
Historical and Future Employment in the United States

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June 13, 2014

Outline

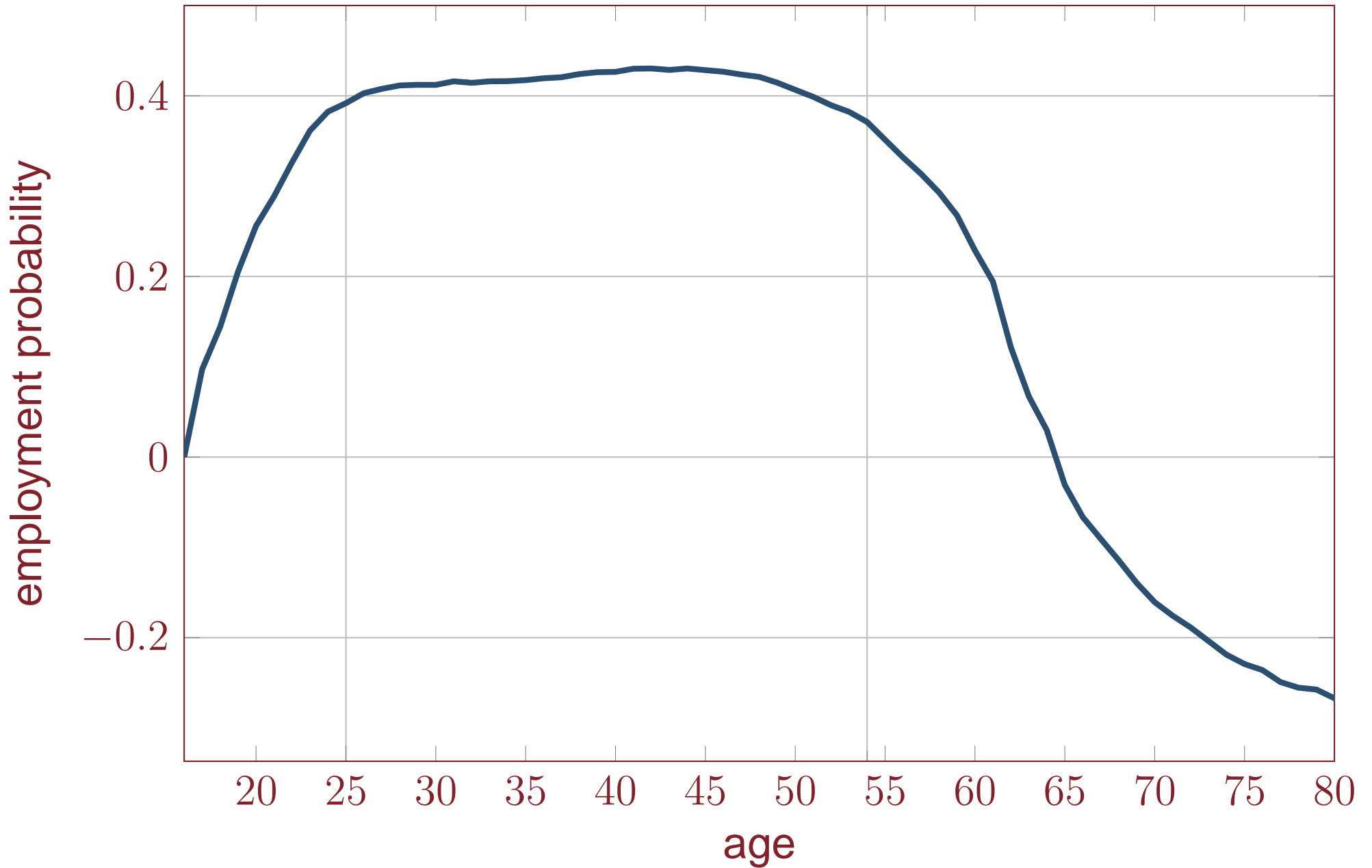
- demographics and historical changes in employment
- hysteresis and future changes in employment
- ~~the impact of fiscal policy on employment~~

Demographics

Age Adjustments

- employment-population ratio varies systematically by age

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- standard approach: hold e-pop by age fixed, vary population shares

CBO estimates that the demographic effect has already reduced the overall rate of participation by about 0.5 percentage points since 2007 and that it will do so by an additional 1.2 points by 2016 and by another 1.4 points between 2016 and 2021 (CBOs Labor Force Projections Through 2021, 2011)

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- concerns with this approach
 - ▶ very distinct behavior of e-pop within age groups
 - ▶ unclear why we focus only on age decompositions

