# Labor Market Fluidity and Economic Performance

By

Steven J. Davis and John Haltiwanger

University of Chicago & NBER and University of Maryland & NBER

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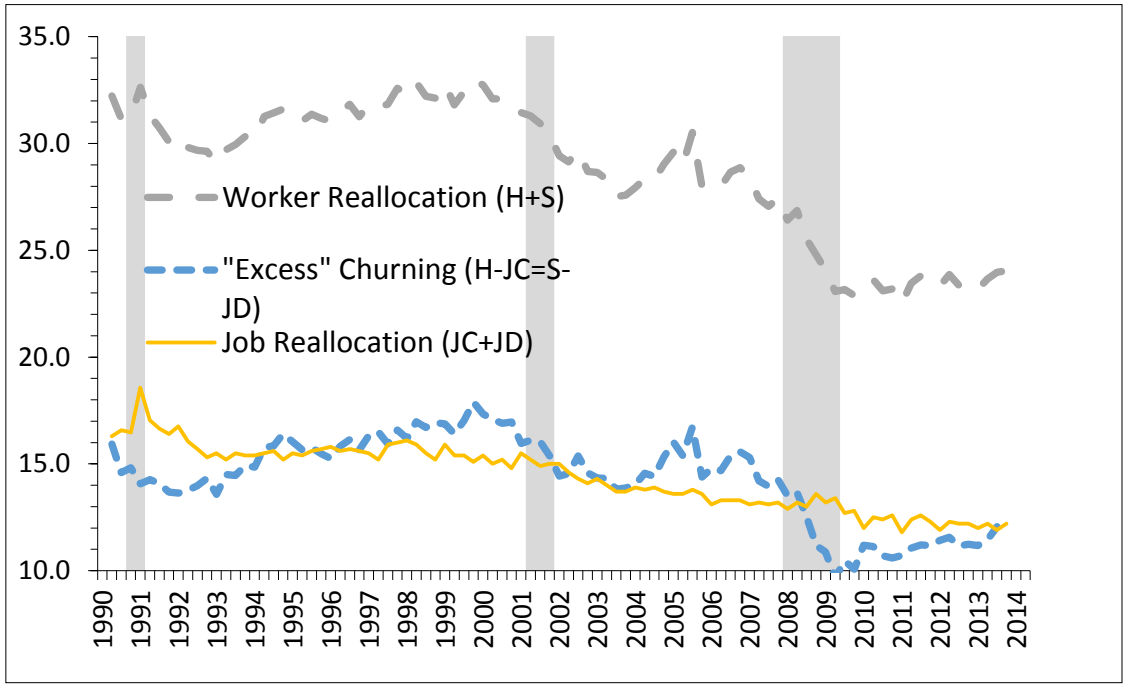
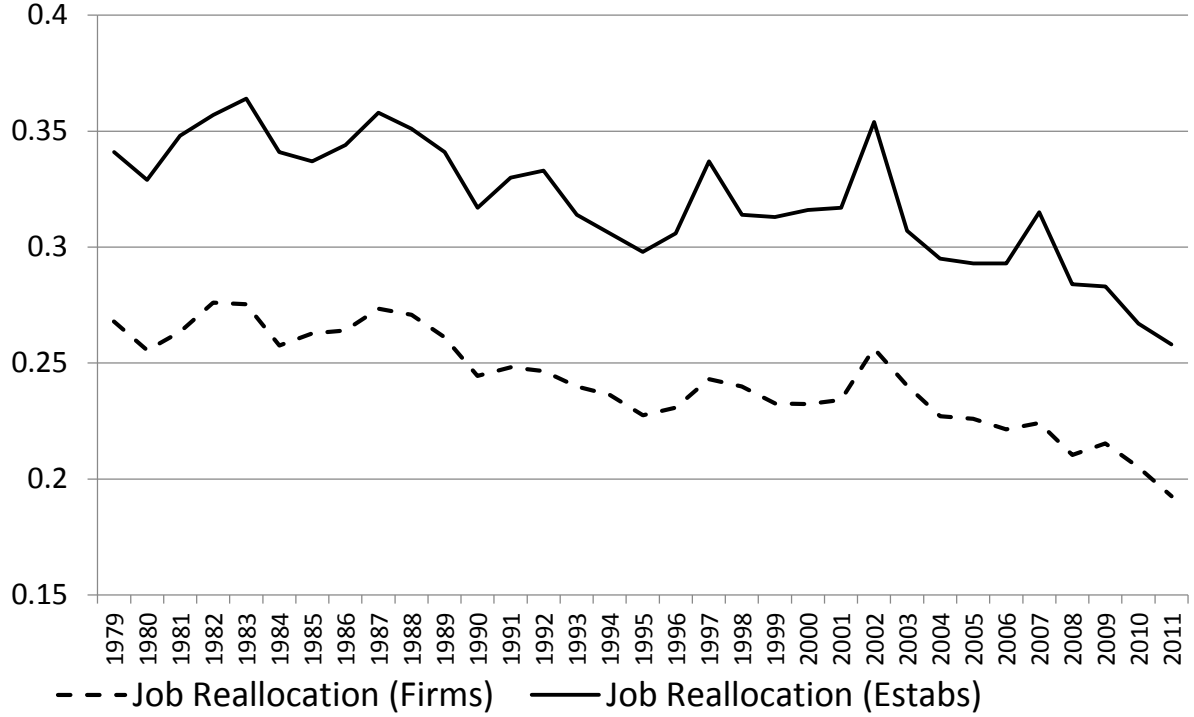
# Main Themes and Results

1. U.S. labor markets became much less fluid in recent decades
   - Rate of job reallocation across employers fell more than 25 percent since 1990
   - Rates of worker reallocation and churn fell more than 25 percent since 2000
   - Fluidity declines hold across states, industries, firm size and age categories, and demographic groups defined by age, gender and education.
   - U.S. had large job reallocation rate declines compared to other countries (limited evidence)
2. Many factors contributed to secular decline in fluidity, including:
   - Decline in Entrepreneurship. Shift of activity to larger and older firms
   - An aging workforce
   - Policy developments that suppress reallocation? (e.g., erosion of employment-at-will and spread of occupational licensing and certification requirements)
3. Reasons for Concern:
   - Worker and job reallocation contribute to productivity (e.g., entrepreneurship and creative/destruction critical for innovation and productivity growth) and real wage growth (e.g., job hopping critical for building a career)
   - Reduced fluidity can negatively affect employment, especially for marginally attached workers and those with limited skills
4. Key New Findings:
   - Reduced fluidity leads to large declines in employment rates for the young and less educated
   - Our findings suggest the U.S. faced serious impediments to high employment rates before the Great Recession, and it is unlikely to return to sustained high employment without restoring labor market fluidity

## Quarterly Rates of Worker Reallocation, Job Reallocation & Churn, U.S. Nonfarm Private Sector



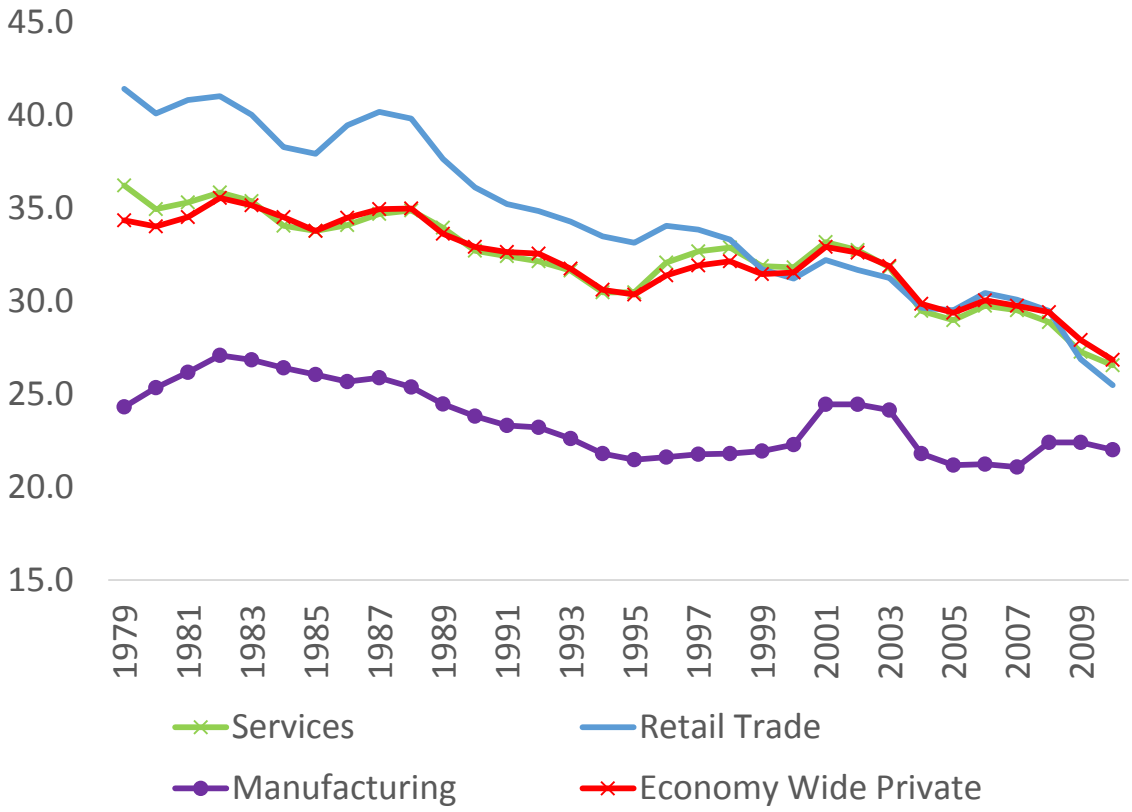

## Annual Rates of Job Reallocation Across Firms and Establishments, U.S. Nonfarm Private Sector



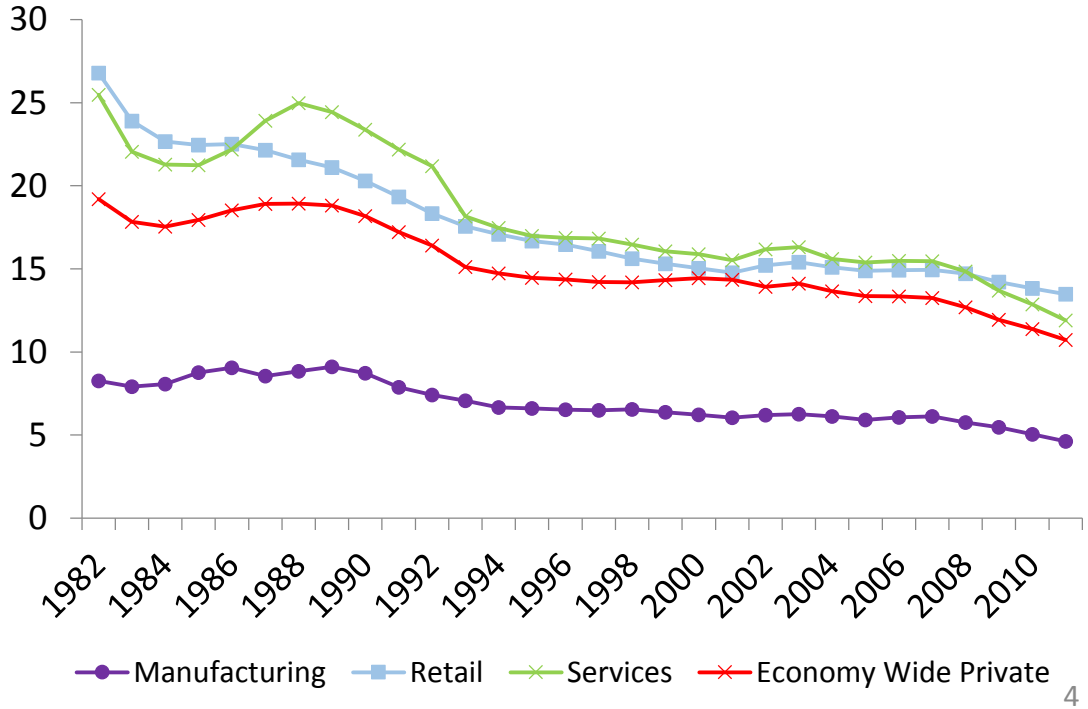

**Worker Reallocation = Job Reallocation + Churn**

**(Hires + Separations)** **(Creation + Destruction)**

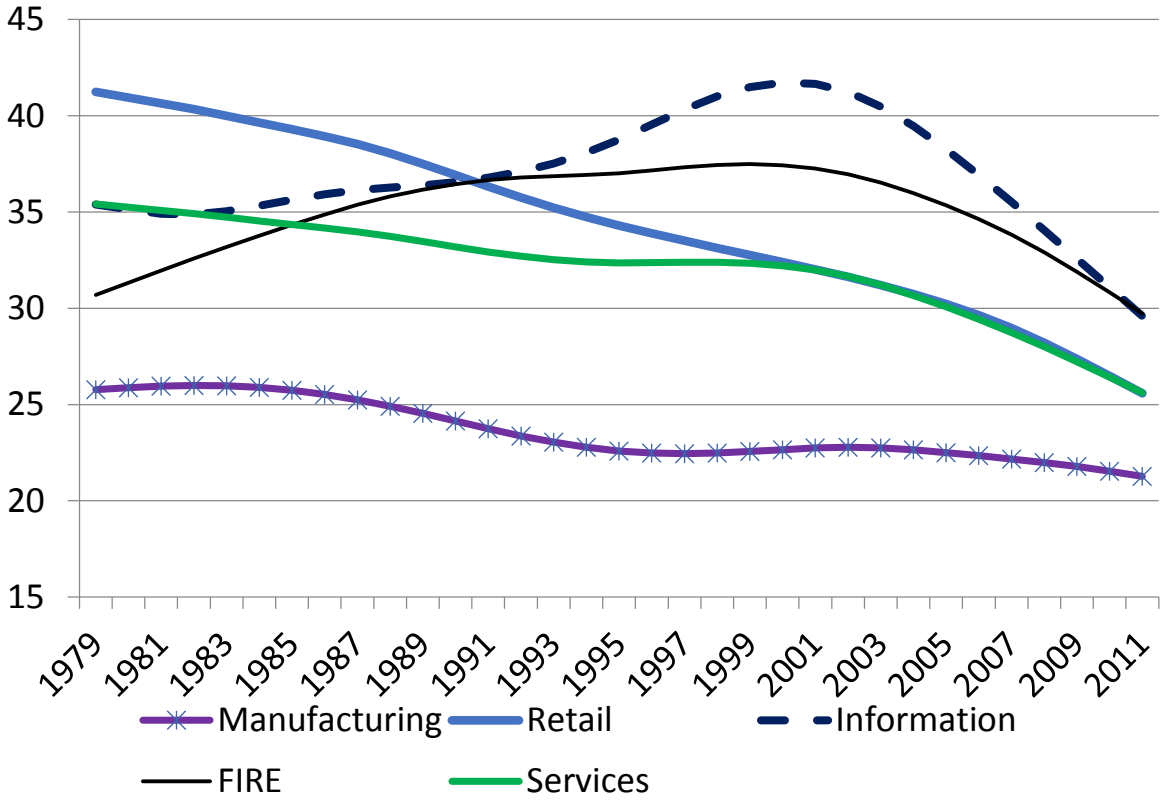
# Annual Job Reallocation Rates in Selected U.S. Industry Sectors



