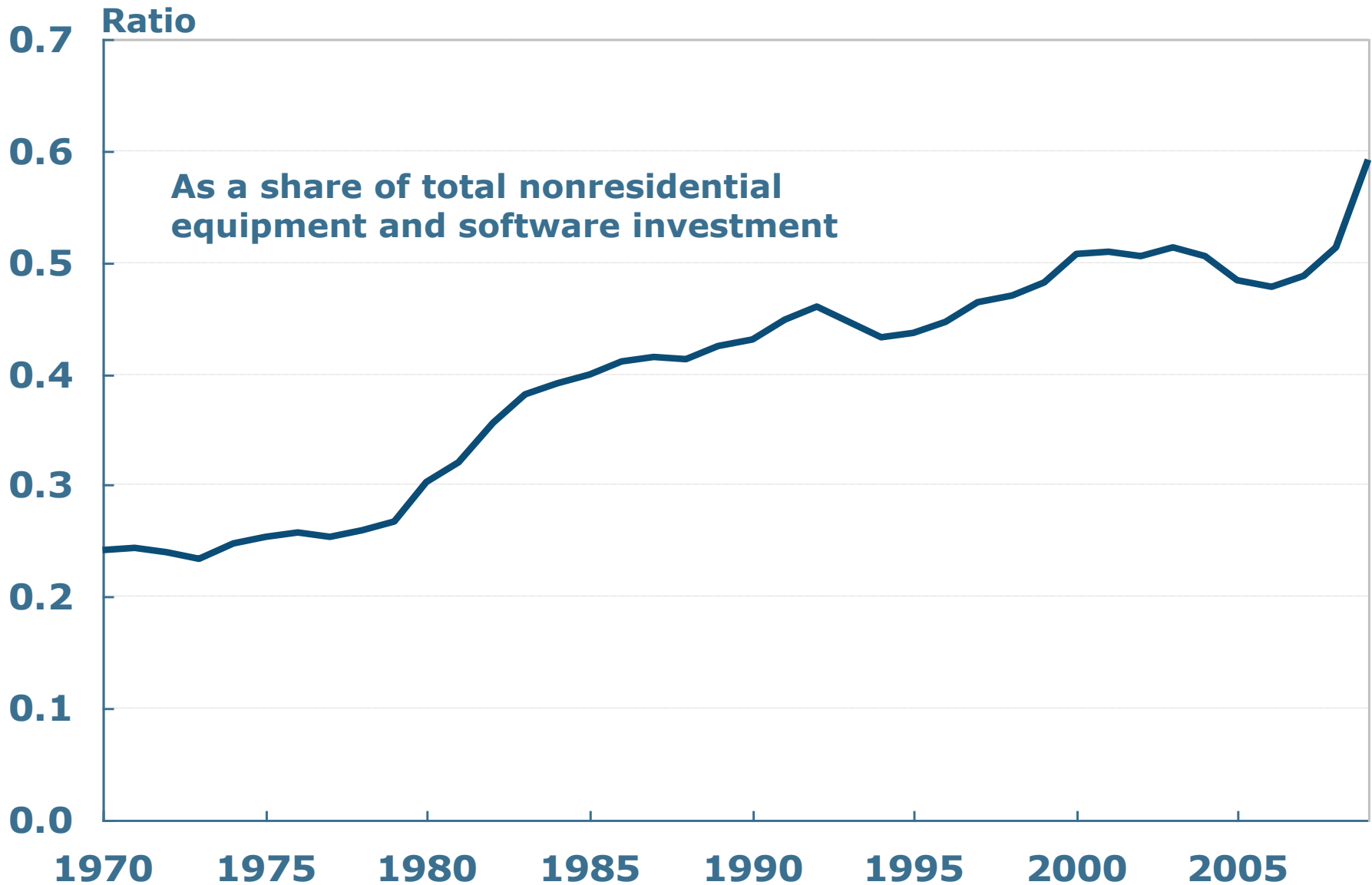
# Human Capital & Metropolitan Growth

- Why have regions with more educated workforces done so much better than regions with less educated workforces?
- Several hypotheses (not either/or):
  - Skill-biased technical change
  - Agglomeration effects

# Skill-Biased Technical Change (People)

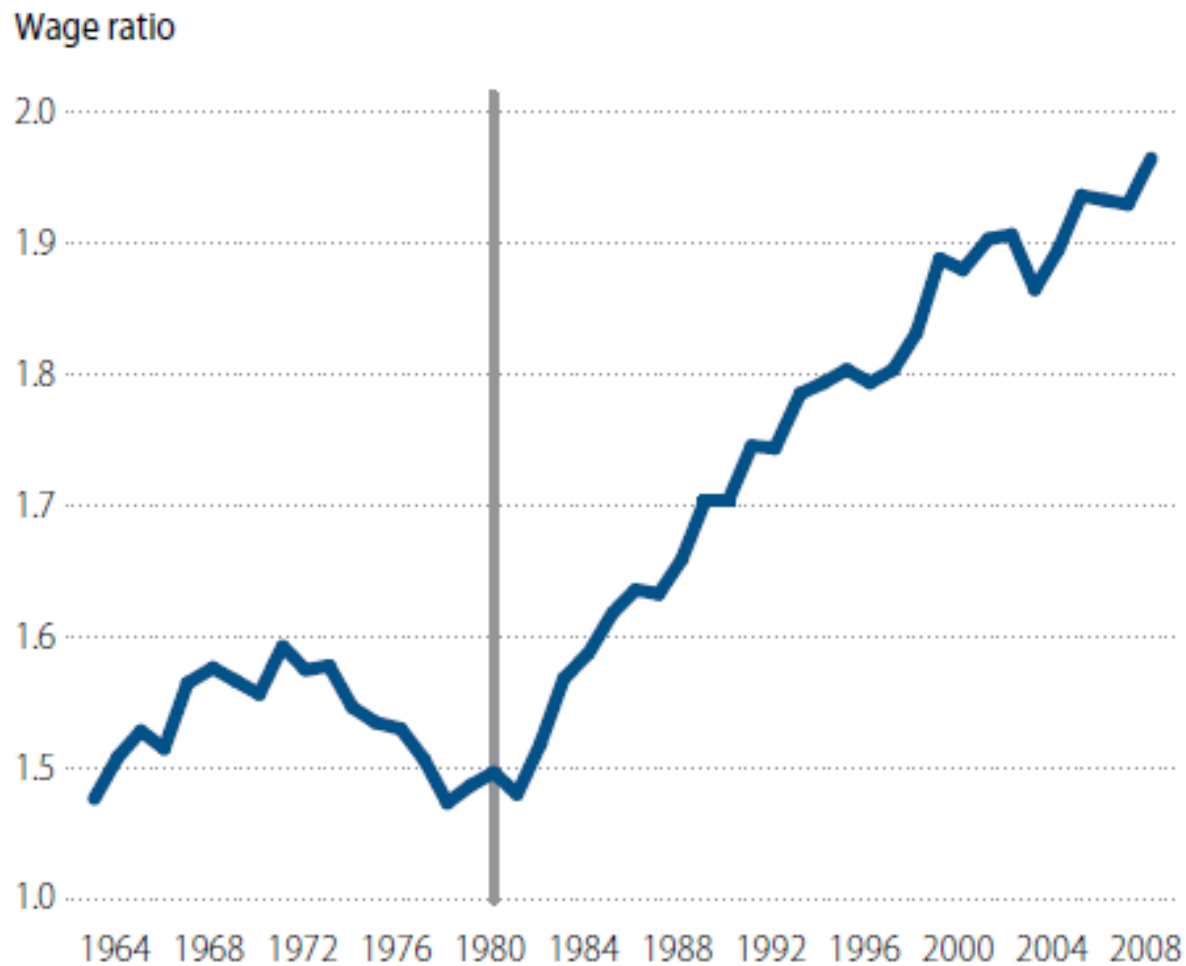
- New technological developments have increased the relative demand for skilled workers – e.g., computers.
- Locations with skilled workers were able to more easily integrate new technologies.
- New technologies → increased productivity → higher incomes.
- Changes in College-HS wage premium often linked to SBTC.