Linear Probability Model

- outcome of interest: employment status (binary)
- linear function of
 - ▷ age dummies
 - ▷ education dummies
 - ▷ race dummies (black, white, other)
 - ▷ sex dummy
 - ▷ marital status dummy
 - ▷ month-of-year dummies
 - ▷ year dummies
- focus on behavior of year dummies

Data Source

- Current Population Survey

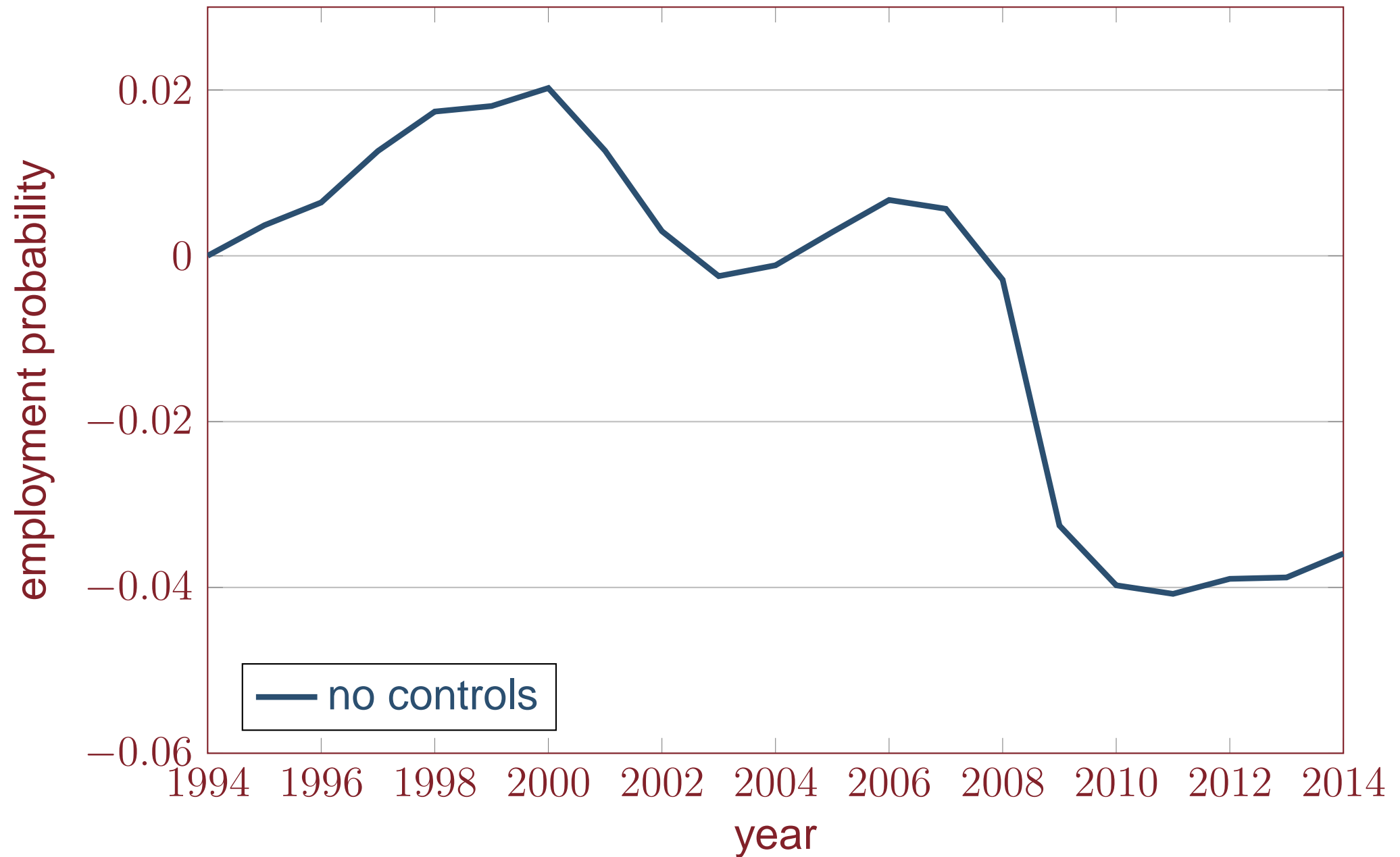
- ▷ January 1994 to February 2014

- ▷ nearly 25 million observations over age 16

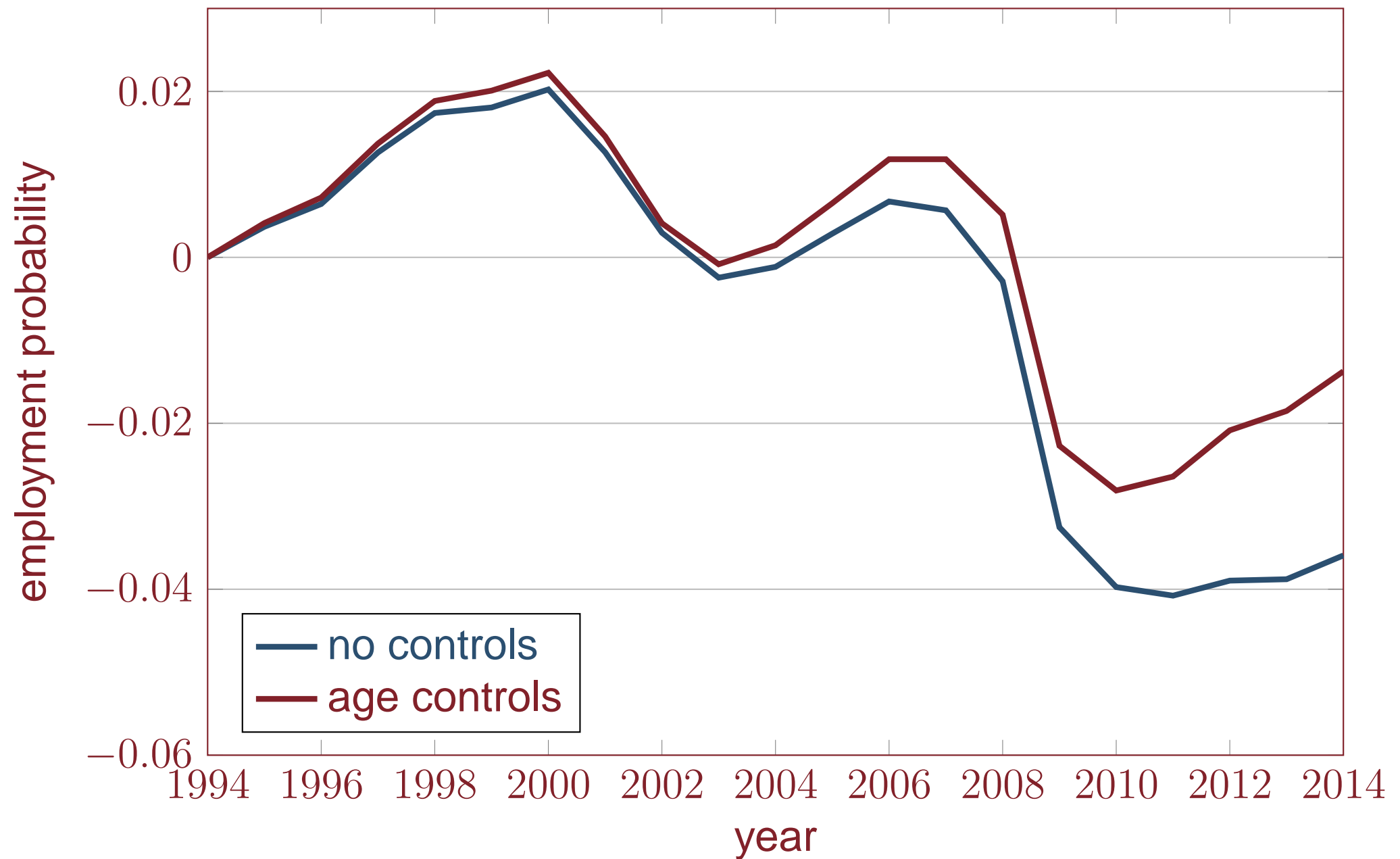
- ▷ employment-population ratio averages 37.8 percent