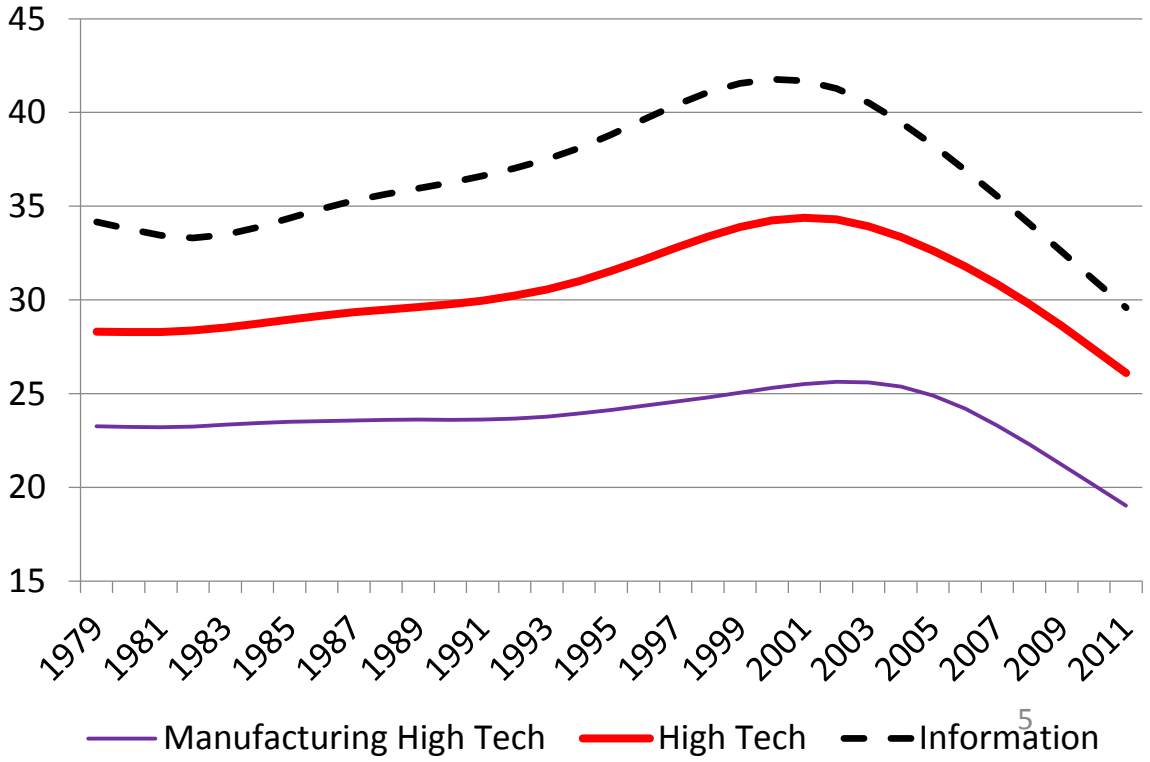

## Employment Share of Firms Five Years Old or Younger



# Some key sectors exhibited increases in job reallocation pre-2000 but all sectors have declined since 2000

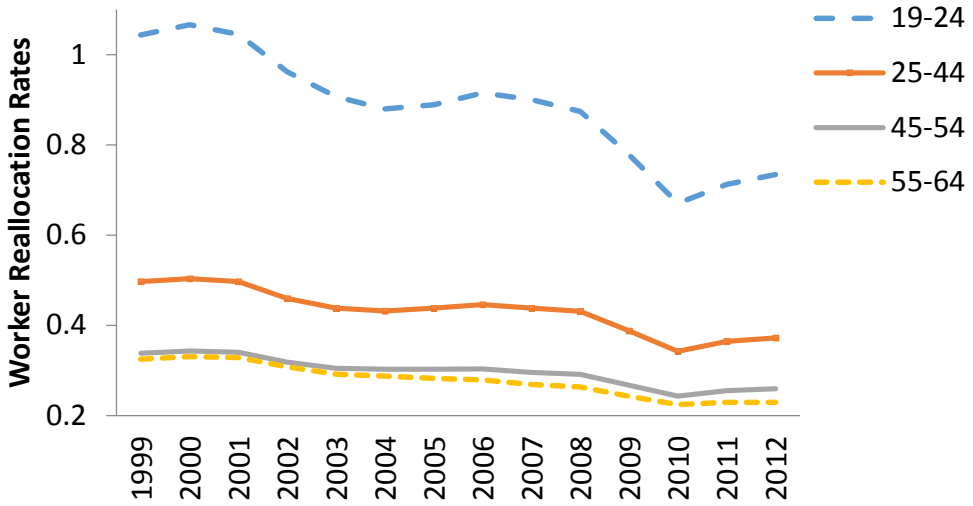



Hodrick-Prescott Trend Reallocation Rates

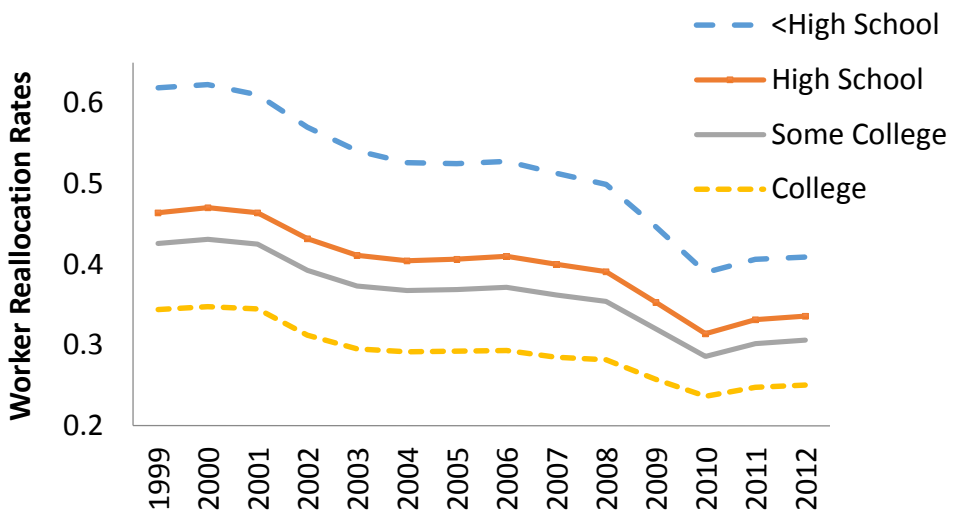


# Quarterly Worker and Job Reallocation Rates by Gender, Age and Educational Attainment

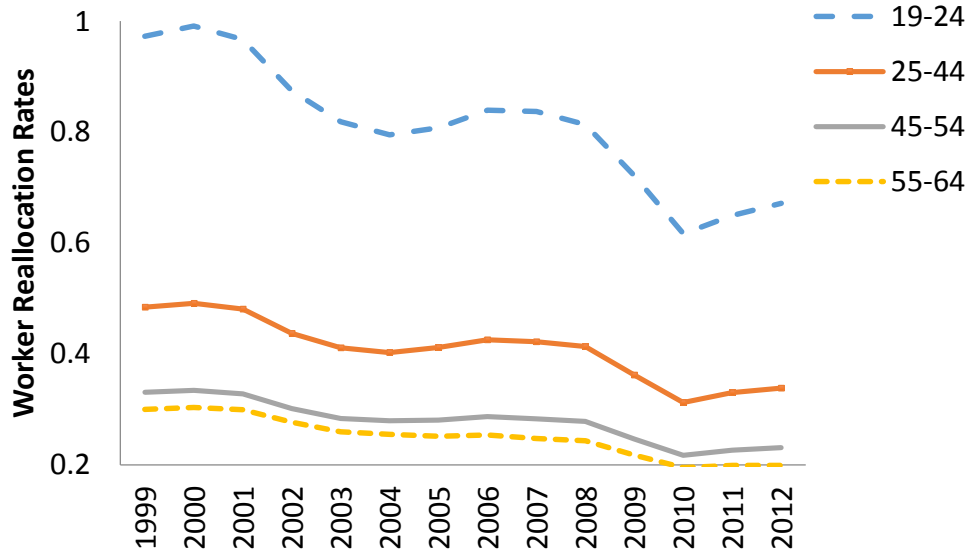
## Worker Reallocation Rates by Age Groups, Males



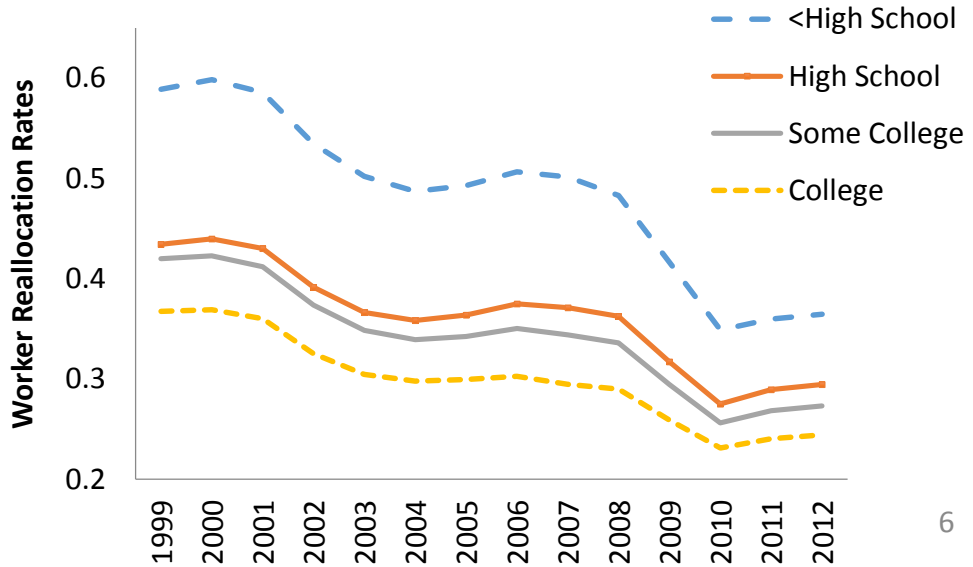

## Worker Reallocation Rates by Education, Males




## Worker Reallocation Rates by Age Groups, Females




## Worker Reallocation Rates by Education, Females



# Why the Decline in Labor Market Fluidity?

- Taken together, shifts in the industry, age and size distribution of employment account for 15% of secular drop in job reallocation intensity
  - Shifts in the industry mix actually go the "wrong" way.
- An aging workforce contributes to declines in worker reallocation intensity – a bigger factor in the 1980s and early 1990s than 2000s
- Policy developments also suppressed fluidity. Examples:
  - Occupational restrictions in the form of government-mandated licensing and certification requirements grew from 5% of jobs in the 1950s to 38% by 2008.
  - The employment-at-will doctrine eroded over time, making it harder and costlier to fire workers. Common-law exceptions to the doctrine emerged in state court decisions from 1972 to 1999. Building on work by David Autor and others, we exploit differences in the timing of these exceptions to estimate their effects on reallocation intensity. We find that exceptions to employment-at-will led to reductions in state-level job reallocation rates, more so for smaller employers.
- As yet, we know little about how much these and other factors contributed to the secular decline in U.S. labor market fluidity.

# Is Reduced Fluidity Cause for Concern?

1. Beneficial and benign aspects of reduced fluidity:
   A. Less job reallocation means fewer layoffs and smaller unemployment inflows.
   B. Reduced fluidity is a by-product of developments in specific sectors that raised productivity and improved consumer welfare: The shift away from small, independent stores to big box retailers raised productivity, lowered prices, and increased product selection. This shift to larger firms and establishments brought lower rates of reallocation.
2. Reasons for concern:
   A. Available evidence says employers became less responsive to shocks, not that employer-level shocks became less variable.
   B. Reallocation plays a key role in prominent theories of innovation and growth.
      A. Decline in entrepreneurship and dynamism in key innovative sectors like high tech post 2000
   C. Factor reallocation flows are an important source of medium-term productivity growth according to many empirical studies.
   D. Fluidity facilitates job mobility, wage growth and career advancement.
   E. Fluidity promotes employment.

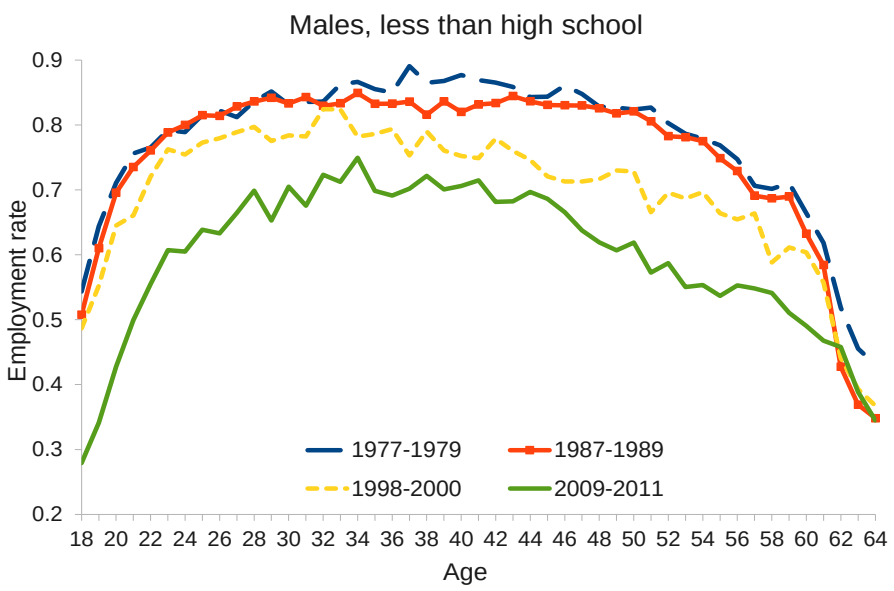
# The Fluid Labor Markets Hypothesis

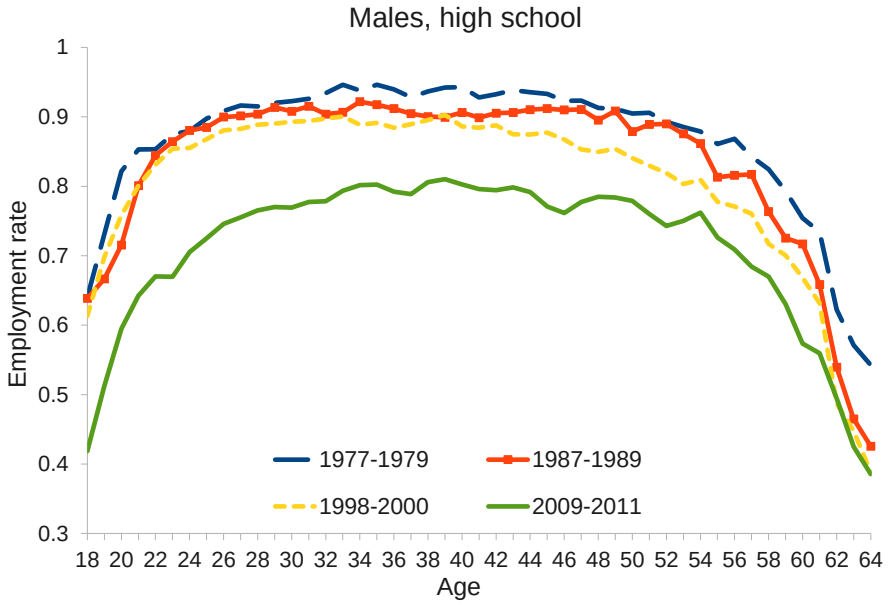
Hypothesis: Fluid labor markets promote high employment.