# Information Processing Equipment and Software Investment



As a share of total nonresidential equipment and software investment

## College degree vs. high school diploma weekly wage ratio, 1963–2008



## Agglomeration Effects (Place)

- As knowledge-based goods and technologies become more important, being in a knowledge-intensive location is more important.
- A knowledge workers productivity is affected by the proximity of other knowledge-based workers.
- Knowledge workers then have an incentive to cluster in skill intensive cities/metropolitan areas.

# Altered States: A Perspective on 75 Years of State Income Growth (FRBC 2006 Annual Report)

- Human Capital: Educational Attainment
  - Capacity to Innovate: Patenting Activity
- Key drivers on long-term growth (1930-2000) for US states.

# What kind of education trends have we seen in NEO?

- General upgrading in skills in our metropolitan areas over time.
- But the region lags the nation in terms of educational attainment

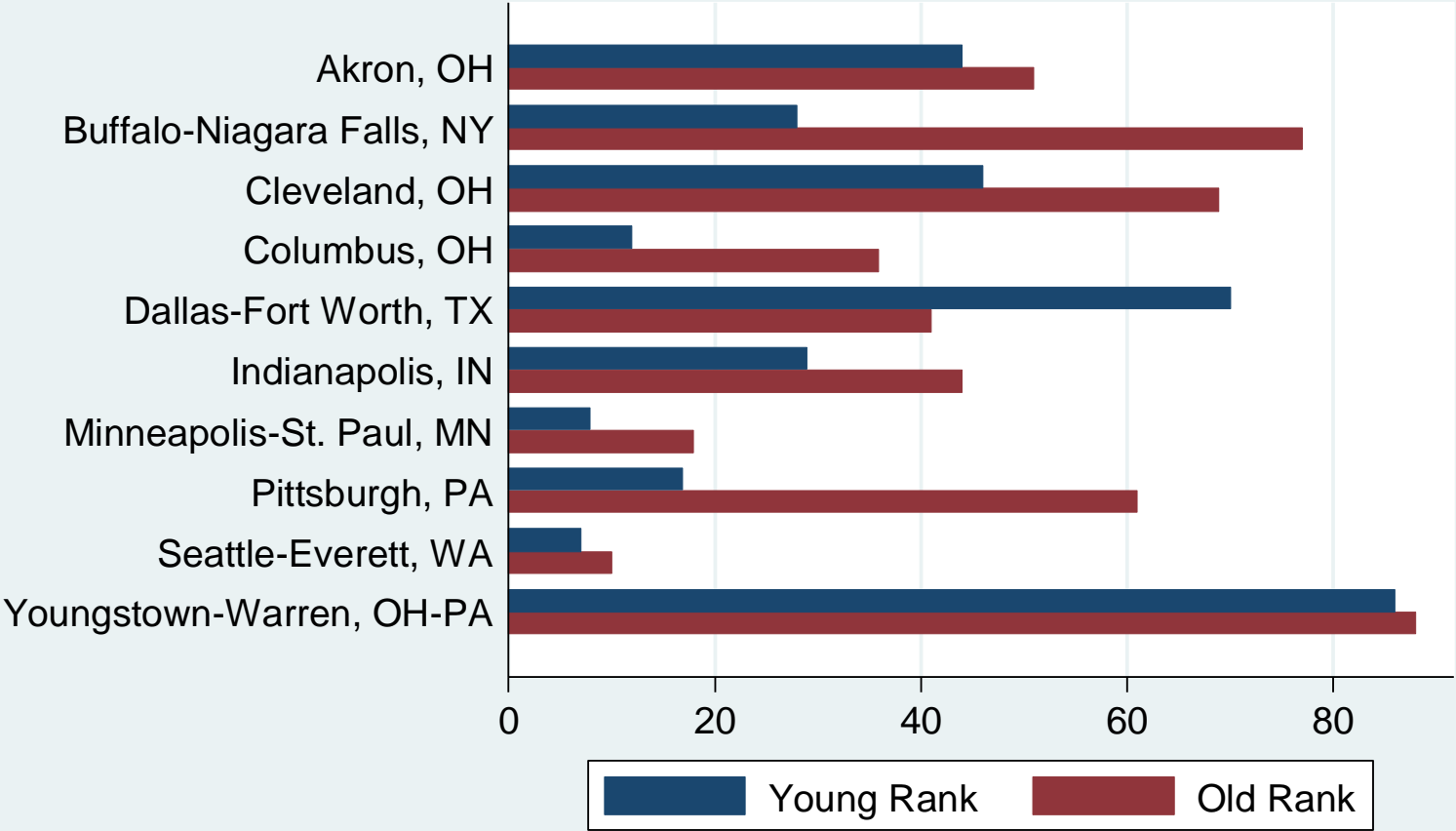
# Education Attainment: Local Metropolitan Areas

Metro	College Share: 1970 (%)	Rank 1970*	College Share: 2009 (%)	Rank 2009*
Akron	10.8	48	27.3	59
Canton-Massillon	6.9	99	19.9	92
Cleveland	10.5	54	26.9	65
Youngstown-Boardman	7.1	98	17.6	98
US Average: Top 100	11.3		29.0	

**\*Rankings based on Largest 100 Metros in 1970**

# Education Rank by Age Cohort

## Rank of BA Attainment



Census Bureau: 2008 ACS

# Two Problems and A Puzzle

- Let's say that increases in human capital and the commercialization of knowledge drive long-term patterns in regional economic growth.
- Problem1: How should higher education institutions allocate resources?
  - Produce more graduates? Which skills?
  - Conduct more research? Basic or applied?
  - Hire better faculty? Build more labs?
  - Commercialize more technology?
  - Collaborate with whom? Public or private?