- earlier figure on e-pop by age comes from this model

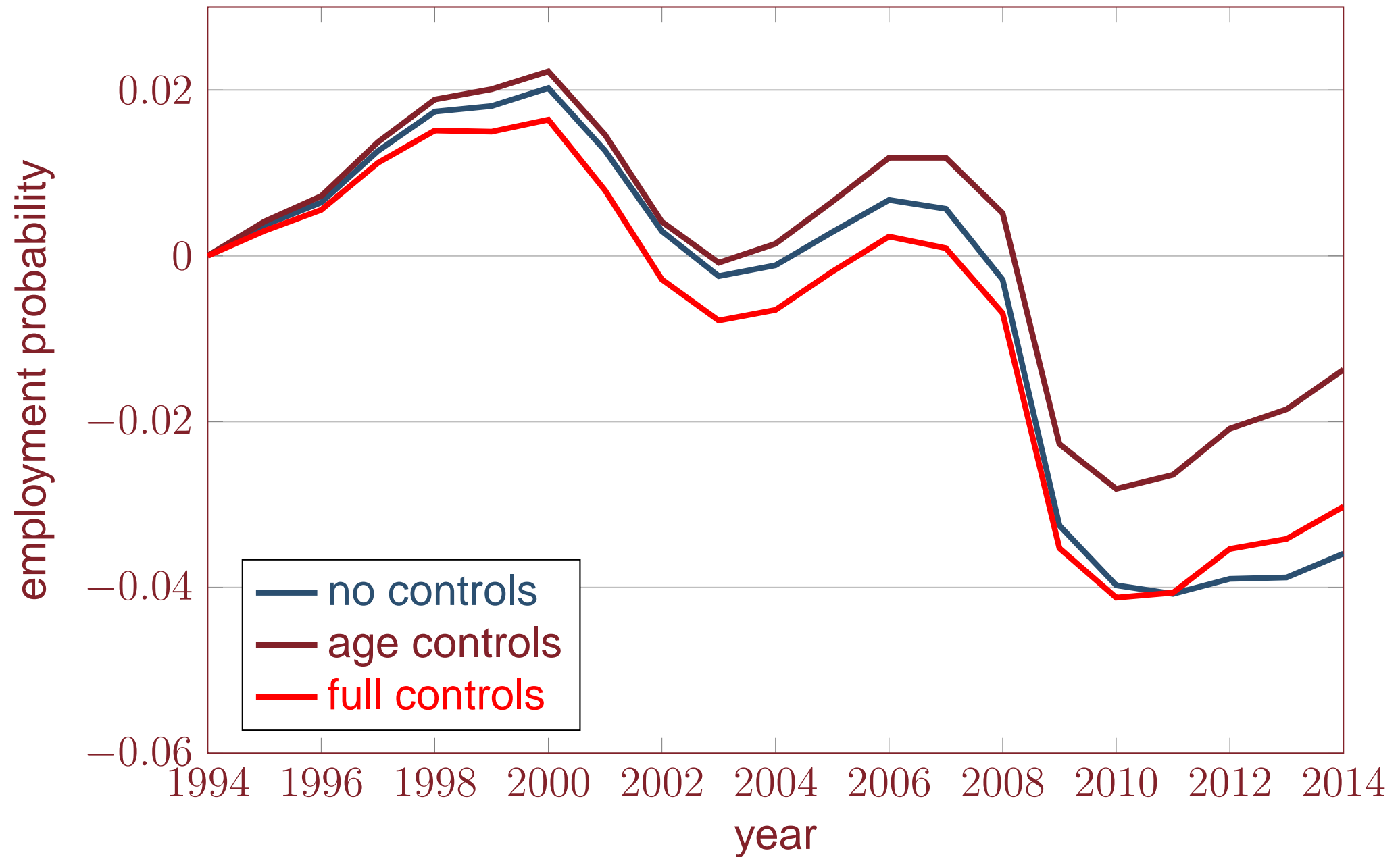
Removing Demographics: All Workers