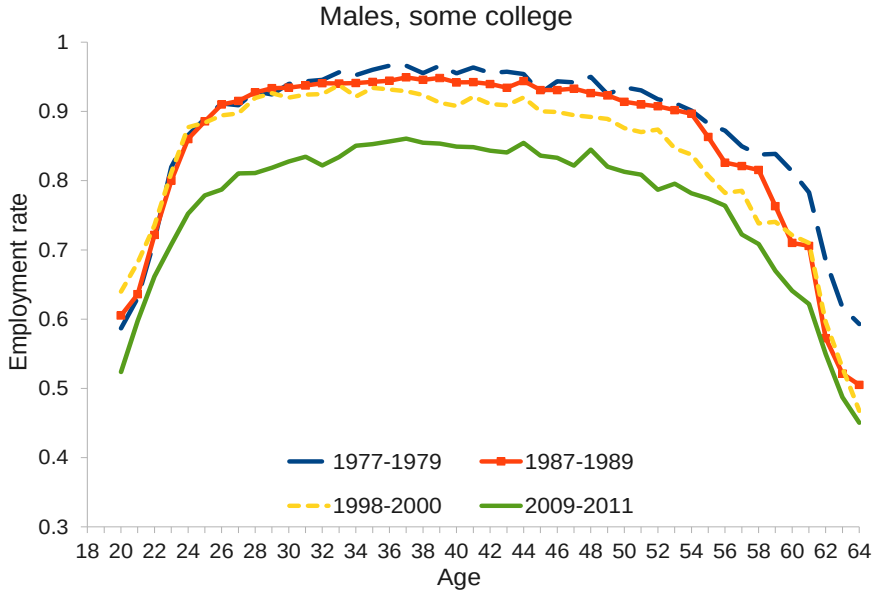
Mechanisms:

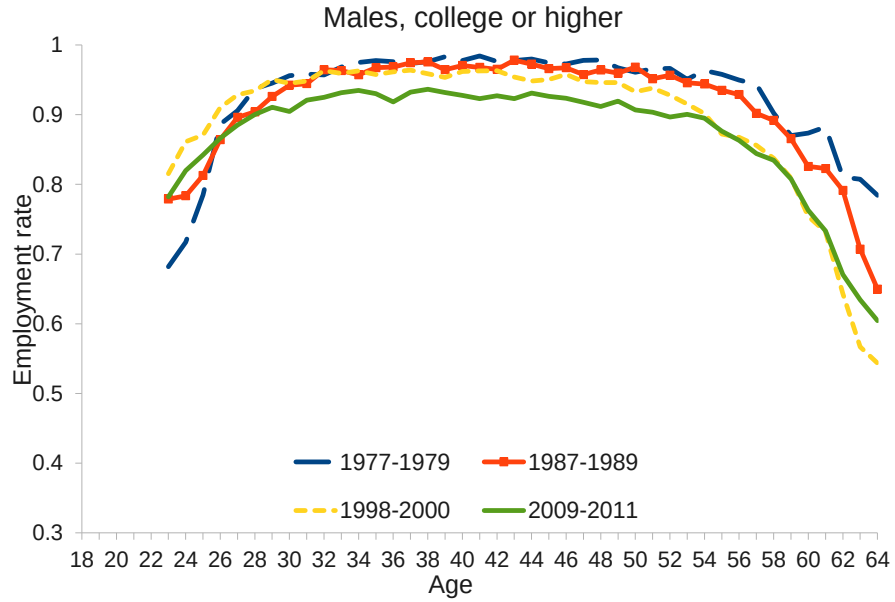
1. **Job creation incentives** (Shimer, 2001): Young workers tend to be less well matched to suitable jobs than older workers. When the youth share of the working-age population is high, average match quality is low, and employers with open job positions are more likely to encounter poorly matched workers. Easier recruiting, in turn, leads to higher equilibrium job creation and lower unemployment rates for workers of all ages.
2. **Human Capital Accumulation:** Fluid labor markets offer abundant opportunities to find a job, prospect for the "right" job, move up a job ladder, satisfy locational constraints, re-enter the labor market, etc. The result is better opportunities and stronger incentives to accumulate market-relevant human capital, increasing earnings capacity and strengthening work attachment. (This mechanism is especially relevant for younger and marginal workers, and those with limited skills.)
3. **Other:** The paper briefly discusses other employer-side and worker-side mechanisms that reinforce the negative employment effects due to the interaction between reduced fluidity and human capital accumulation. Pissarides (1992) shows how job creation incentives and human capital accumulation responses interact to produce larger effects than either one in isolation.

# Employment Rates by Age and Education for Selected Periods, Males

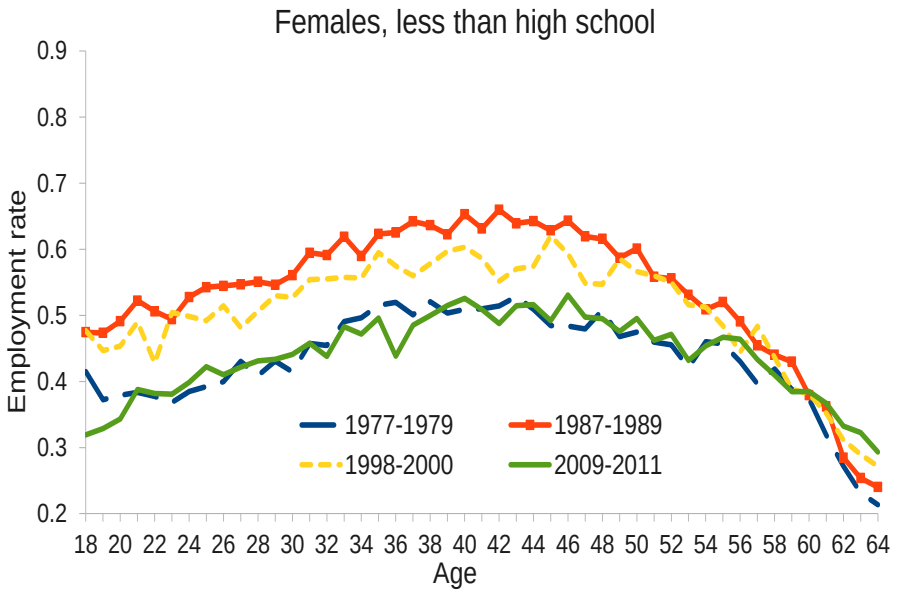


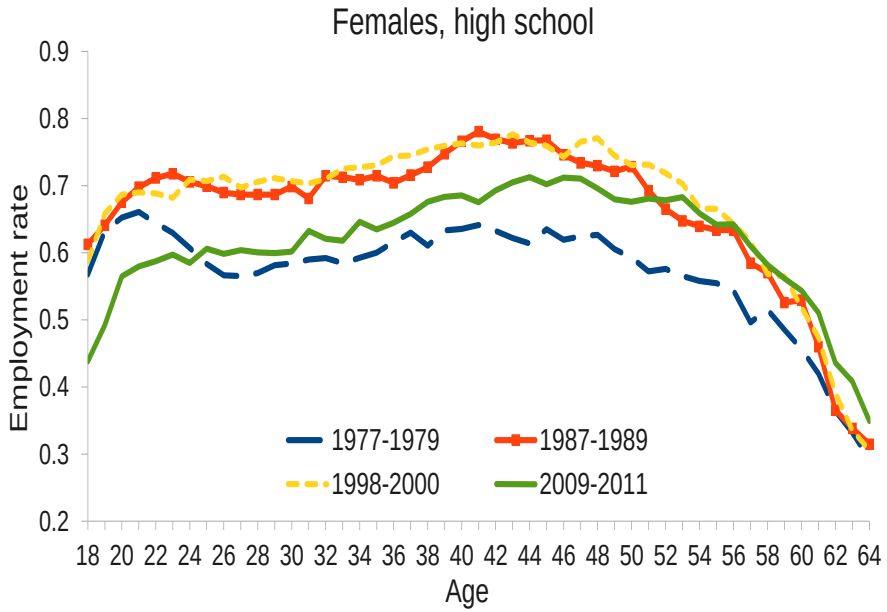



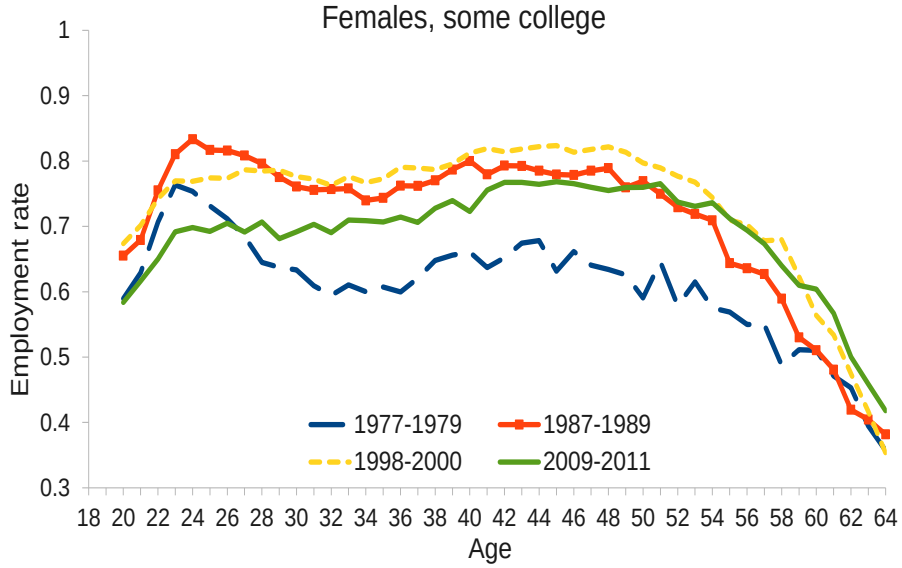



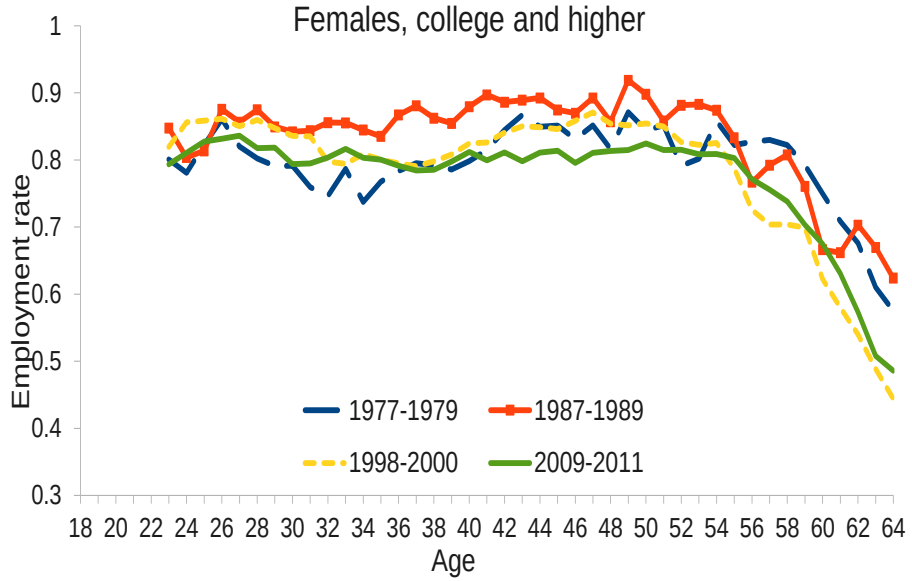



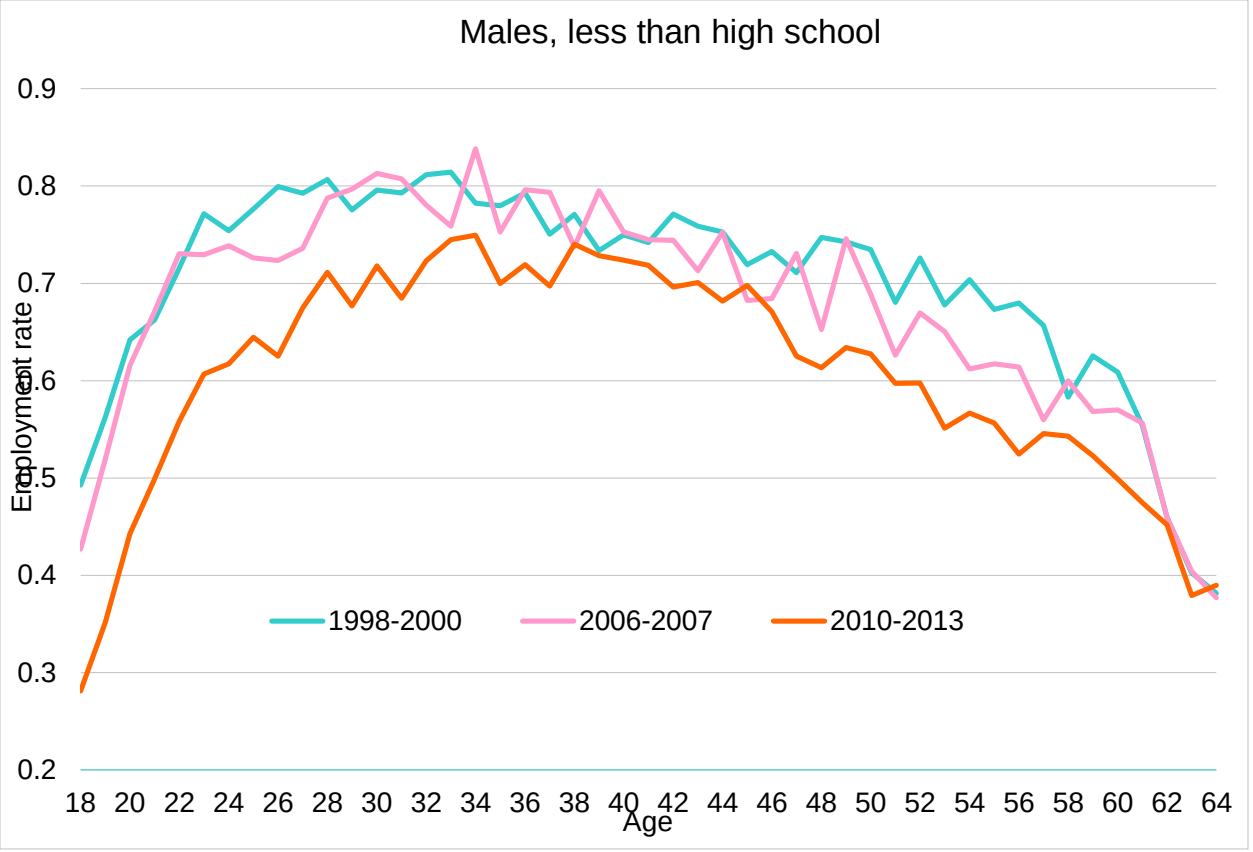
# Employment Rates by Age and Education for Selected Periods, Females