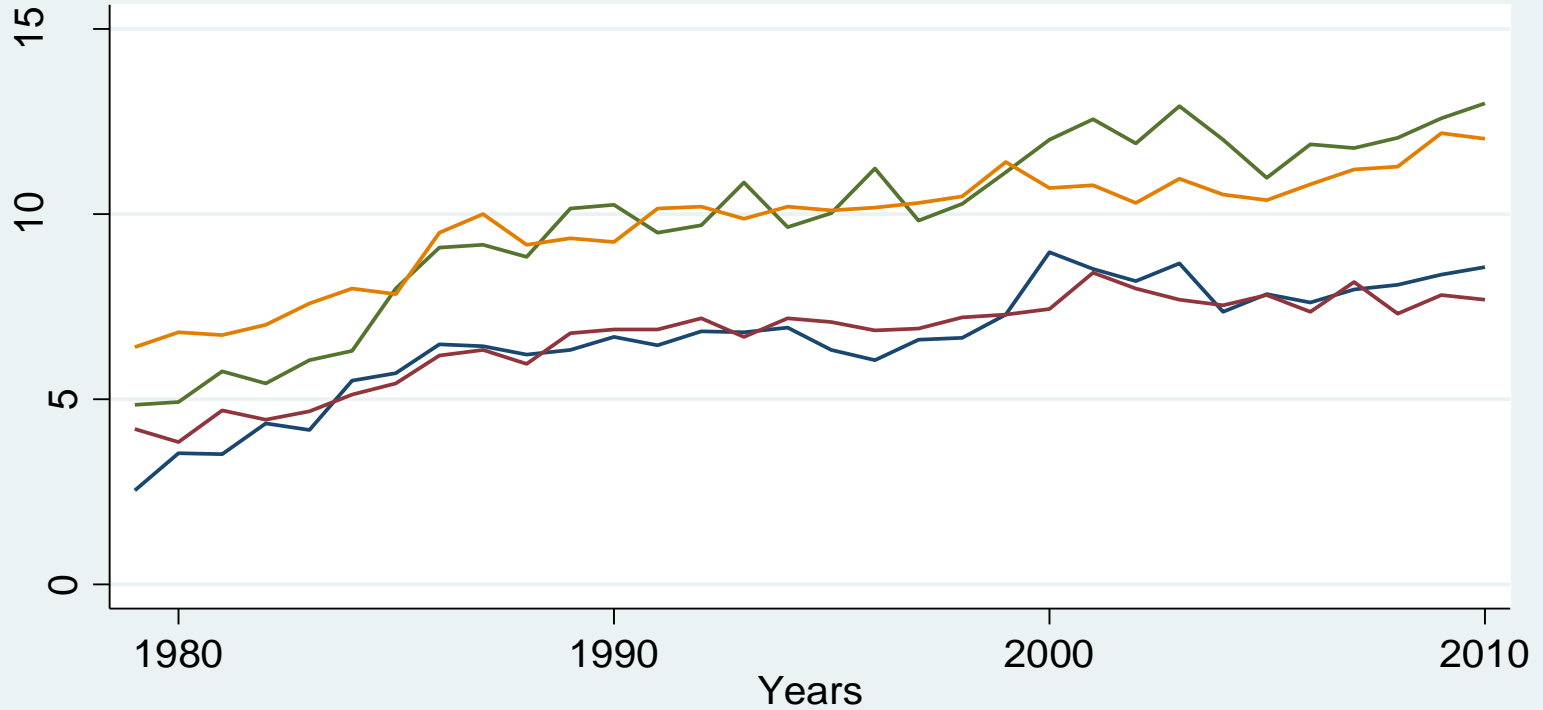
## Two Problems and A Puzzle

- Remember, we can have a skilled area by attracting skilled people!!!
- Problem 2: How should public officials allocate resources?
  - Build infrastructure?
  - What mix of services/amenities for residents?
  - Attract more private companies?
  - Tax structure and regulatory environment?
  - Human capital investments?
  - **Higher education?**
  - K-12?
  - Early childcare? \*\*\*

## Two Problems and A Puzzle

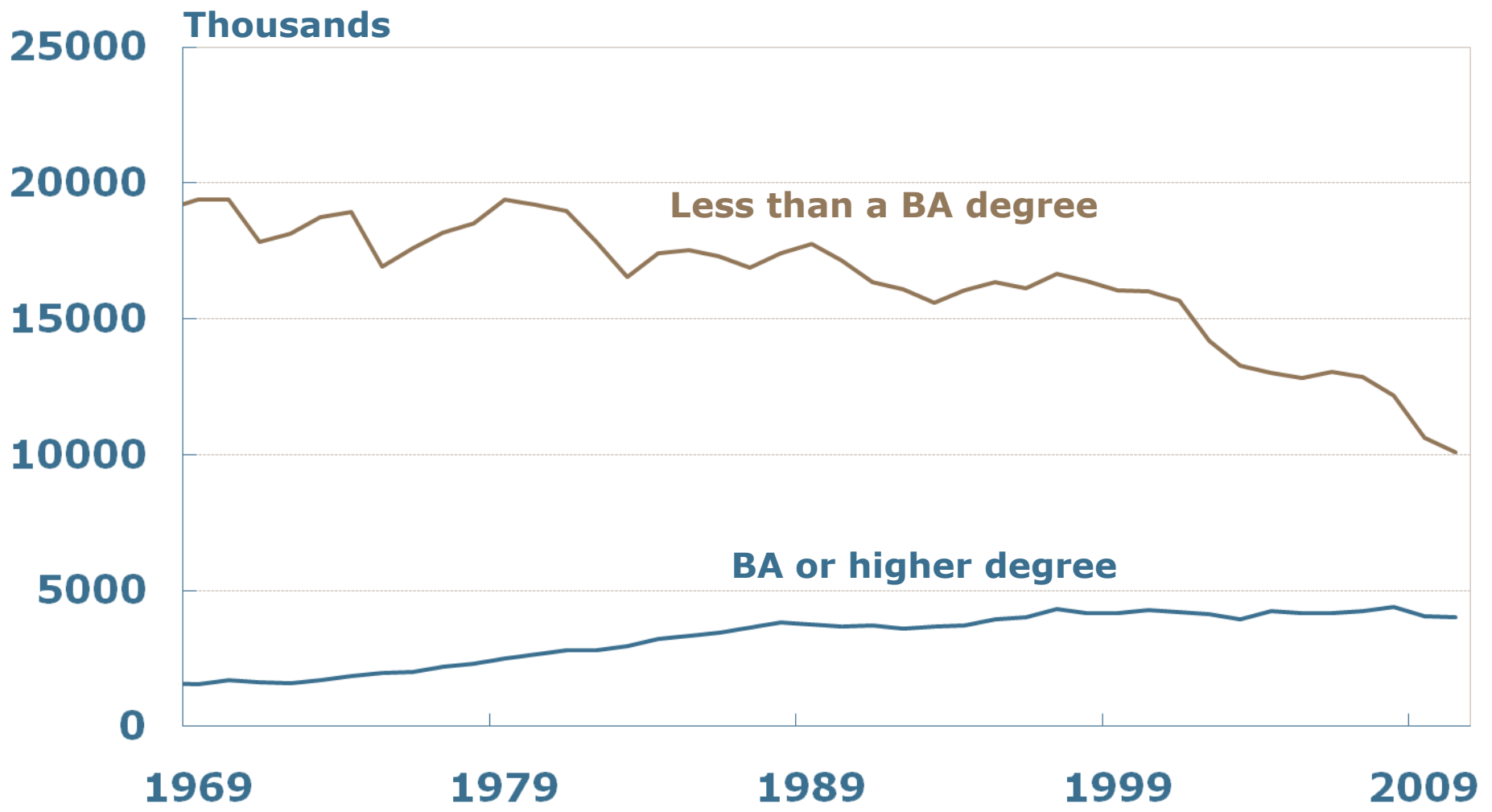
- Puzzle: Why are men faring so poorly relative to women in responding to incentives for graduating college and earning advanced degrees?