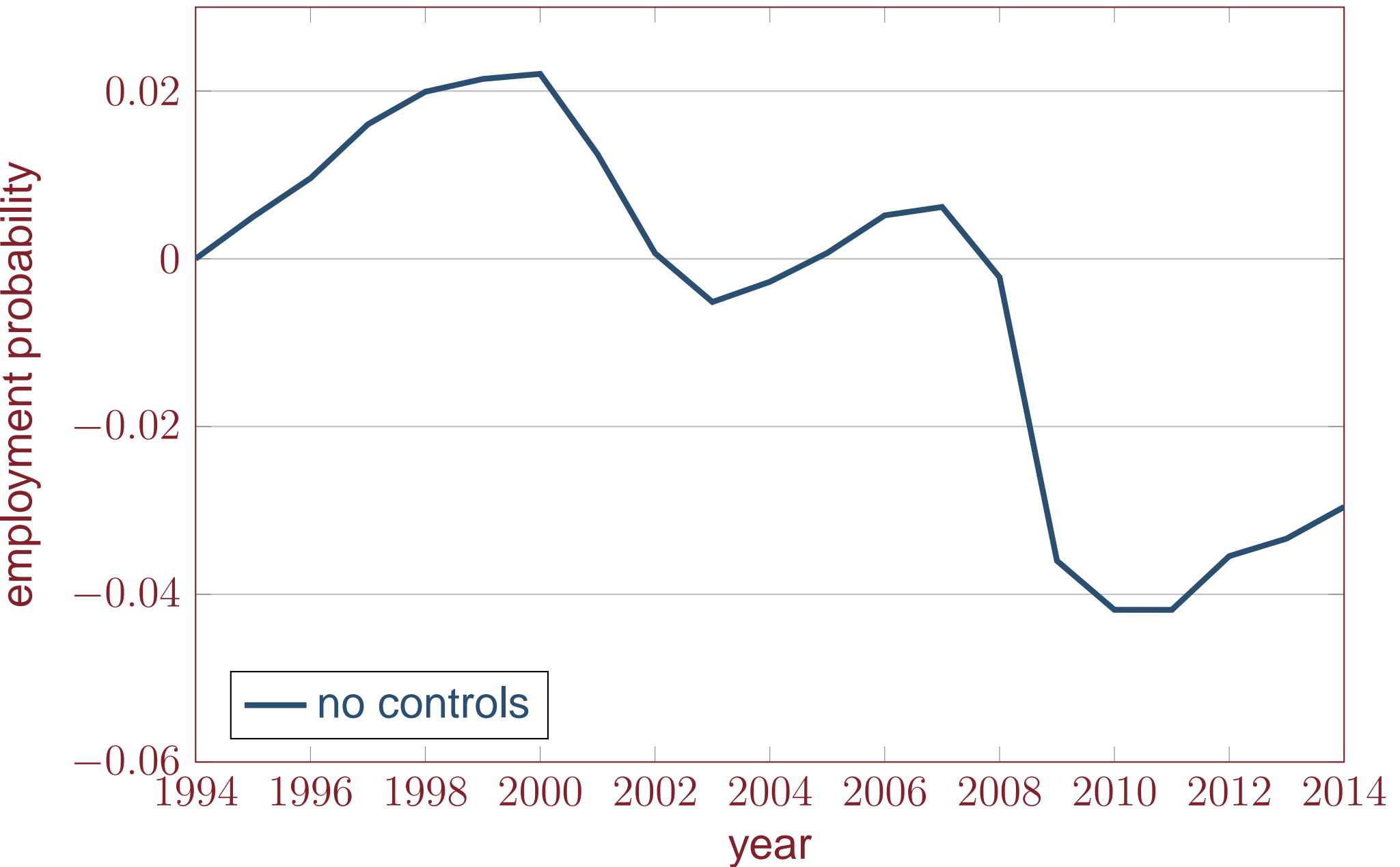
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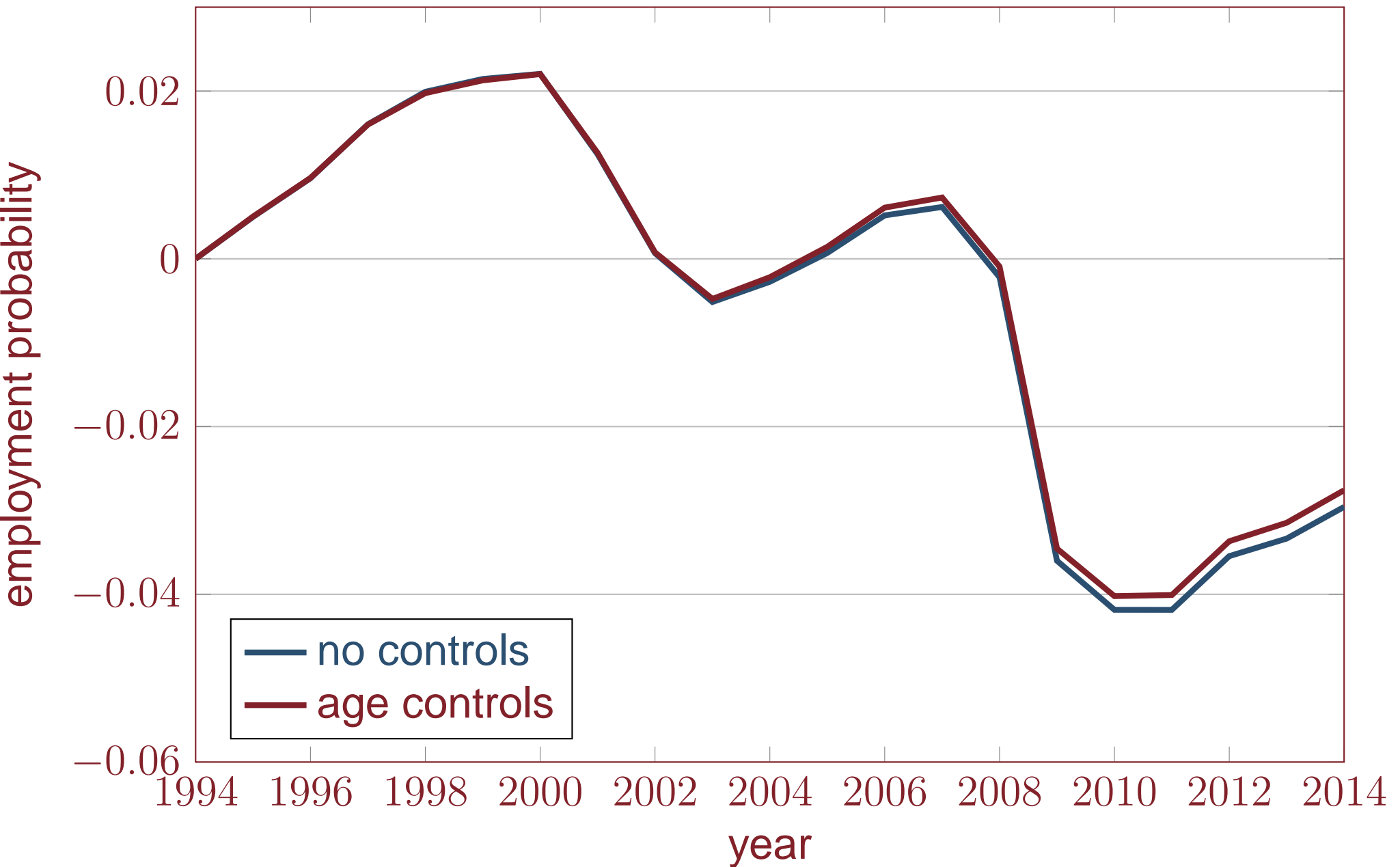