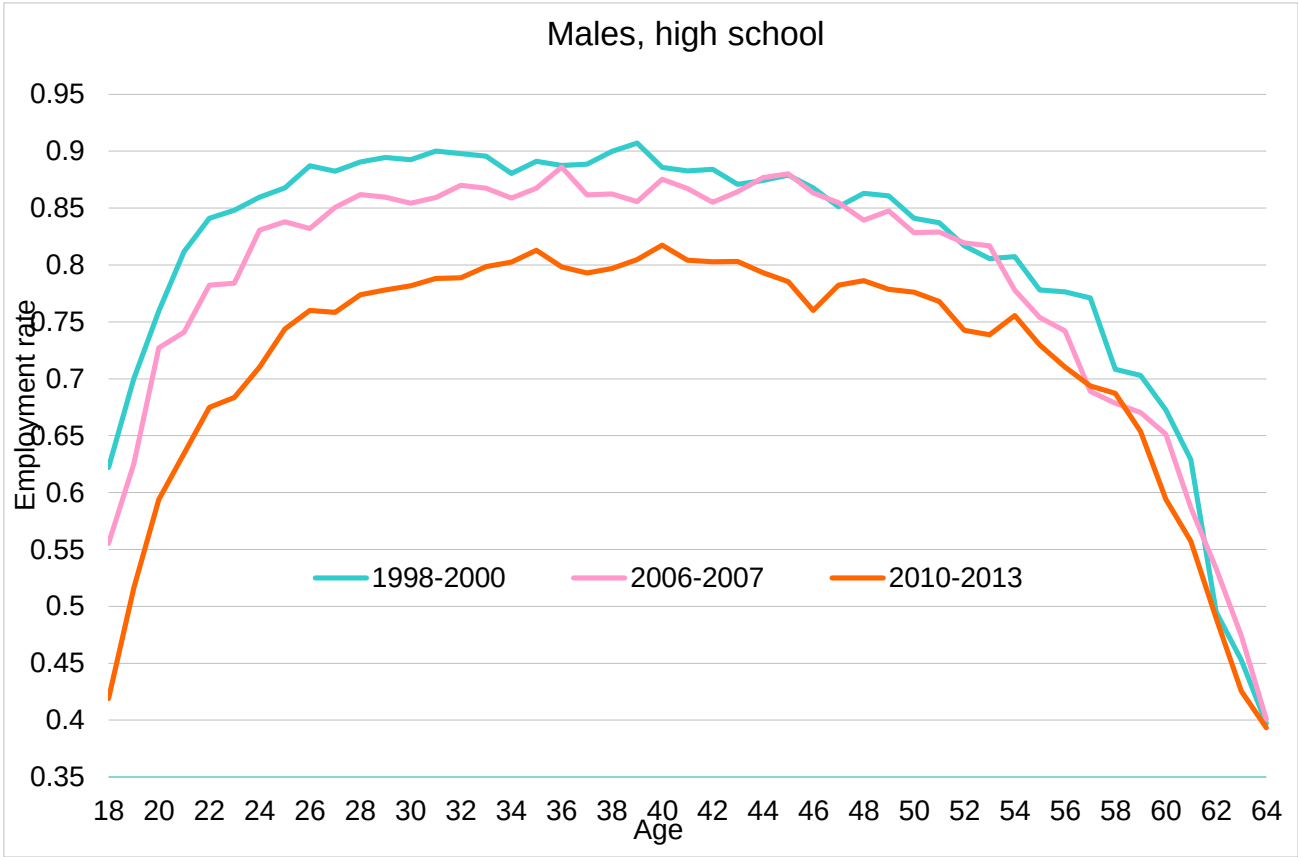






**Most groups experience a decline in employment rates**
**From 1998-2000 to 2006-2007, conditional on age**



# Econometric Approach: Specification & Identification

1. Estimate effects of fluidity on state-level employment rates for groups defined by gender, education, and age.
   - Use variation within states and demographic groups
2. Regression Specification:
   - Three-year average outcomes and controls for state fixed effects
   - Controls for national and state-level economic conditions
   - Additional controls for presence of children and young children in the HH
   - Results robust to estimating pooled specification with full interactions by demographic group plus common time effects
3. Use IV to address measurement error in fluidity variables, endogeneity concerns, and to keep focus on low-frequency responses. Instruments:
   - Share of working-age population 18-24 years old in the state and time period
   - Abundance of less educated persons 25-31 in the state: relative to working-age population, and relative to population 25-31
   - Bartik-like reallocation instruments: Shifts in state-level reallocation intensity that derive from national shifts in reallocation intensity, national shifts in the industry mix of employment and state's legacy industry structure.
   - Results robust to using demographic variables or reallocation intensity variables.

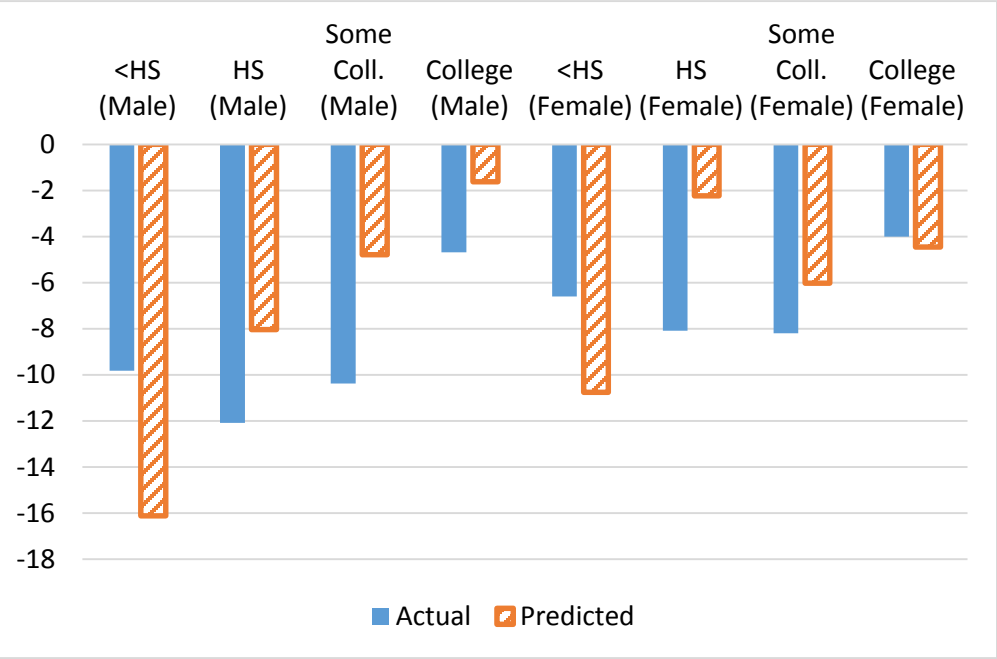
Table 2: The Relationship Between Employment Rates and Labor Market Fluidity (Using the Worker Reallocation Rate)

| OLS Results | | | | |
|---|---|---|---|---|
| | Less than High School | High School | Some College | College |
| Males | 0.27 | 0.14 | 0.16 | 0.03 |
| | (0.12) | (0.08) | (0.05) | (0.03) |
| Females | 0.15 | 0.04 | 0.16 | 0.05 |
| | (0.09) | (0.08) | (0.06) | (0.05) |

| IV Results | | | | |
|---|---|---|---|---|
| | Less than High School | High School | Some College | College |
| Males | 0.77 | 0.61 | 0.39 | 0.17 |
| | (0.26) | (0.35) | (0.22) | (0.16) |
| Females | 0.47 | 0.16 | 0.41 | 0.36 |
| | (0.15) | (0.22) | (0.27) | (0.25) |

Notes: Standard errors clustered at the state level in parentheses. These results report estimated coefficients from regression specifications with the dependent variable the employment rate and the regressors include a measure of labor market fluidity (the worker reallocation rate) and controls including state effects, the growth rate of national GDP, the deviation of national GDP from the Hodrick Prescott Trend, a state cyclical indicator, and indicators of the number of children in the household.

## Actual and Predicted Changes in Employment Rates Implied by Changes in Fluidity,1998-00 to 2010-11

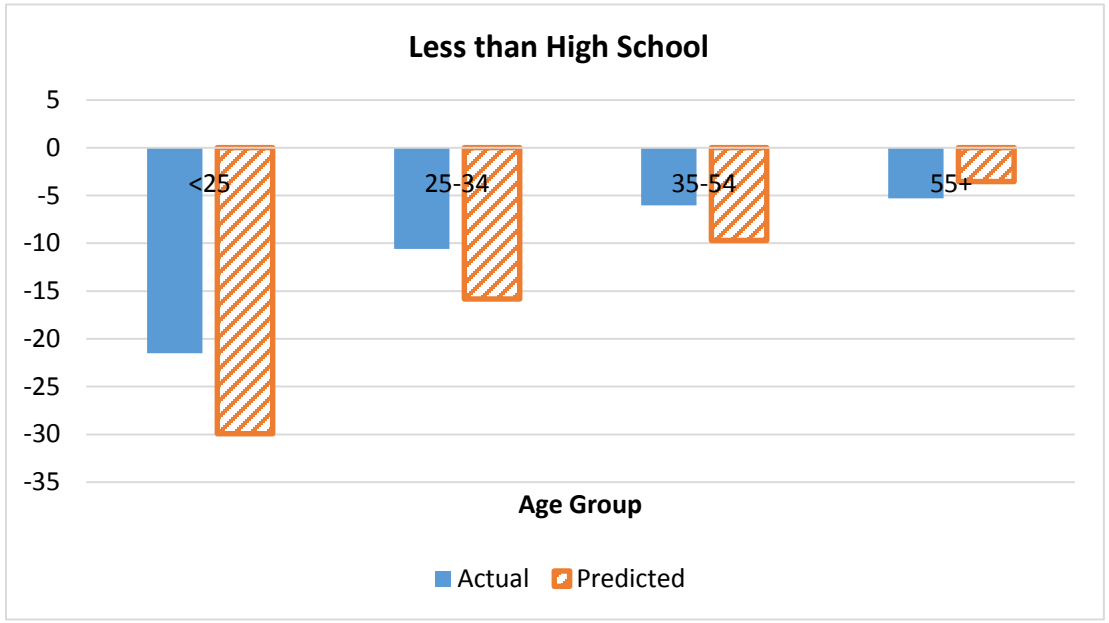


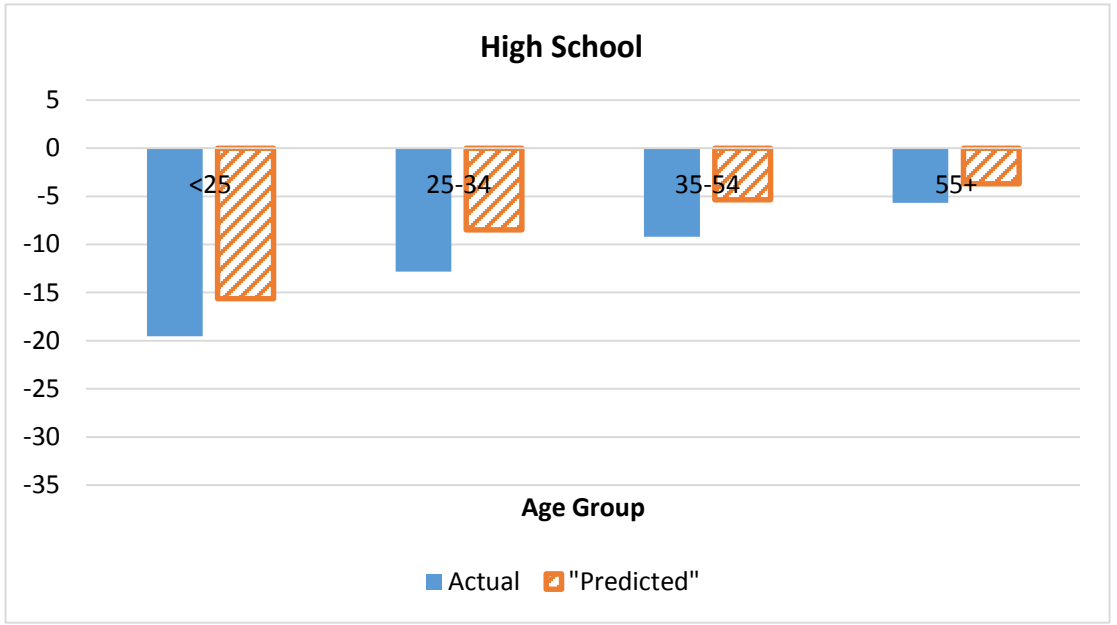

"Predicted changes" refer to the employment rate changes implied by actual changes in reallocation intensity, according to our IV regression estimates, holding fixed national and state controls for cyclical conditions, state effects, and controls for children under 18 and under 5.

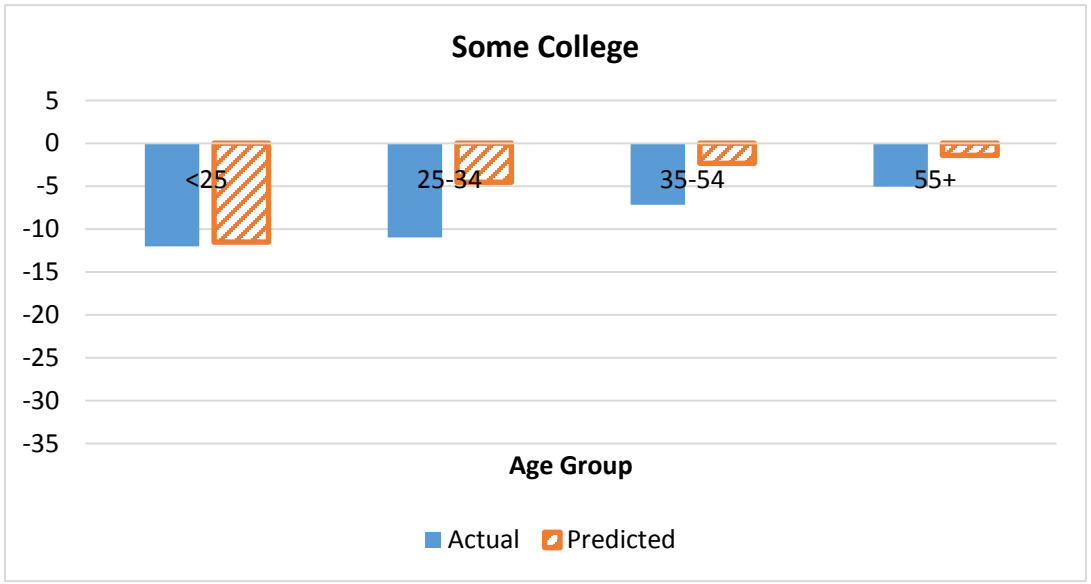
## Implied Elasticities for Male Employment Rates with Respect to Worker Reallocation Rates, IV Estimates for the 1998-2011 Sample