## Differences in Hourly Wages: Degree vs. High School Male and Female: Ages 25-34



Source: CPS Outgoing Rotation Group Files, CEPR

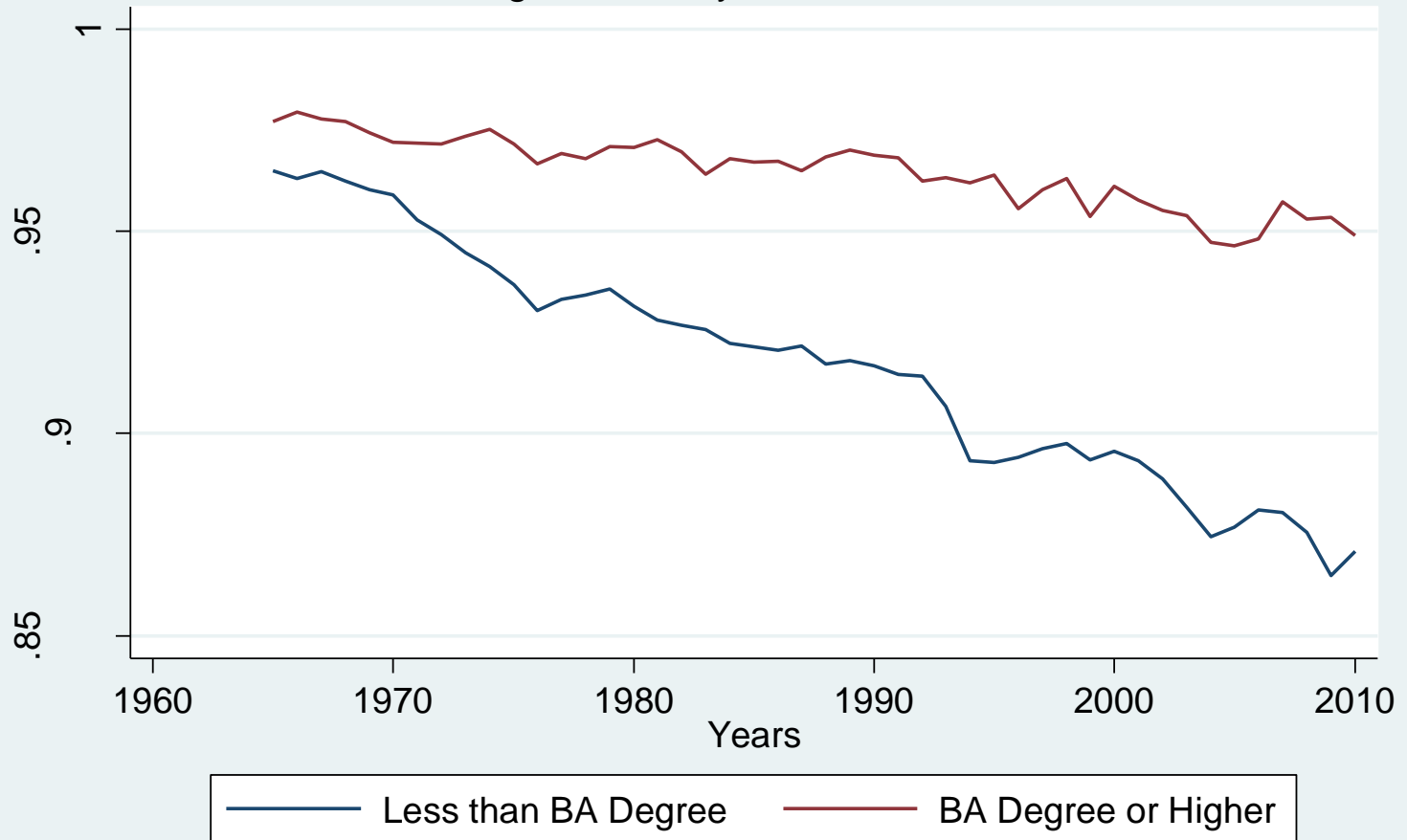
# Manufacturing Employment: Decline in Demand for Less-Skilled Workers



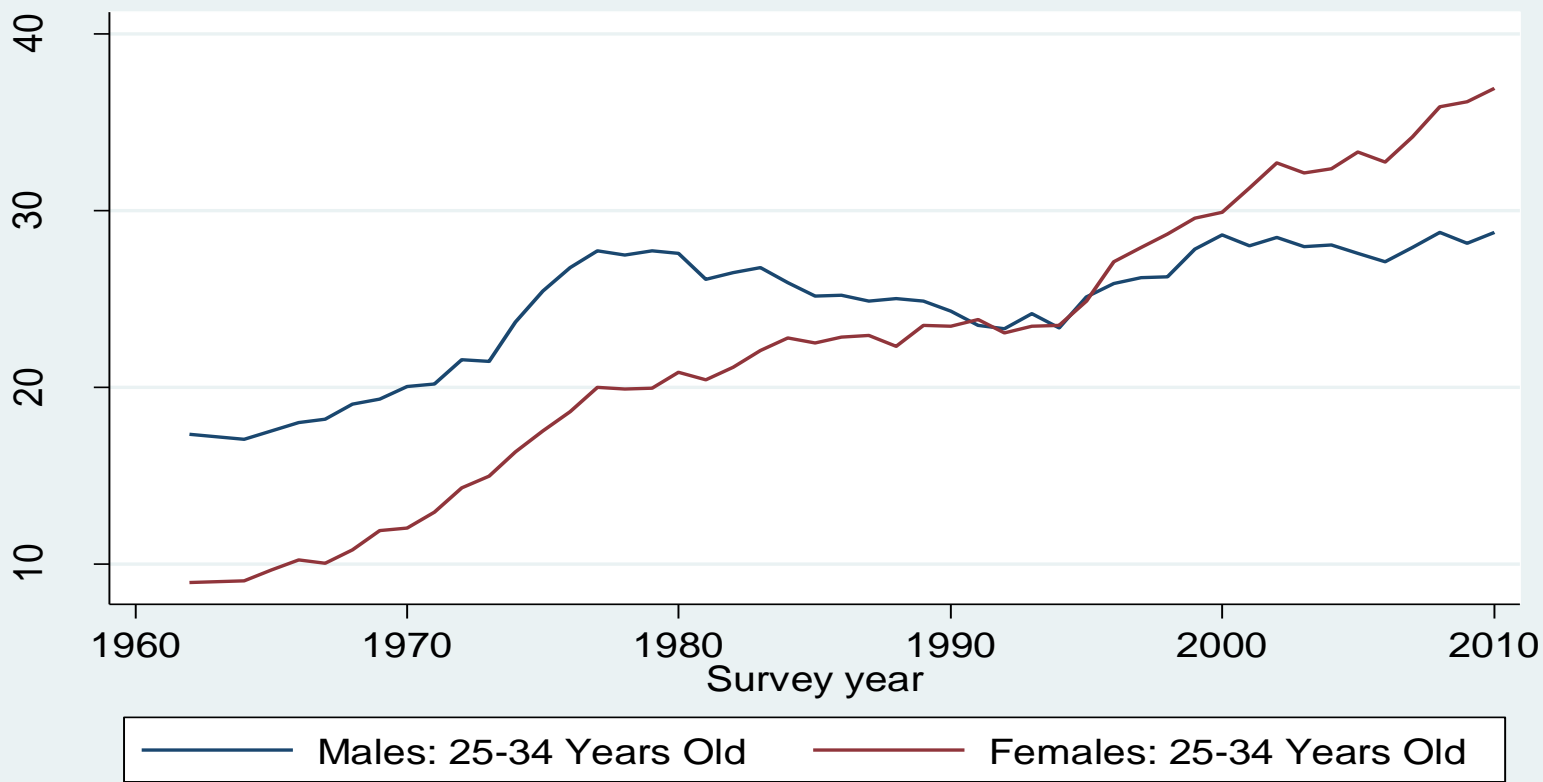
Source: March CPS, 1969 to 2010.