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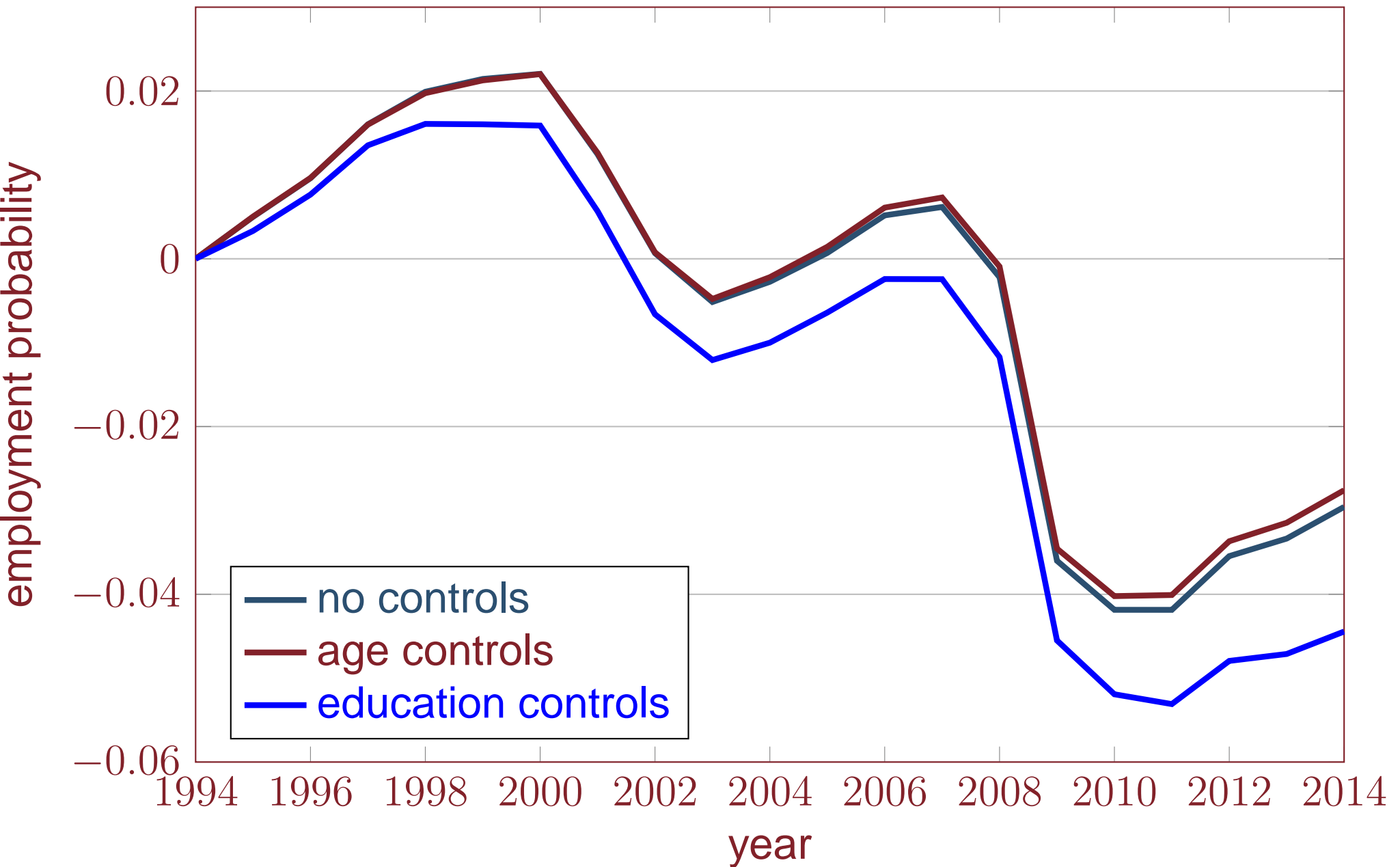
Removing Demographics: Prime-Aged Workers