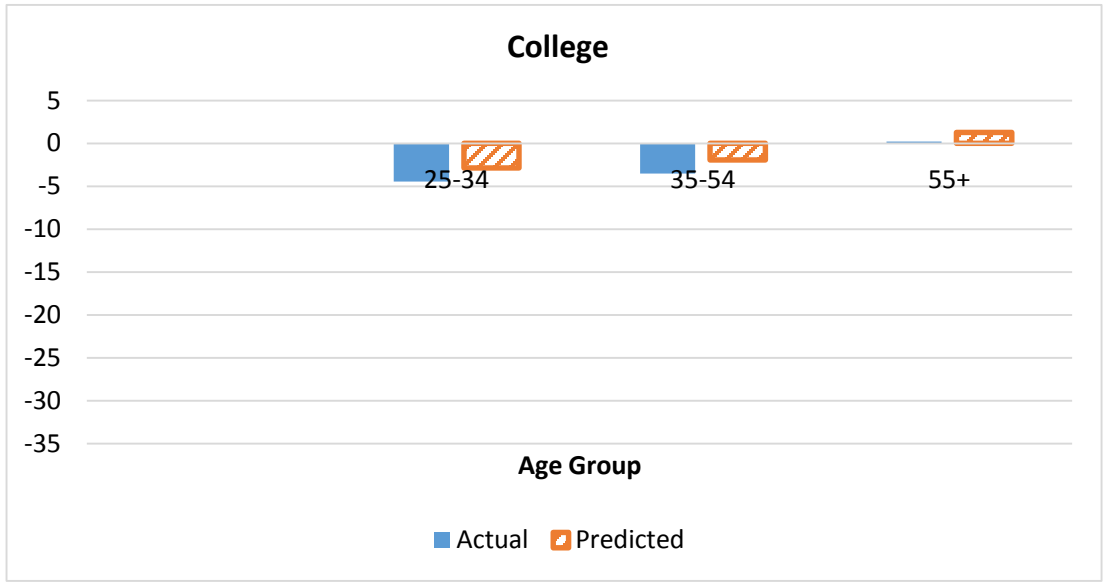
| Age Group | Less than High School | High School | Some College | College |
|---|---|---|---|---|
| <25 | 1.36 | 0.68 | 0.53 | 0.12 |
| 25-34 | 0.49 | 0.30 | 0.15 | 0.09 |
| 35-54 | 0.32 | 0.19 | 0.08 | 0.06 |
| 55+ | 0.16 | 0.18 | 0.06 | -0.05 |

# Actual and Predicted Changes in Employment Rates Implied by Changes in Fluidity, 1998-00 to 2010-11, Males

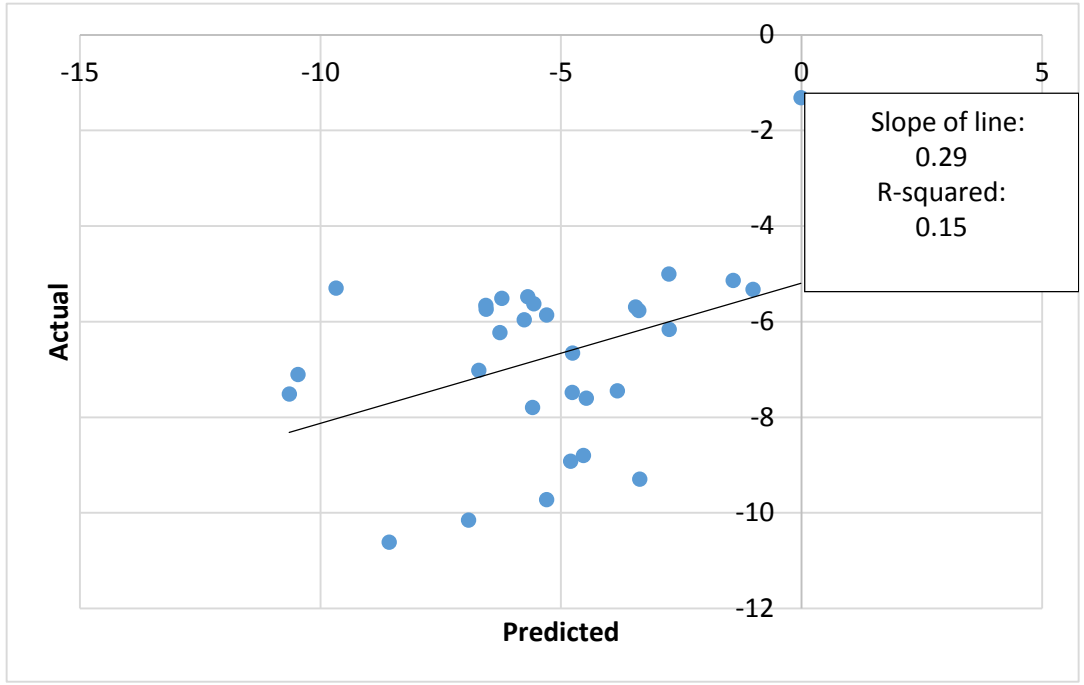


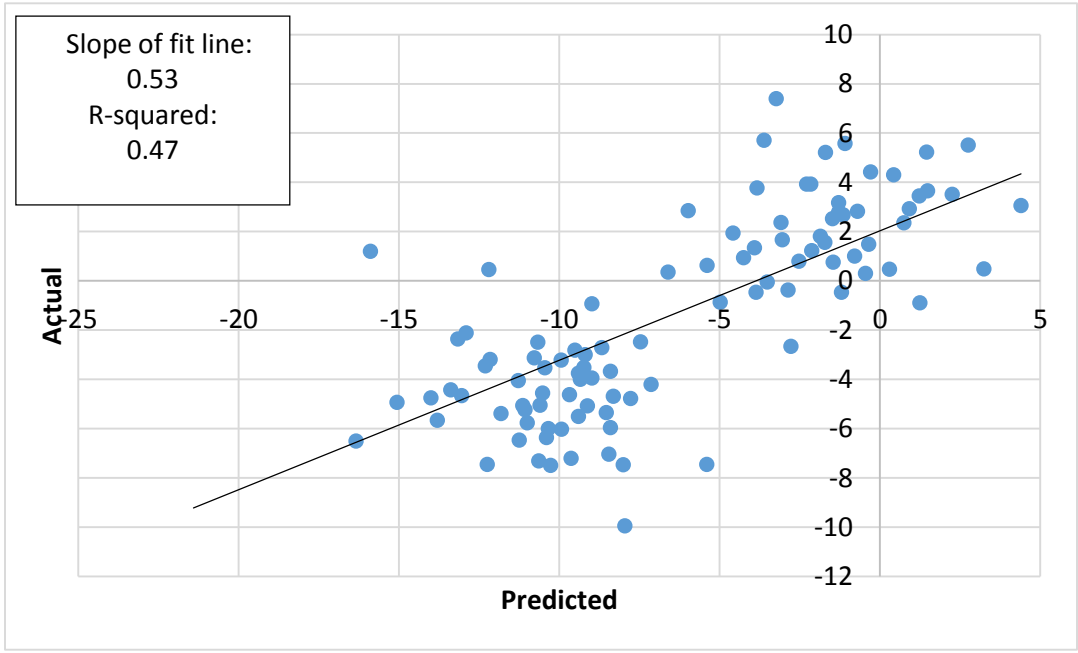



## Actual and Predicted Changes in Employment Rates Implied by Changes in Fluidity, 1998-00 to 2010-11, By State (for 30 States Covered by QWI Data)




## Actual and Predicted Changes in Employment Rates Implied by Changes in Fluidity, 1987-89 to 1999-01 And 1999-01 to 2008-10, By State (All 50 States)



# Are Results Being Driven by the Great Recession?

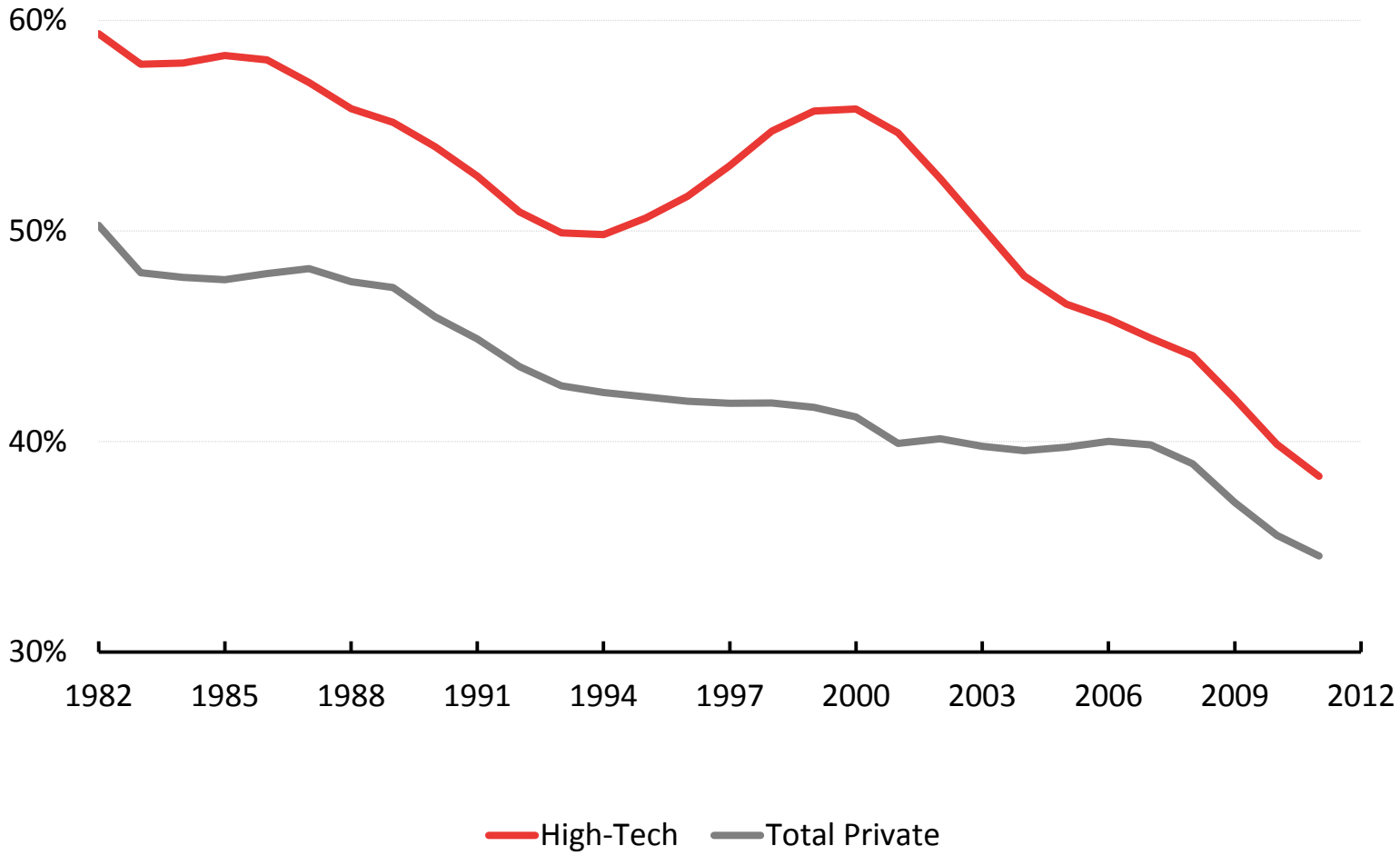
| IV Results (Pre-2007) | | | | |
|---|---|---|---|---|
| | Less than High School | High School | Some College | College |
| Males | 0.46 | 0.49 | 0.48 | 0.29 |
| | (0.20) | (0.36) | (0.24) | (0.17) |
| Females | 0.38 | 0.28 | 0.39 | 0.67 |
| | (0.16) | (0.22) | (0.18) | (0.21) |
| IV Results (Post-2007) | | | | |
| | Less than High School | High School | Some College | College |
| Males | 0.81 | 0.90 | 0.77 | 0.54 |
| | (0.41) | (0.66) | (0.50) | (0.41) |
| Females | 0.56 | 0.62 | 0.70 | 0.90 |
| | (0.31) | (0.35) | (0.32) | (0.49) |

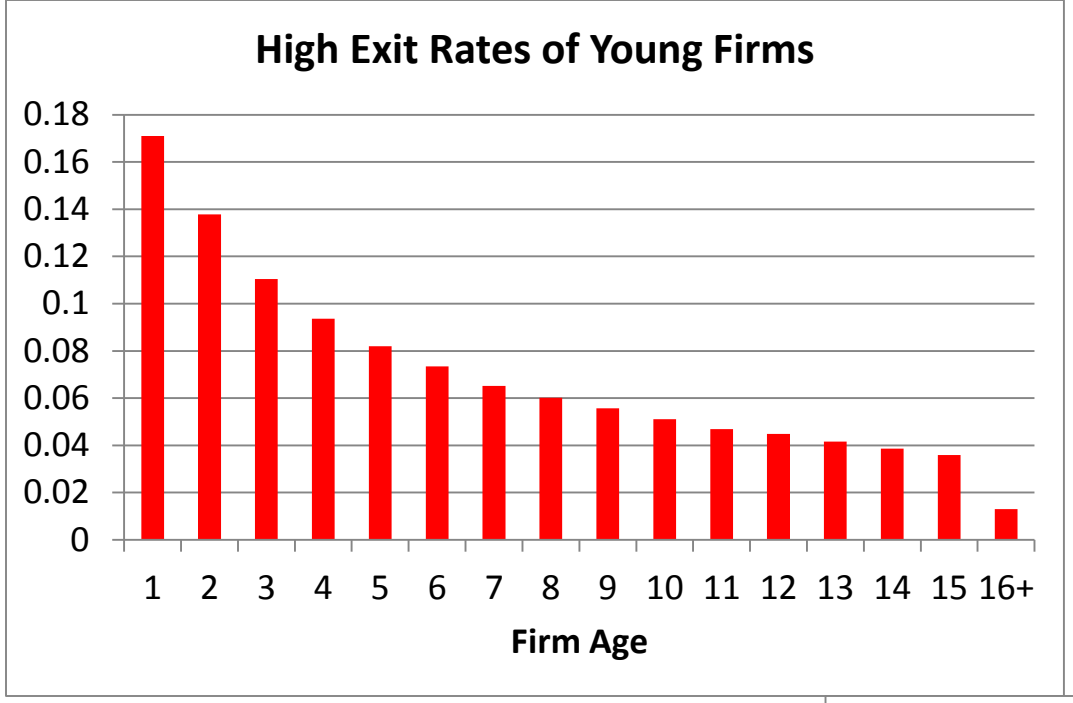
Using pre-2007 estimated coefficient and projecting 1998-00 to 2006-07 trend through 2011 yields predicted Decline in employment rate for males less than high school of 7.4 percentage points compared to actual decline of 10 percentage points.