## Labor Force Participation Rates: 1965-2010

Males: Ages 25-54 by Educational Attainment

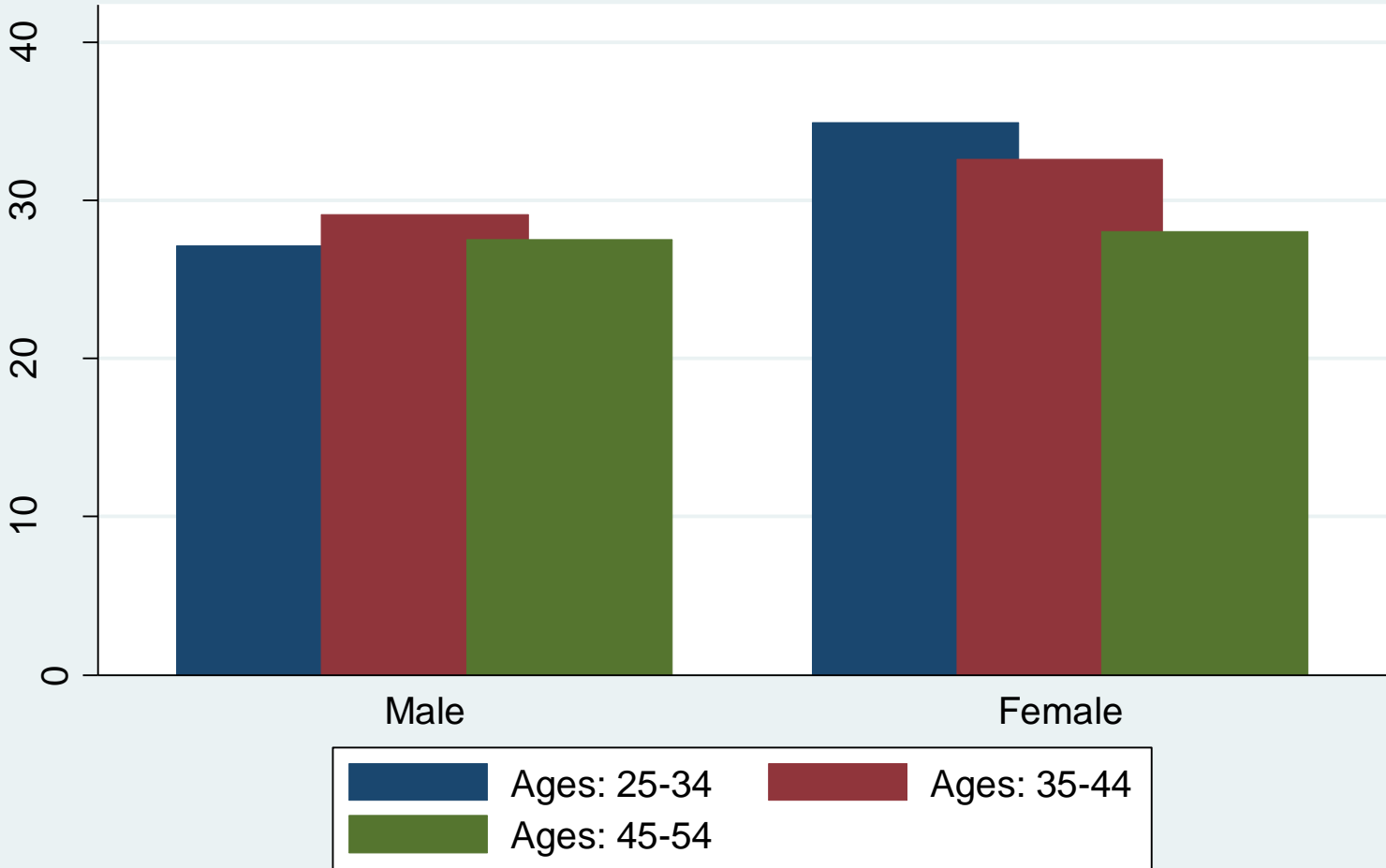


## College Attainment: Young Men vs Young Women 1965-2010



Current Population Survey: 1962-2010

## 2009 BA Attainment Men and Women by Age Category

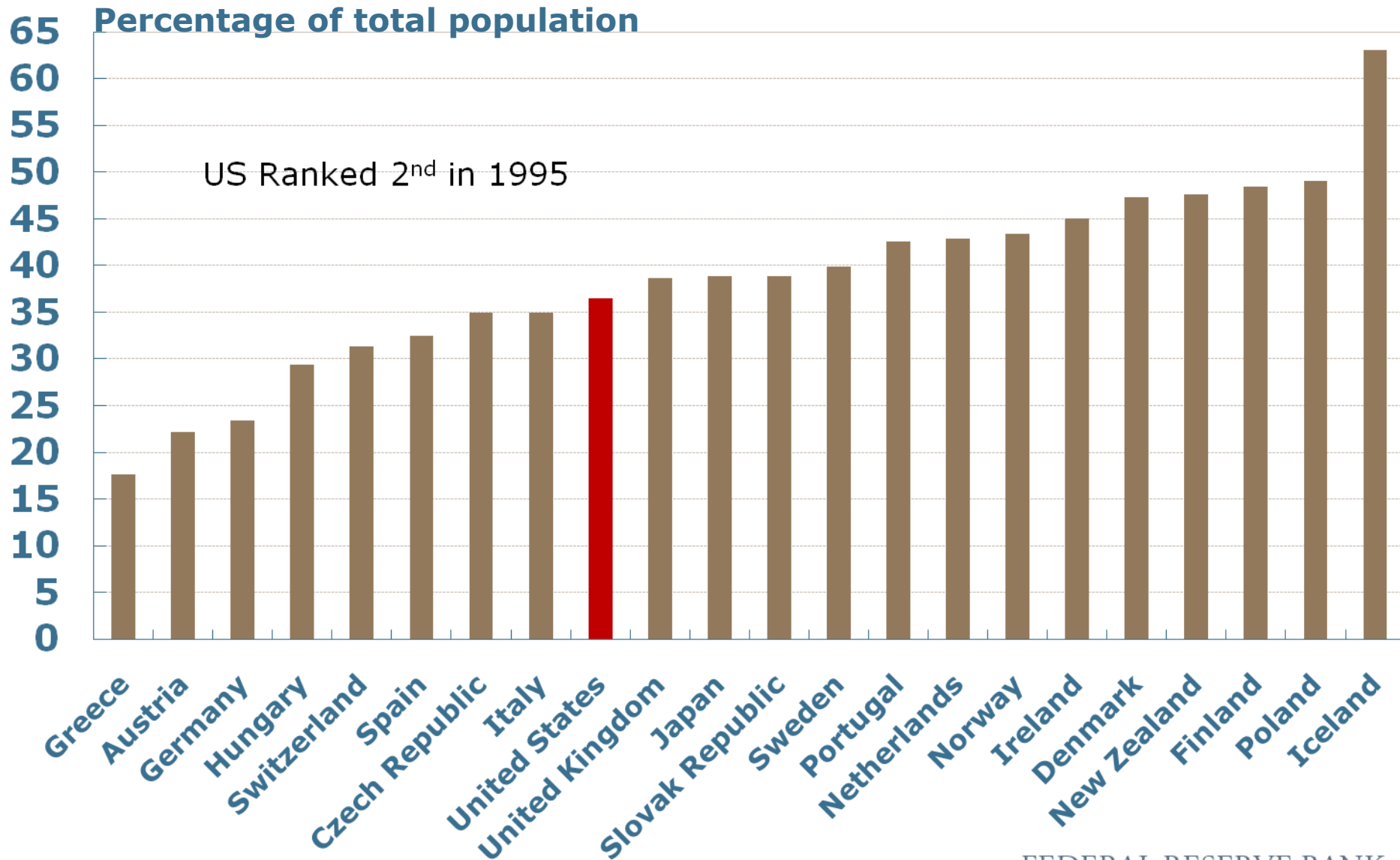