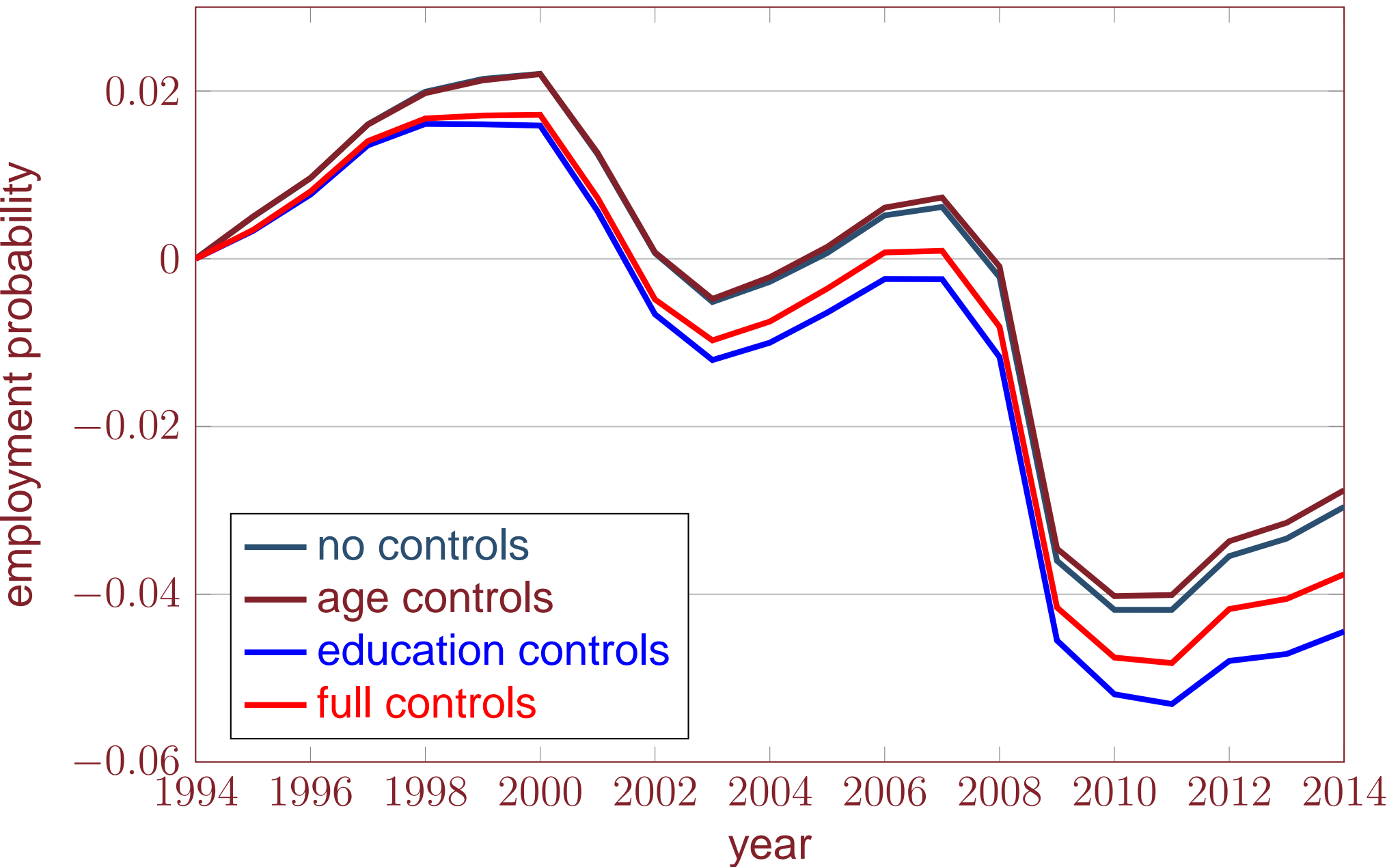
Removing Demographics: Prime-Aged Workers