# Additional Themes:

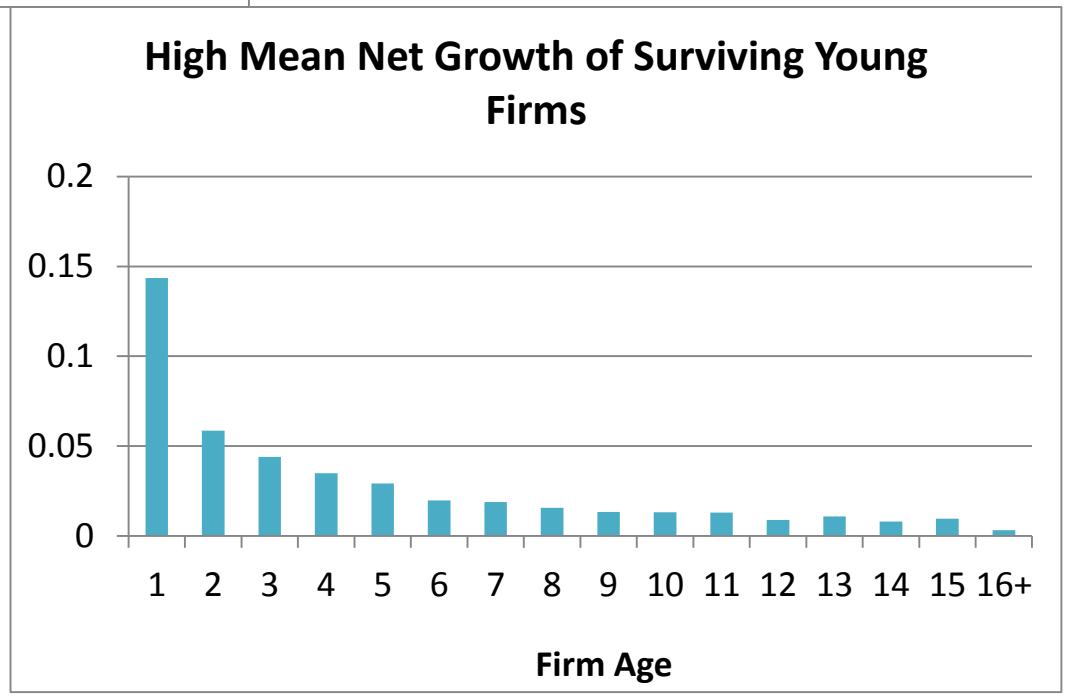
- For productivity and growth implications, one key issue is what type of entrepreneurs have declined?
- “Subsistence” vs. “Transformational” Entrepreneurs (Schoar 2010)
  - For U.S., this is distinguishing between:
    - “Mom and Pop” – “Be Your Own Boss” Entrepreneurs? (Hurst and Pugsley (2012))
    - Innnovative intensive entrepreneurs (Acemoglu et. al. (2013))
    - Short hand:  Dry Cleaners vs. High Tech?