# Male-Female Educational Attainment Differences

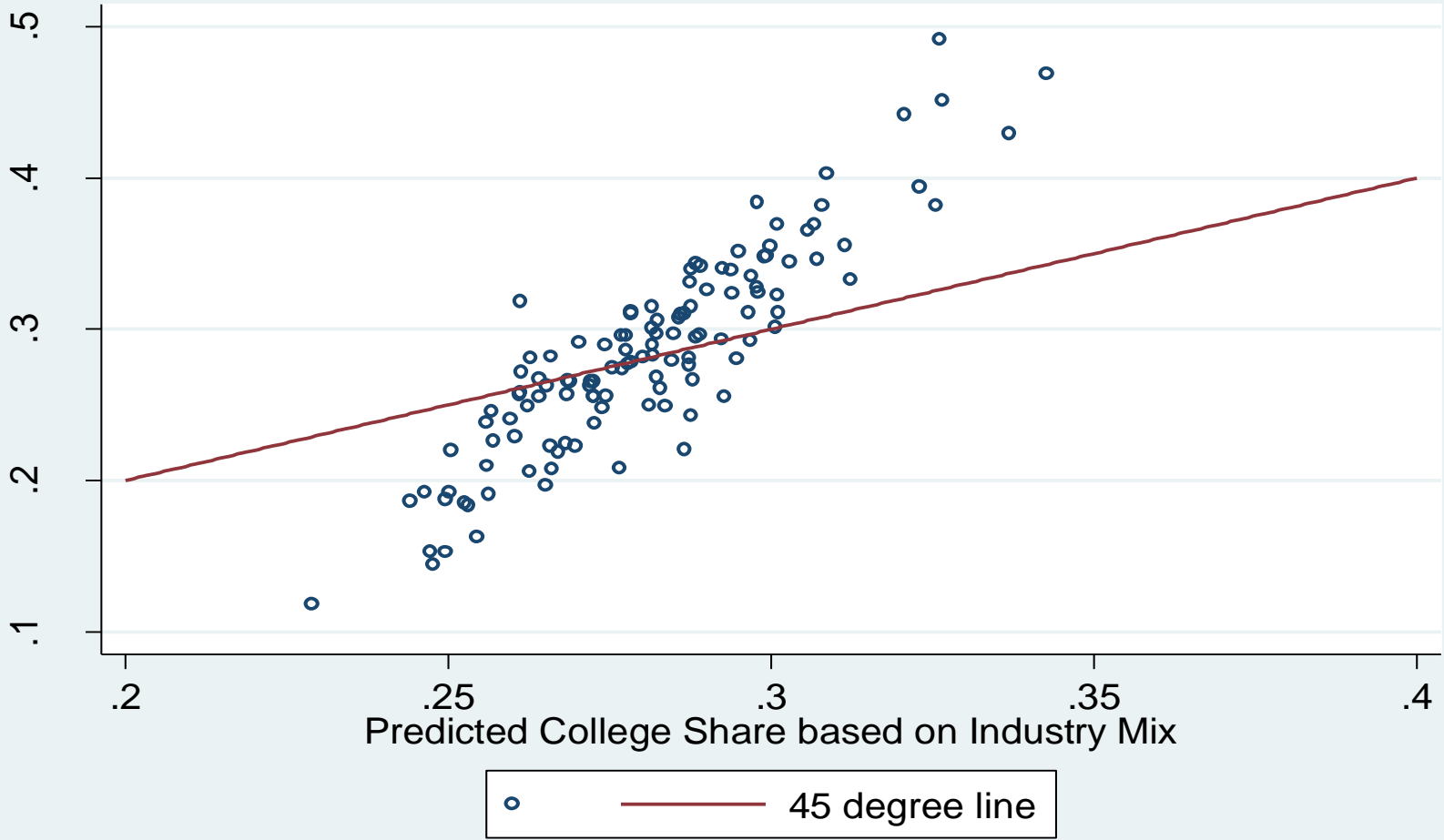
- Find this same pattern of female educational attainment exceeding male educational attainment in many developed countries.
- However, much less common is the backsliding we have seen for males in the US.
- Moreover, other developed countries female educational attainment rates have also surpassed the US.