# Overall Entrepreneurial Activity Has Been Falling since early 1980s but High Tech since 2000

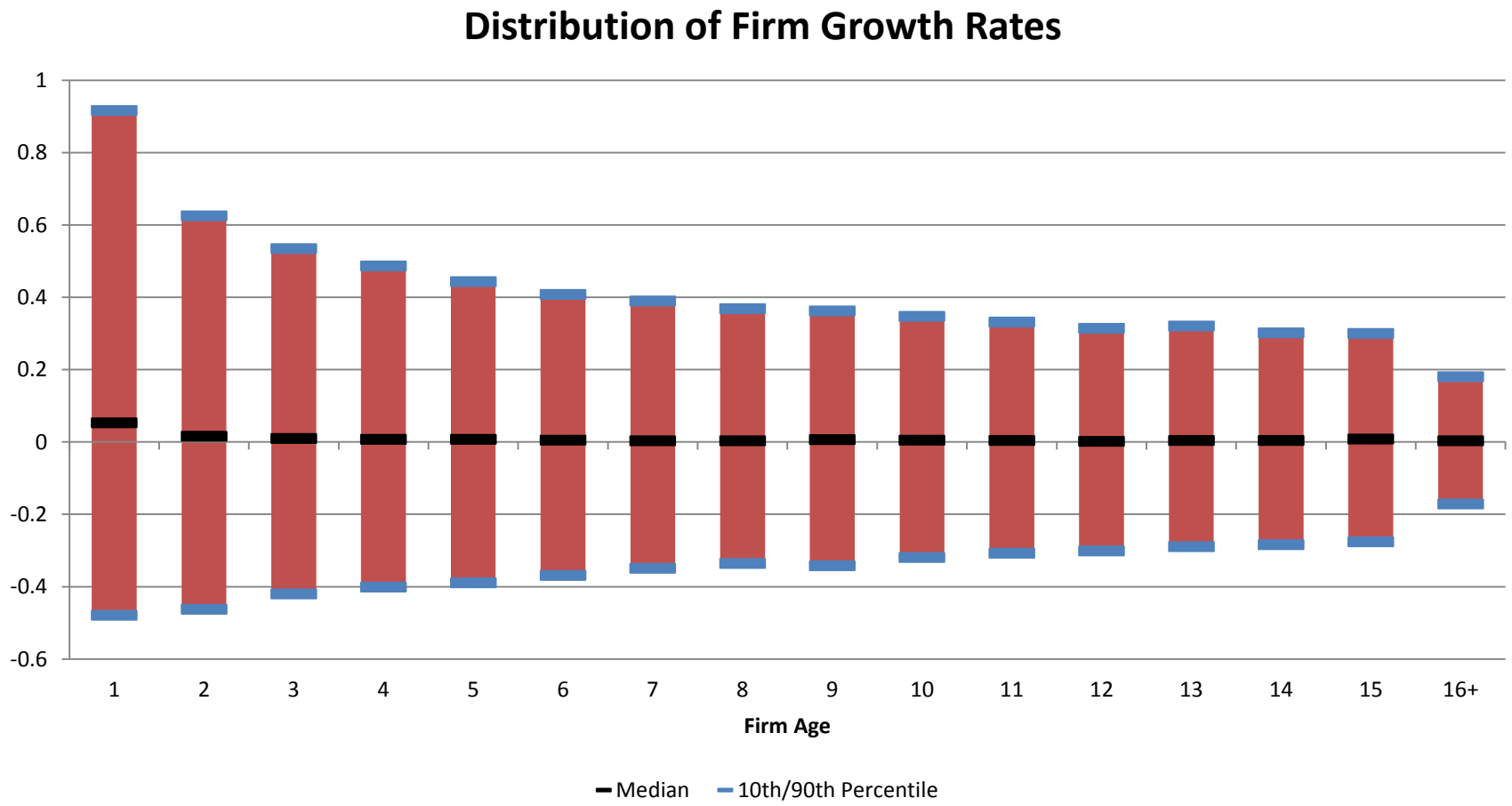




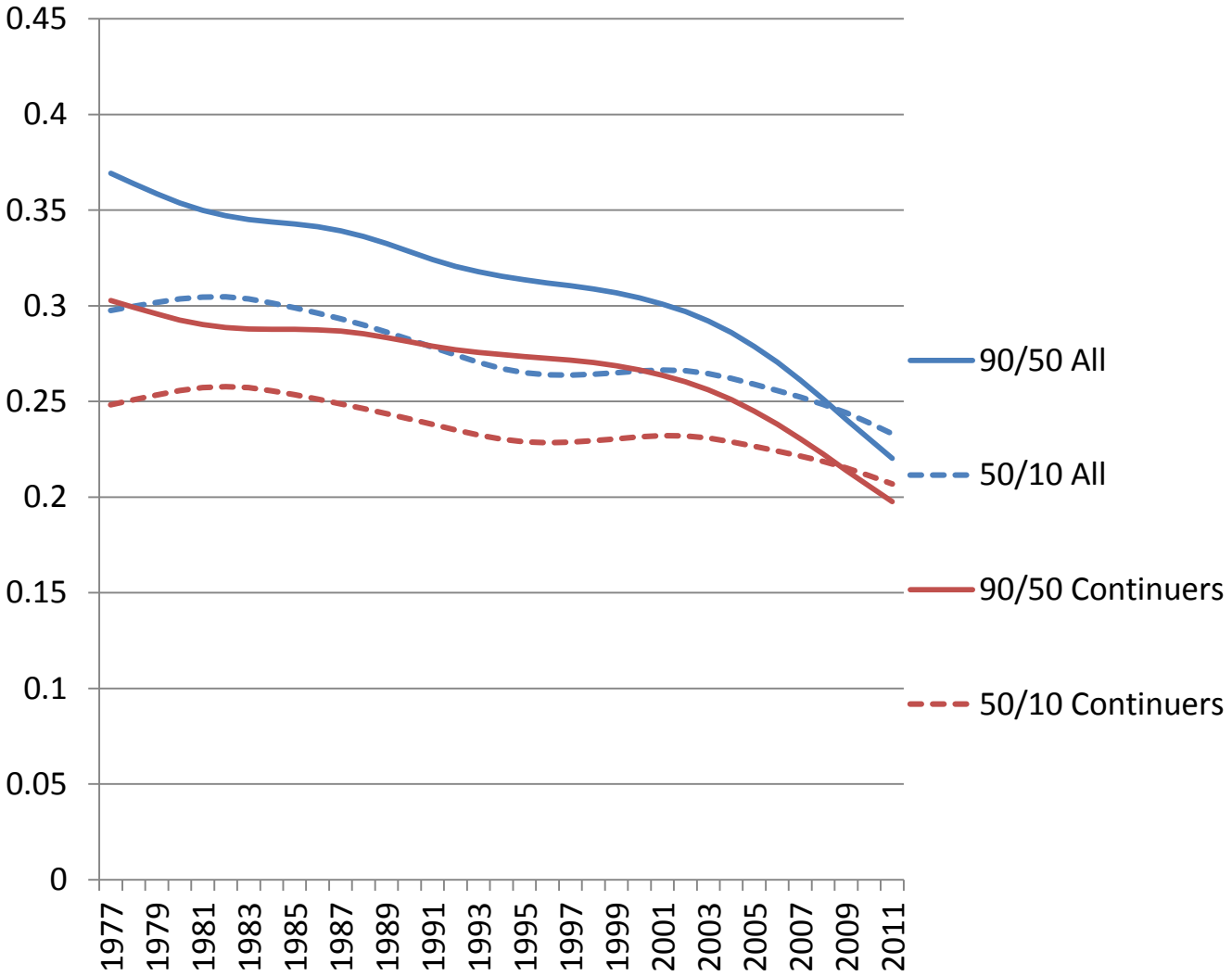

## Up or Out Dynamics of Young Firms



# Skewness of firm growth rates is dominated by young – only a small fraction of firms take off

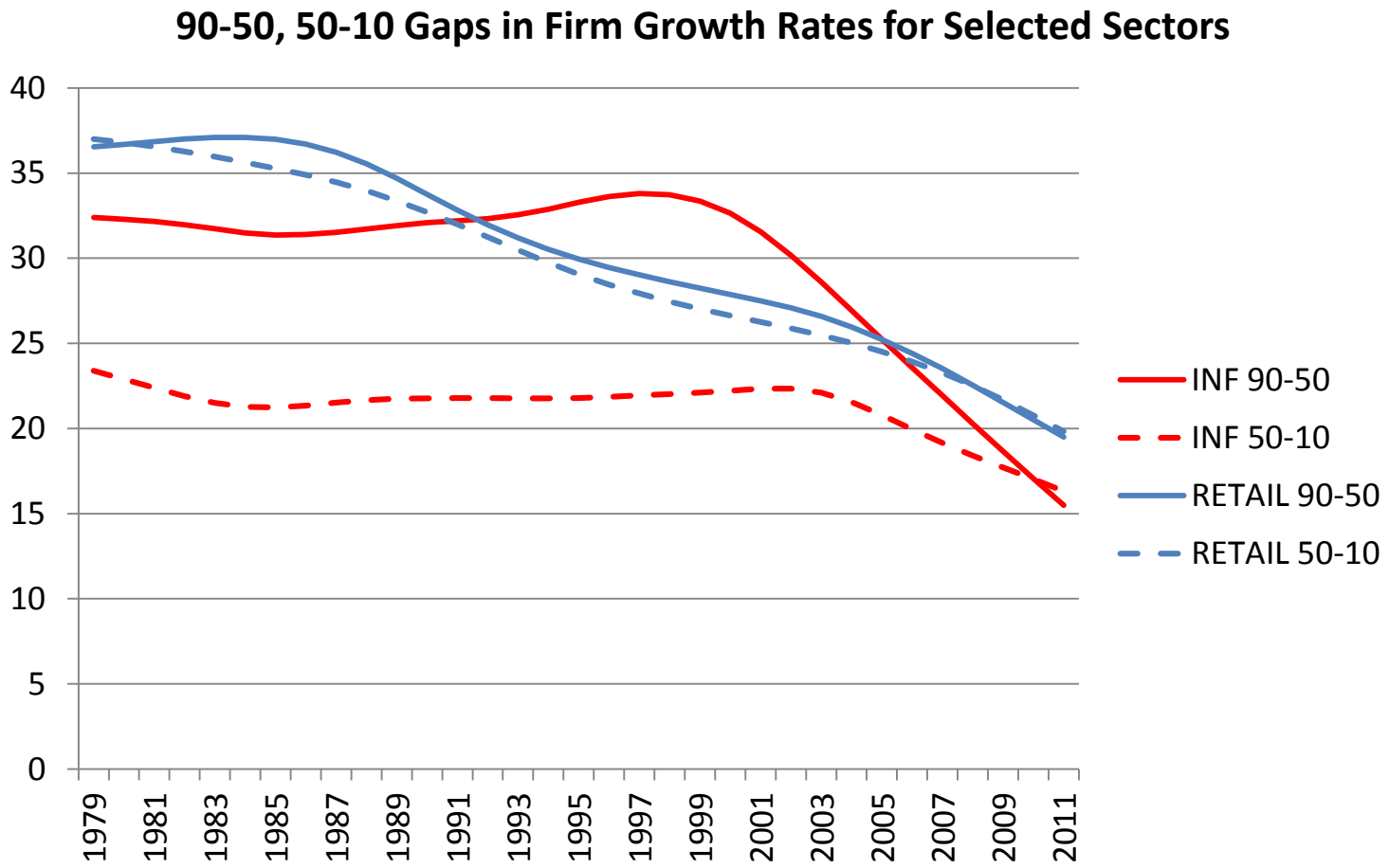


# Sharp Decline in Skewness post 2000




Showing HP Trends

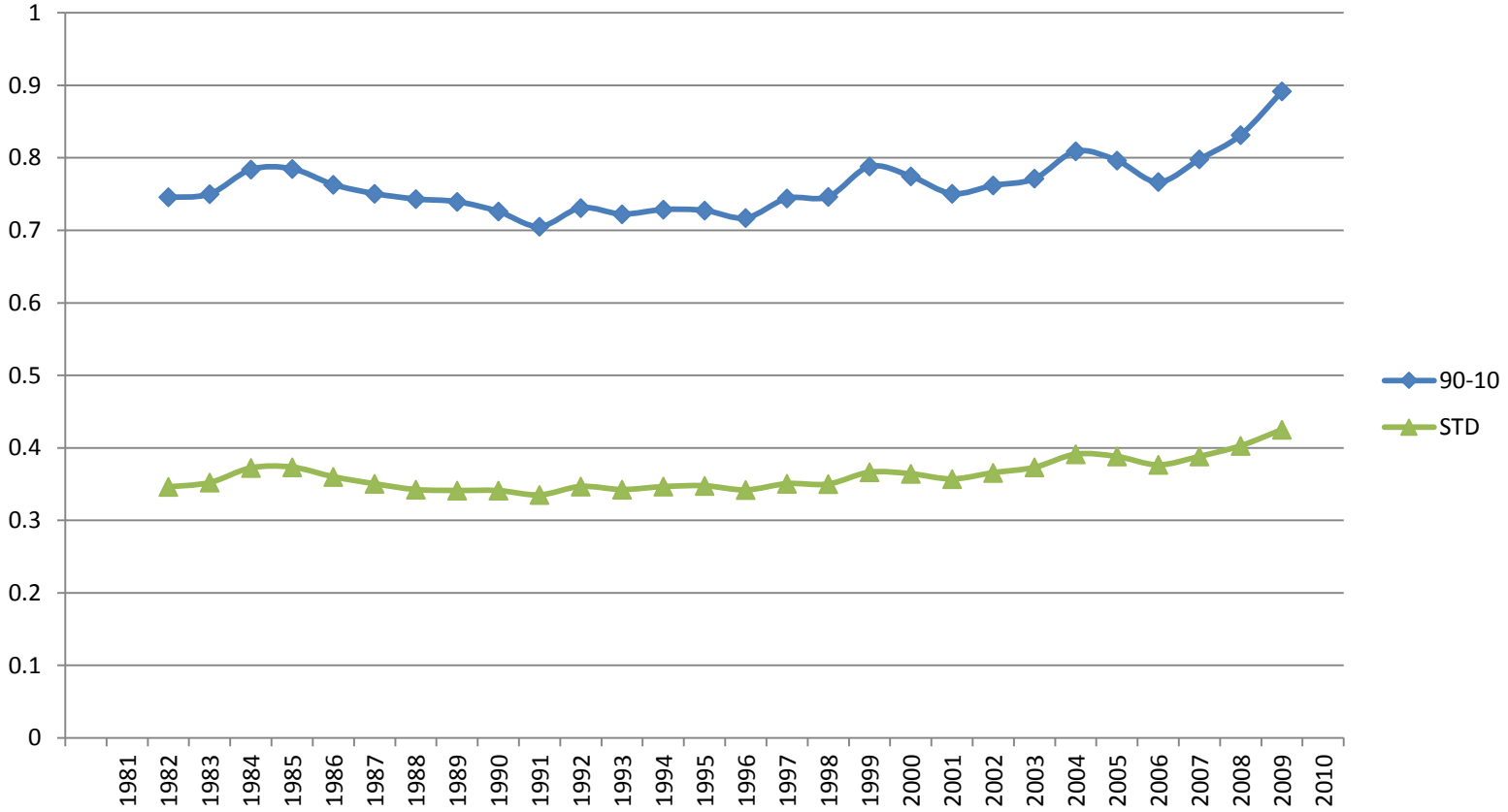
# No skewness in retail trade – mostly decline in dispersion…information sector exhibits sharp decline in skewness post 2000




Showing HP Trends

# Additional Issues: Decline in Shocks vs. Decline in Response to Shocks?

## Within Industry Dispersion in TFP over time (MFG)
## (3-year MA)




AR1 coefficient for continuers: 0.63, Ratio of Std(Innov)/Std(TFP) = 0.83

**Table 4. Changing Responsiveness of Plant-Level Growth from t to t+1 to (log) TFP in t**

Overall Growth Rate

| | All | Young | Mature |
|---|---|---|---|
| TFP | 0.1818*** | 0.2850*** | 0.1537*** |
| | (0.0030) | (0.0070) | (0.0033) |
| TFP*Trend | -0.0011*** | -0.0016*** | -0.0012*** |
| | (0.0003) | (0.0006) | (0.0003) |
| TFP*Trend*Post2000 | -0.0008*** | -0.0036*** | 0.0002 |
| | (0.0002) | (0.0005) | (0.0002) |

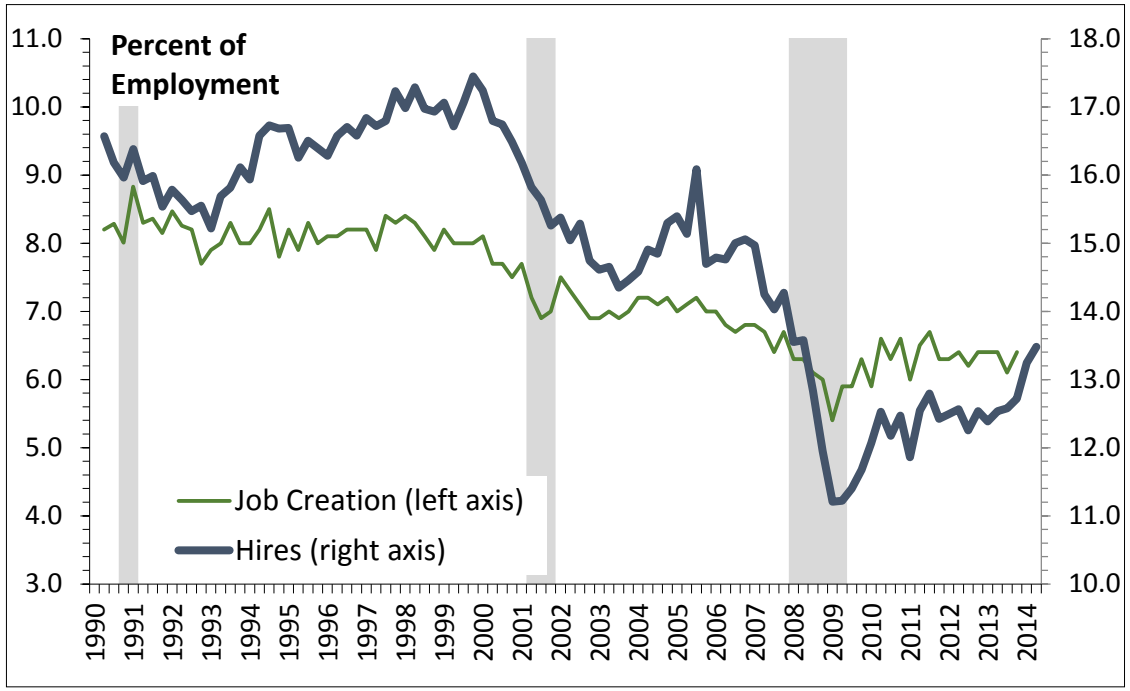
See notes above. Note that the Young and Mature coefficients are estimated from a pooled specification with both young and mature that permits all of the TFP terms to be interacted with age indicator and the age indicators are in the set of additional controls as well.

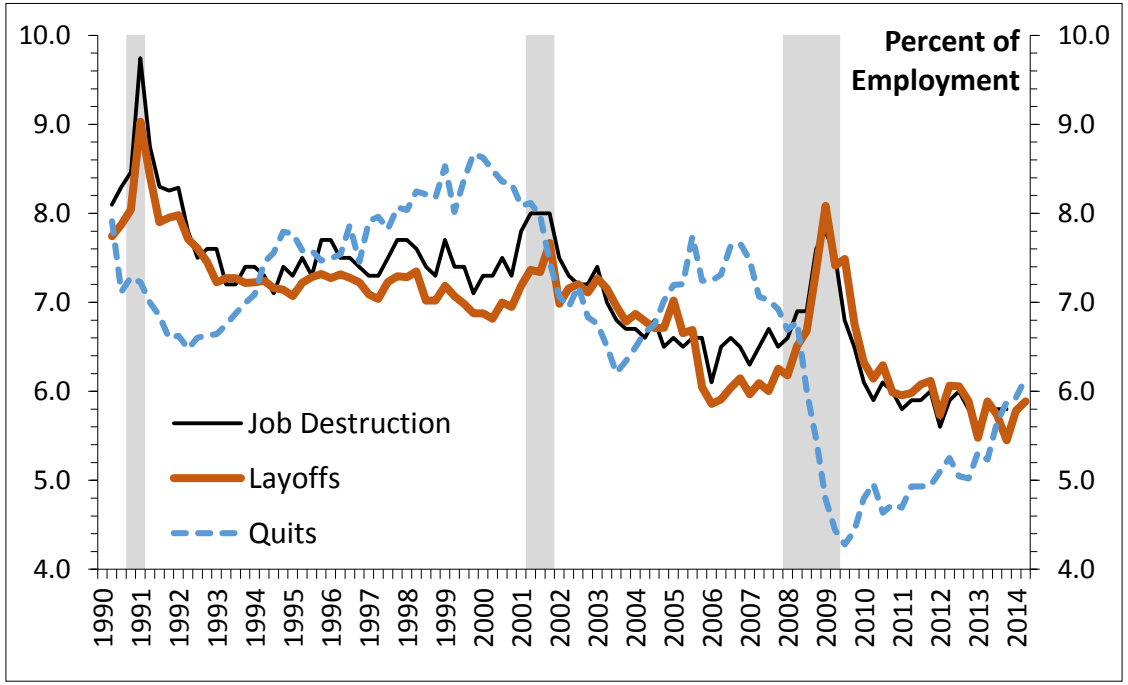
# Main Findings

- Decline in pace of worker and job reallocation
  - Worker reallocation has declined since 2000
  - Job reallocation has declined for last several decades
    - Character of decline in job reallocation has changed pre and post 2000
  - Decline in entrepreneurship
- Evidence suggests not a declining volatility of shocks but declining responsiveness to shocks
- Many factors have contributed
  - Changing business model
  - Aging of population
  - Changing flexibility of US labor markets (employment at will, occupational licensing)
- Decreased fluidity has potential adverse consequences for productivity growth, real wage growth and employment rates.
  - Adverse effects on productivity growth depend on underlying cause. Of particular relevance here is what types of entrepreneurs have declined.
  - Adverse effects on employment rates may be independent of cause.
- Current paper focuses on latter. Evidence suggests decline in employment rates closely tied to decline in fluidity.

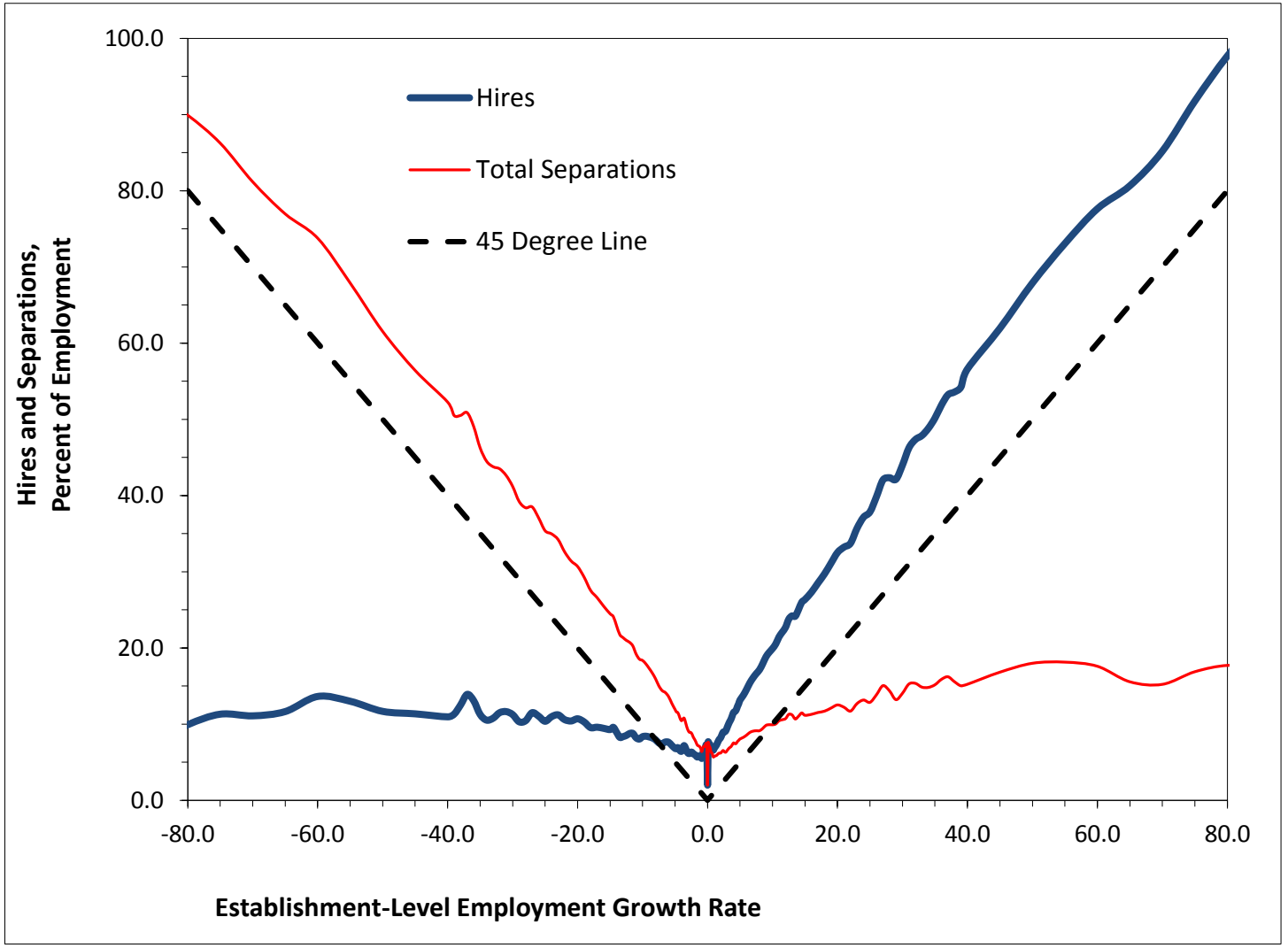
# Extra Slides

# Quarterly Rates of Worker and Job Flows for U.S. Non-Farm Private Sector

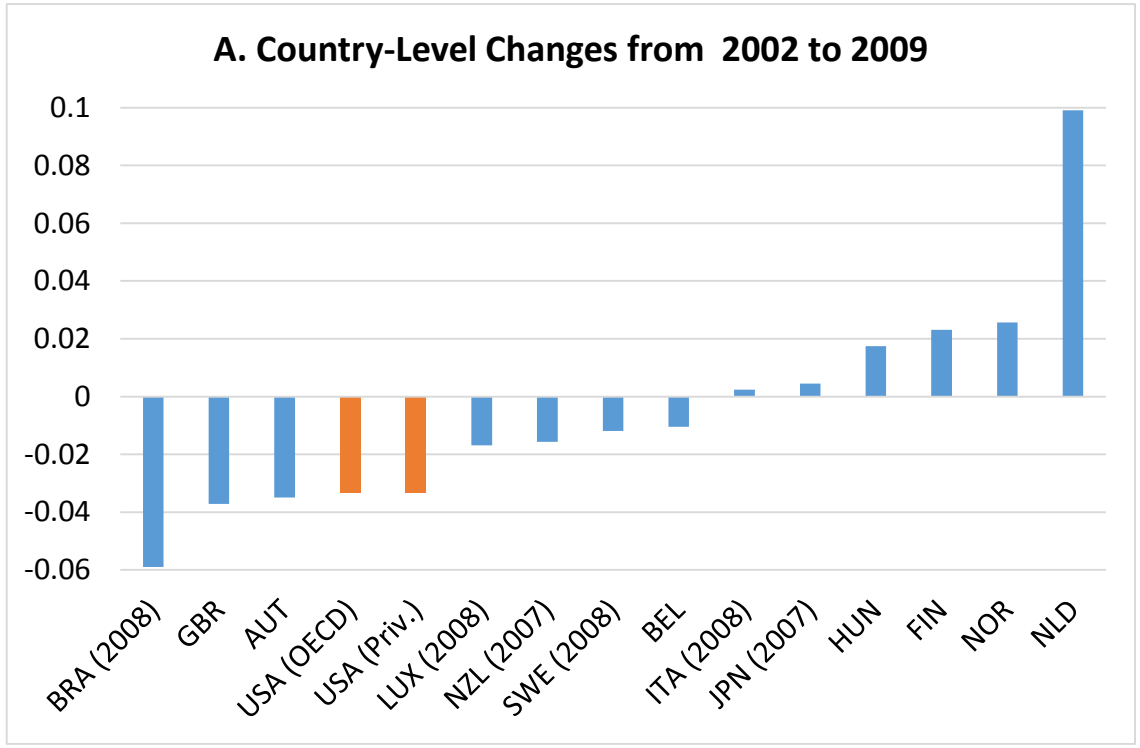


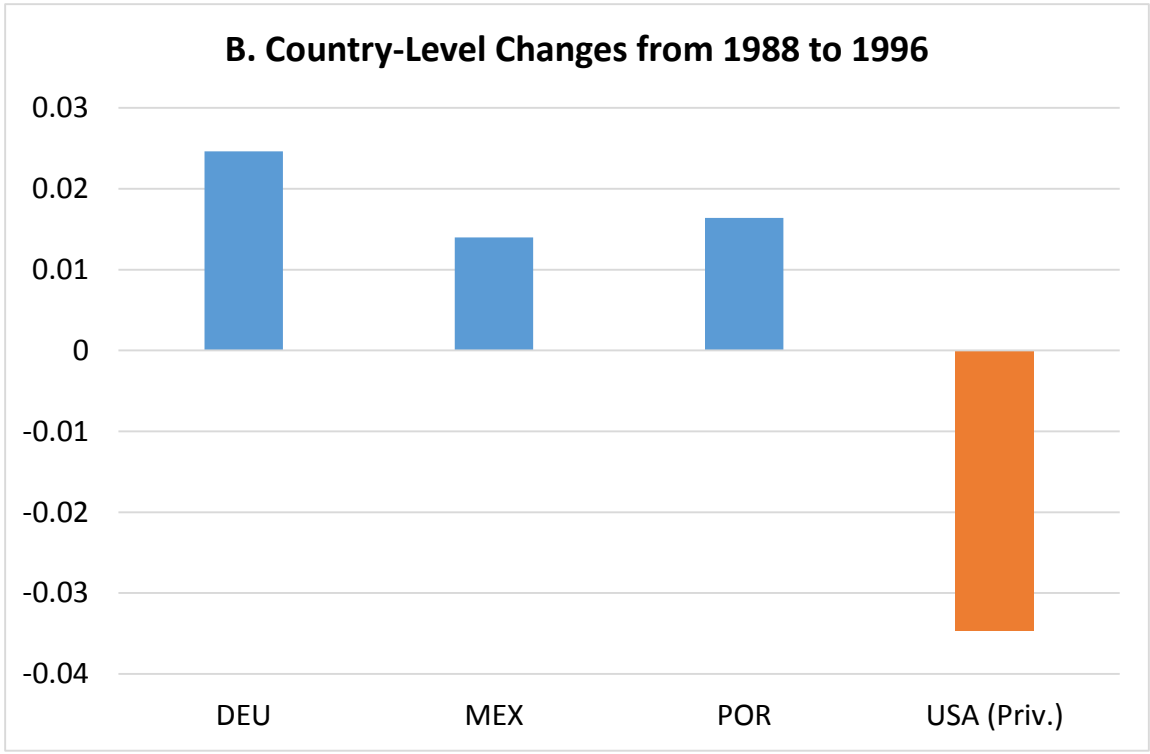



# Churn and Job Reallocation are Inherently Connected….

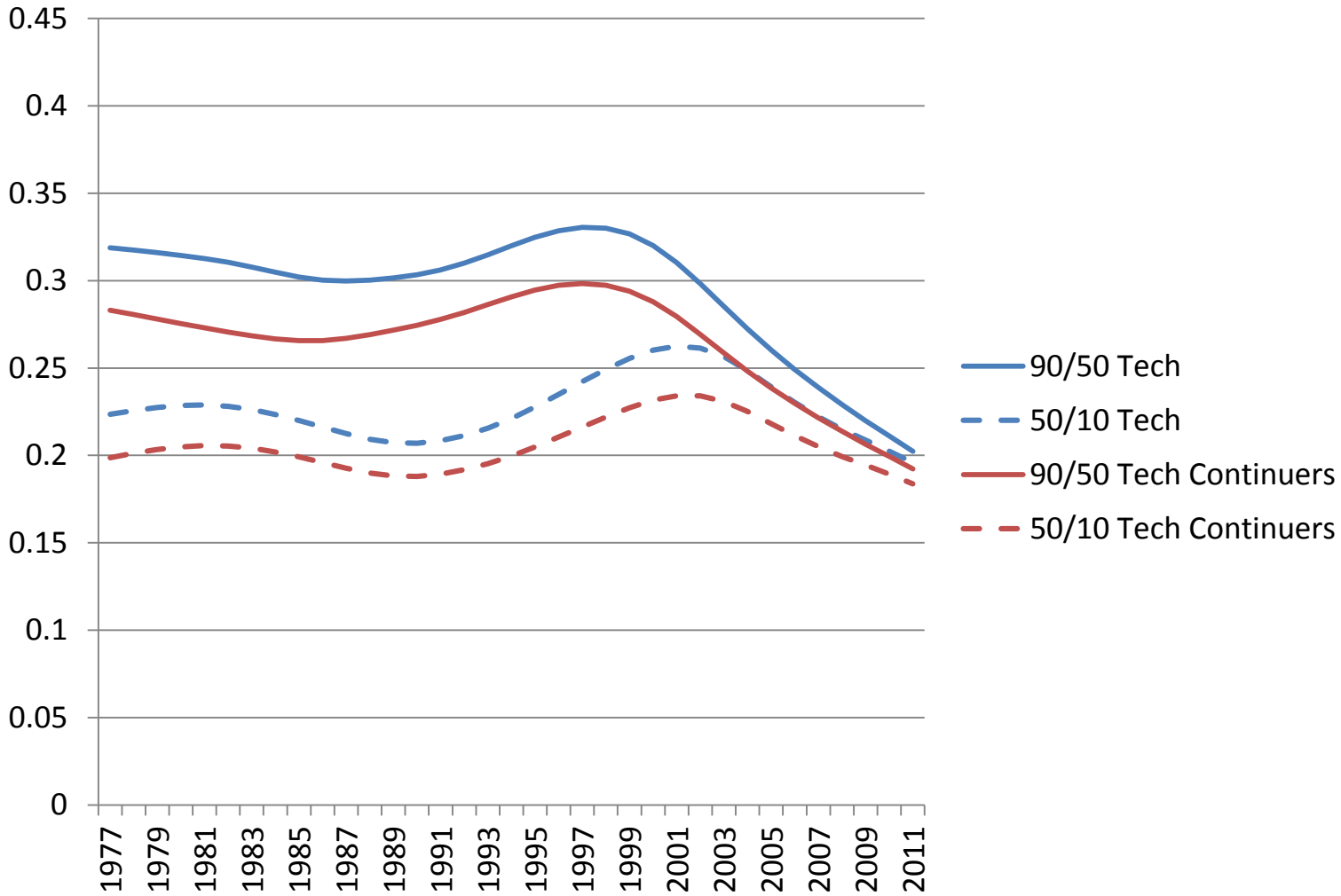


# Annual Job Reallocation Rates across Firms, Changes over Time, Selected Countries



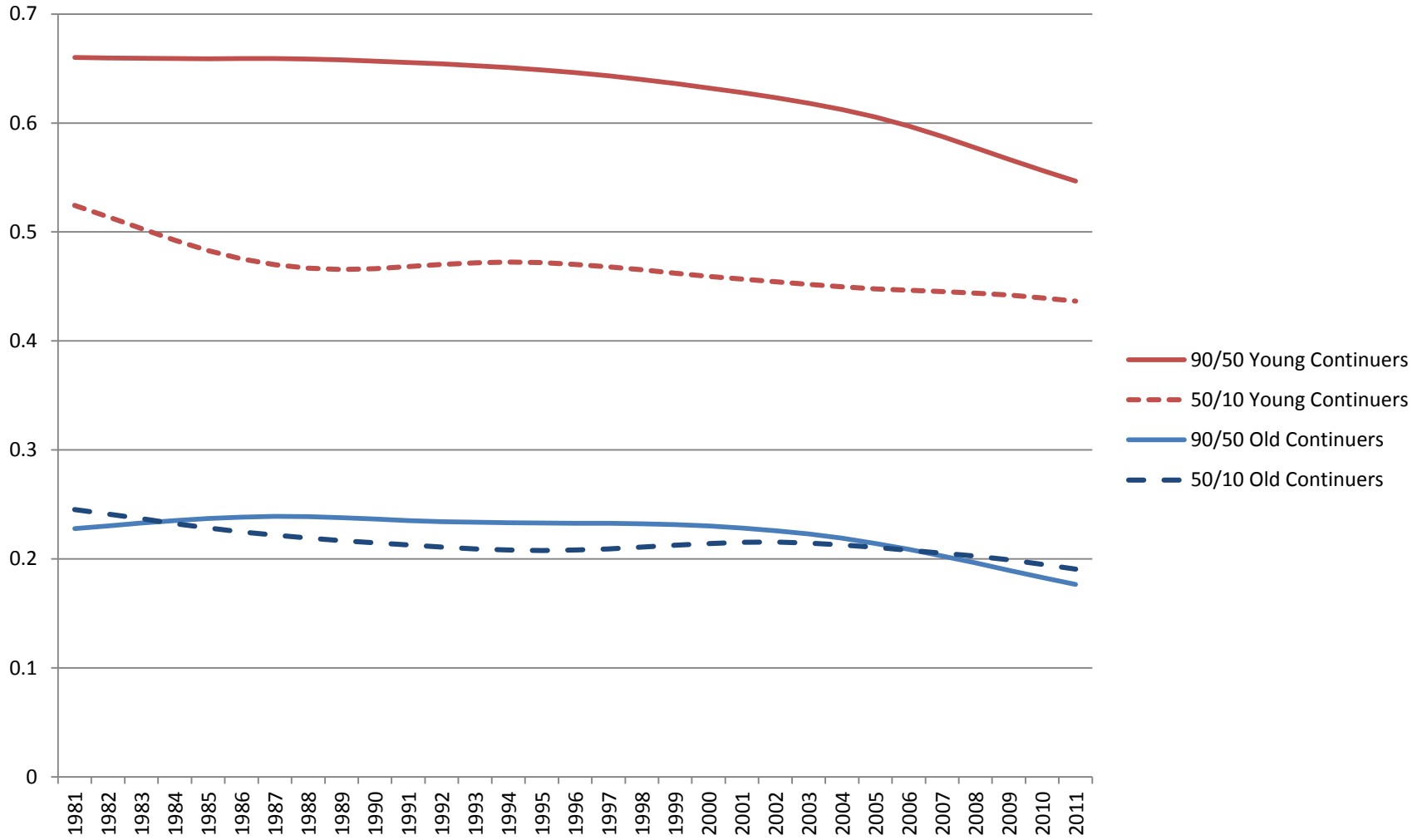



# Very High Skewness in High Tech…until the 2000s

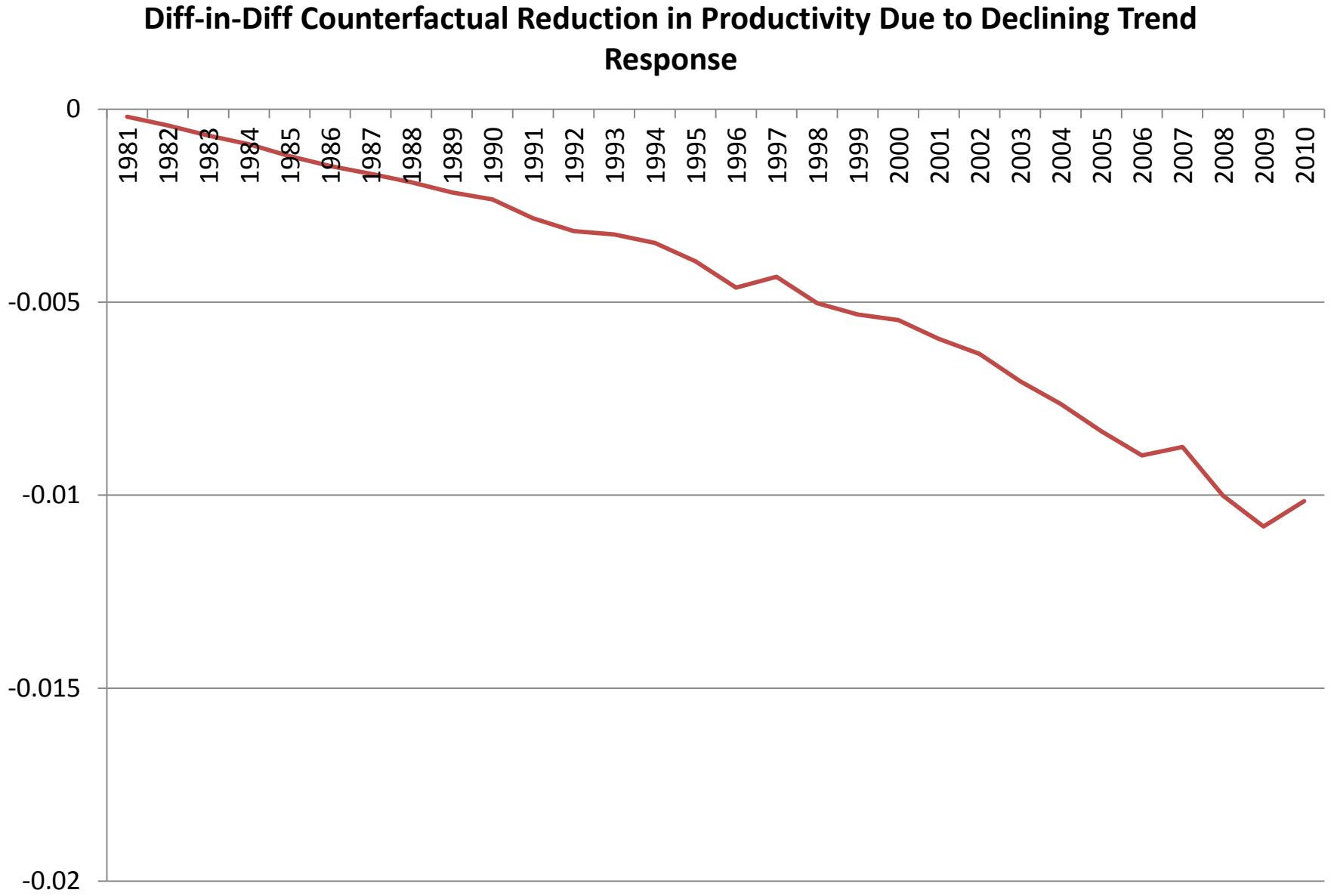



Showing HP Trends

# Declining skewness also for young firms post 2000…




Showing HP Trends


Diff-in-Diff Counterfactual Reduction in Productivity Due to Declining Trend Response
0
-0.005
-0.01
-0.015
-0.02
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010