Thank you

# Tertiary Education Graduation Rates

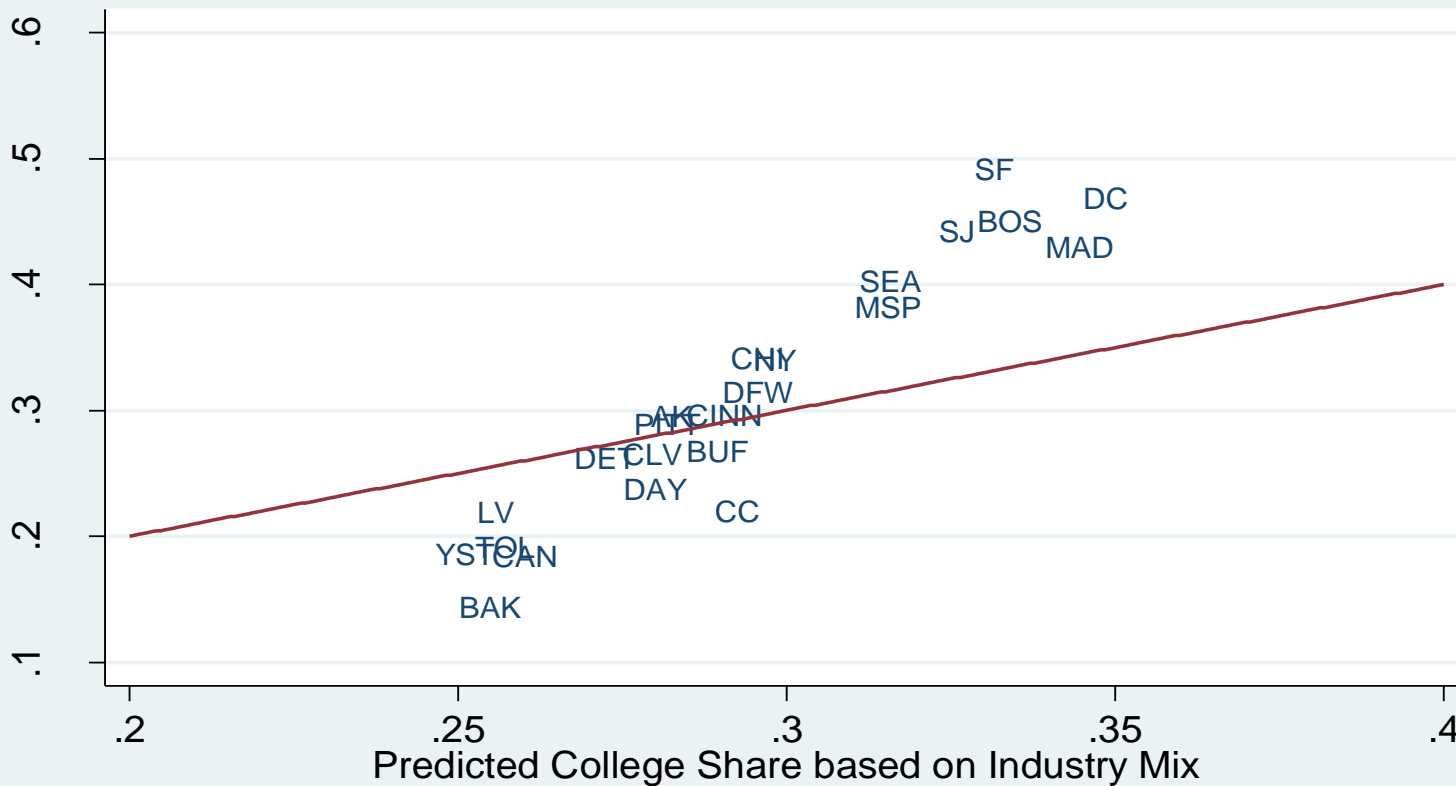


# Industry Composition Effects 2008



# Industry Composition Effects

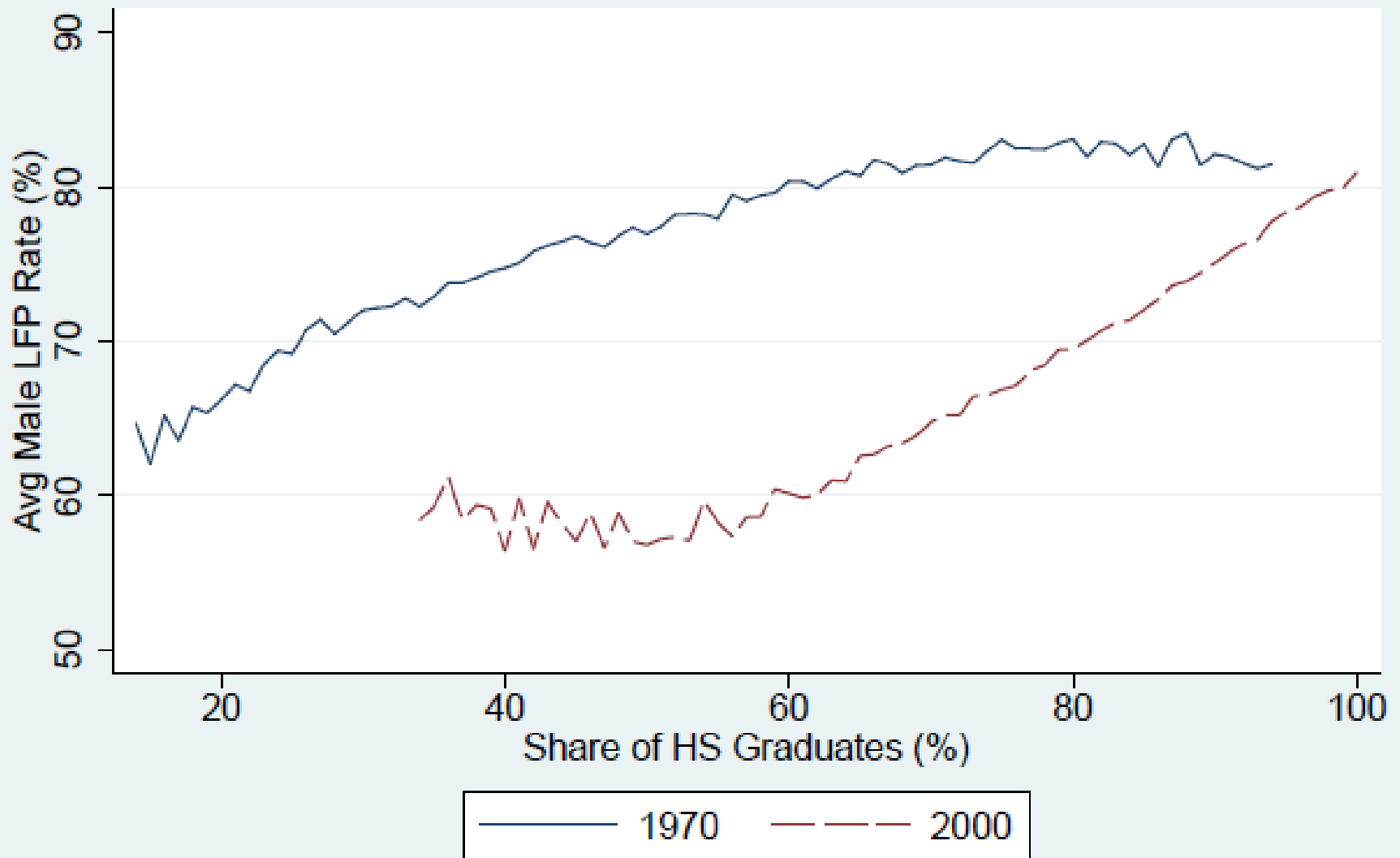
2008



— 45 degree line

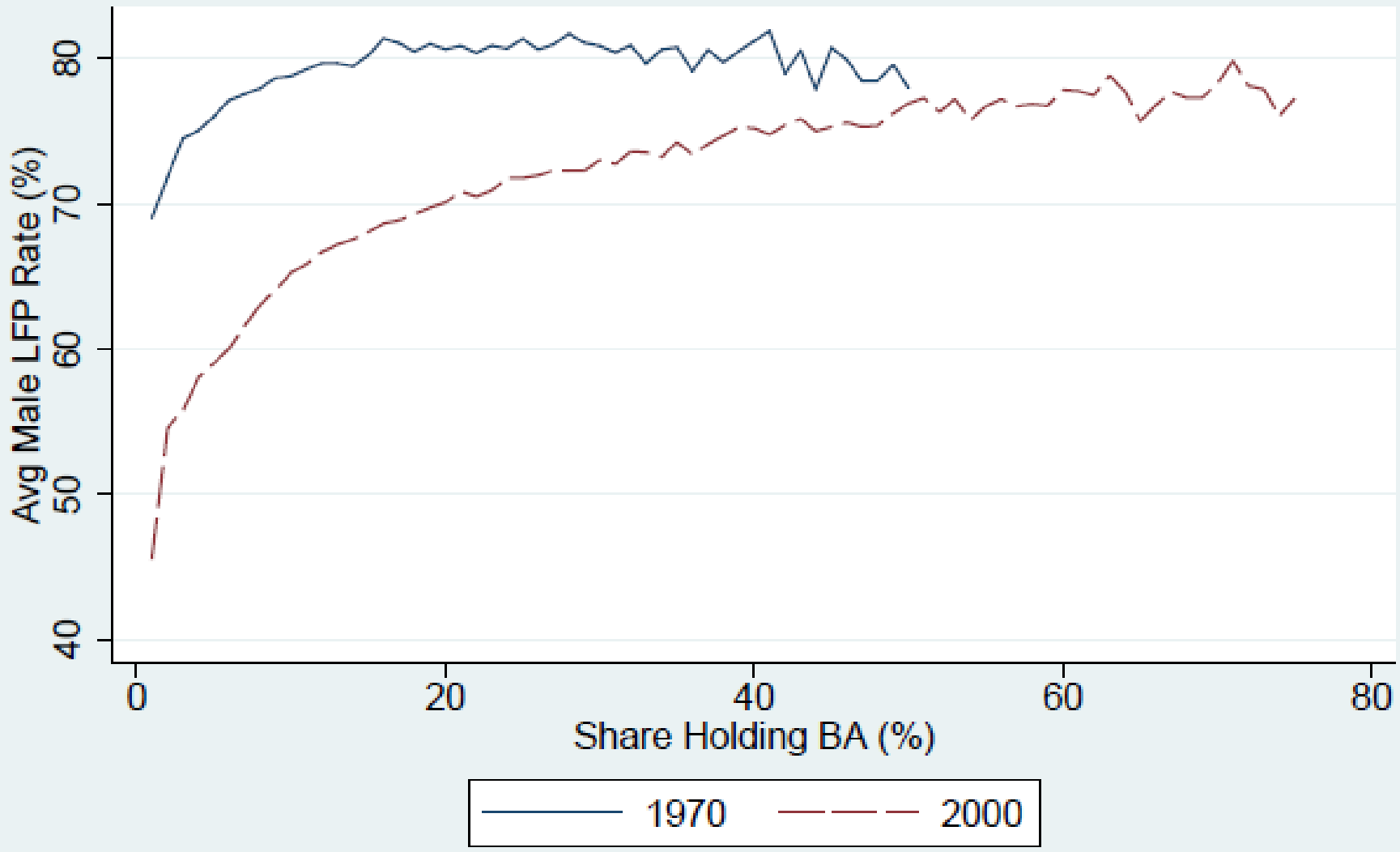
# Male Labor Force Participation Rate

## Average in Census Tracts by HS Graduation Rate



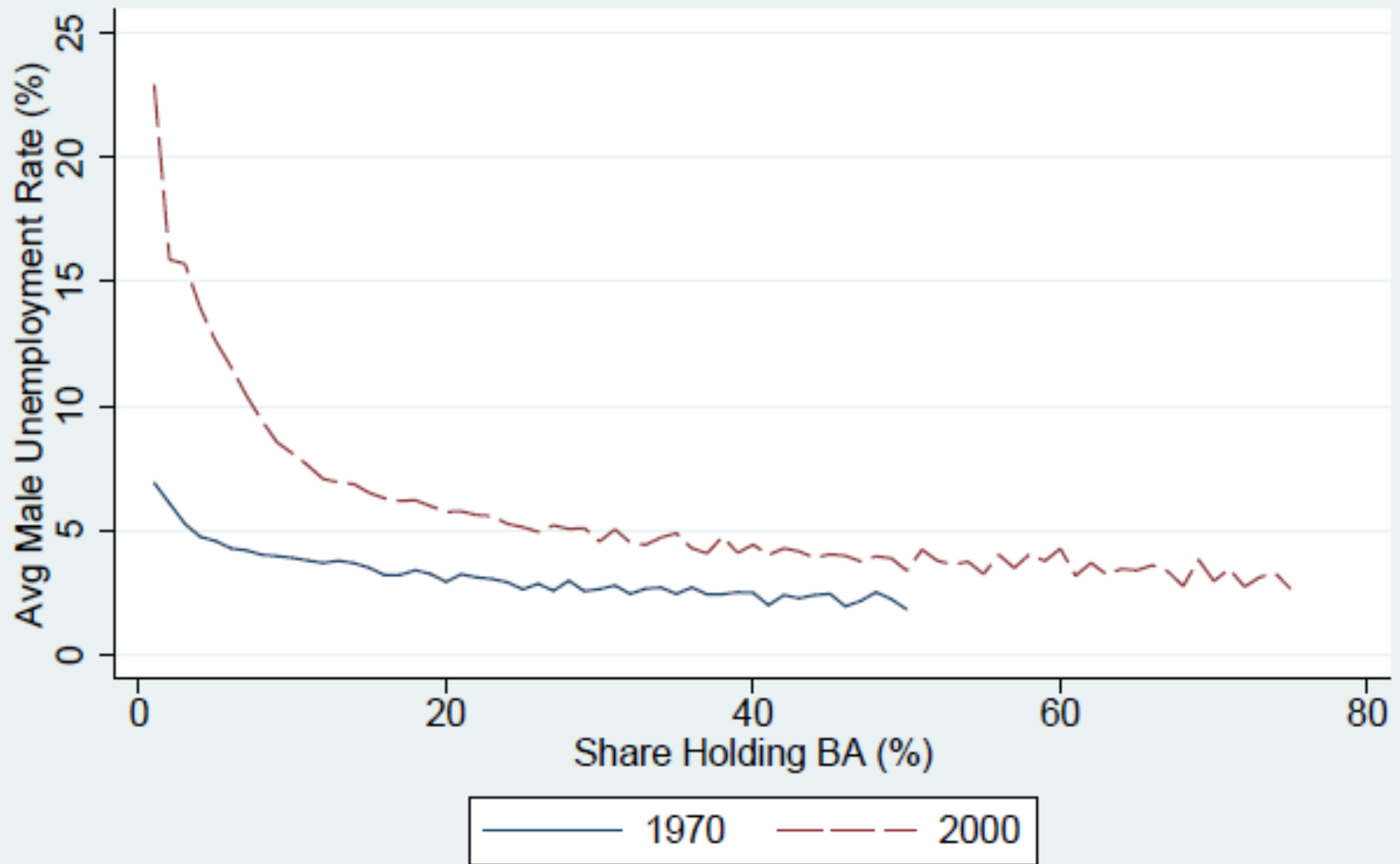
# Male Labor Force Participation Rate

## Average in Census Tracts by Share Holding BA



# Male Unemployment Rate

Average in Census Tracts by Share Holding BA



# Male Unemployment Rate

Average in Census Tracts by HS Graduation Rate