Removing Demographics: Prime-Aged Workers



Removing Demographics: Prime-Aged Workers



Summary

□ all workers:

- ▶ raw data: 3.3 percentage point decline in e-pop since 2008
- ▶ age adjustment cuts that in half, to 1.8 percentage points
- ▶ other controls raise it back to 2.3 percentage points

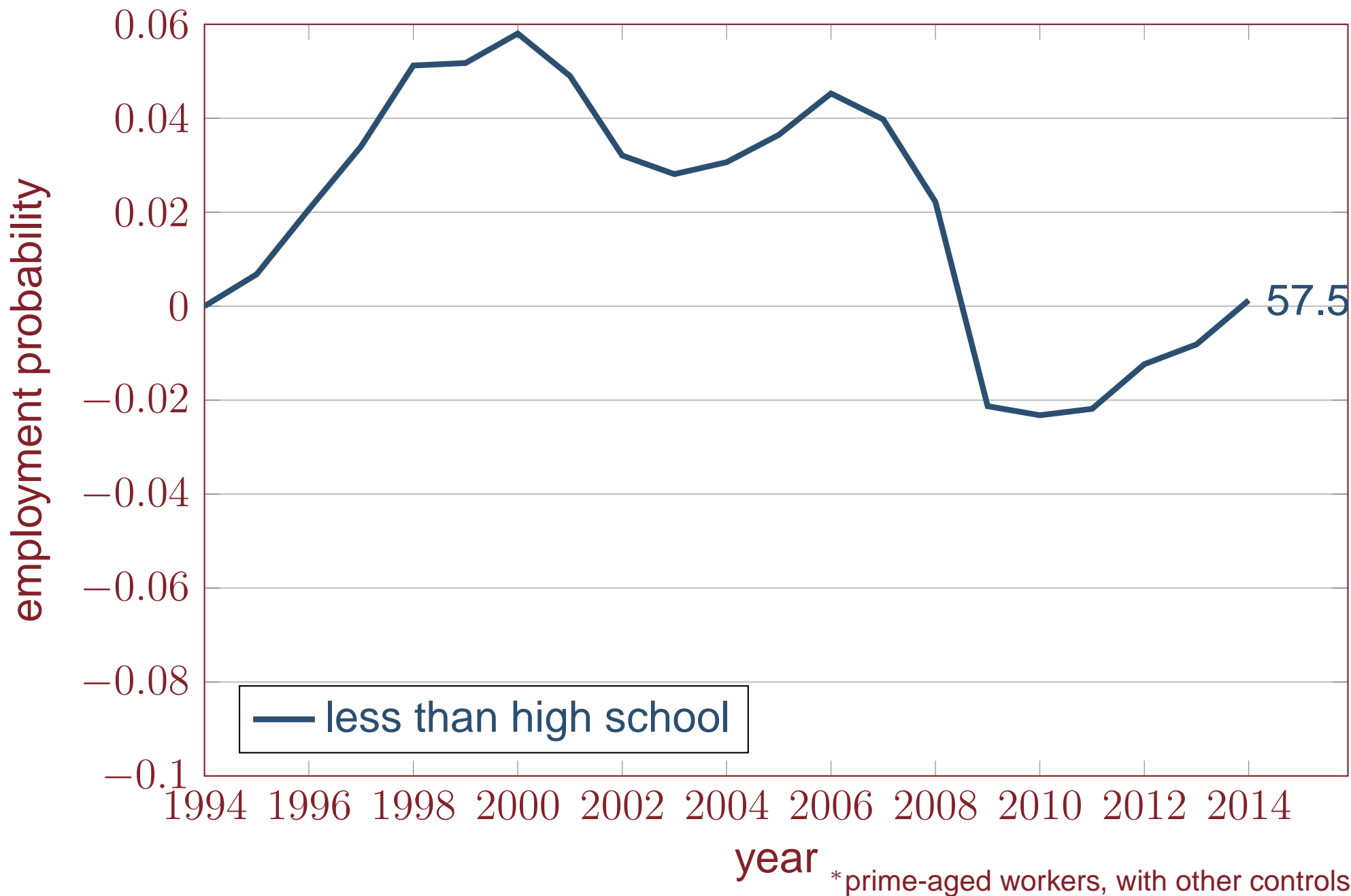
□ prime-aged workers:

- ▶ raw data: 2.7 percentage point decline in e-pop since 2008
- ▶ age adjustment has virtually no impact
- ▶ other controls increase it to 2.9 percentage points

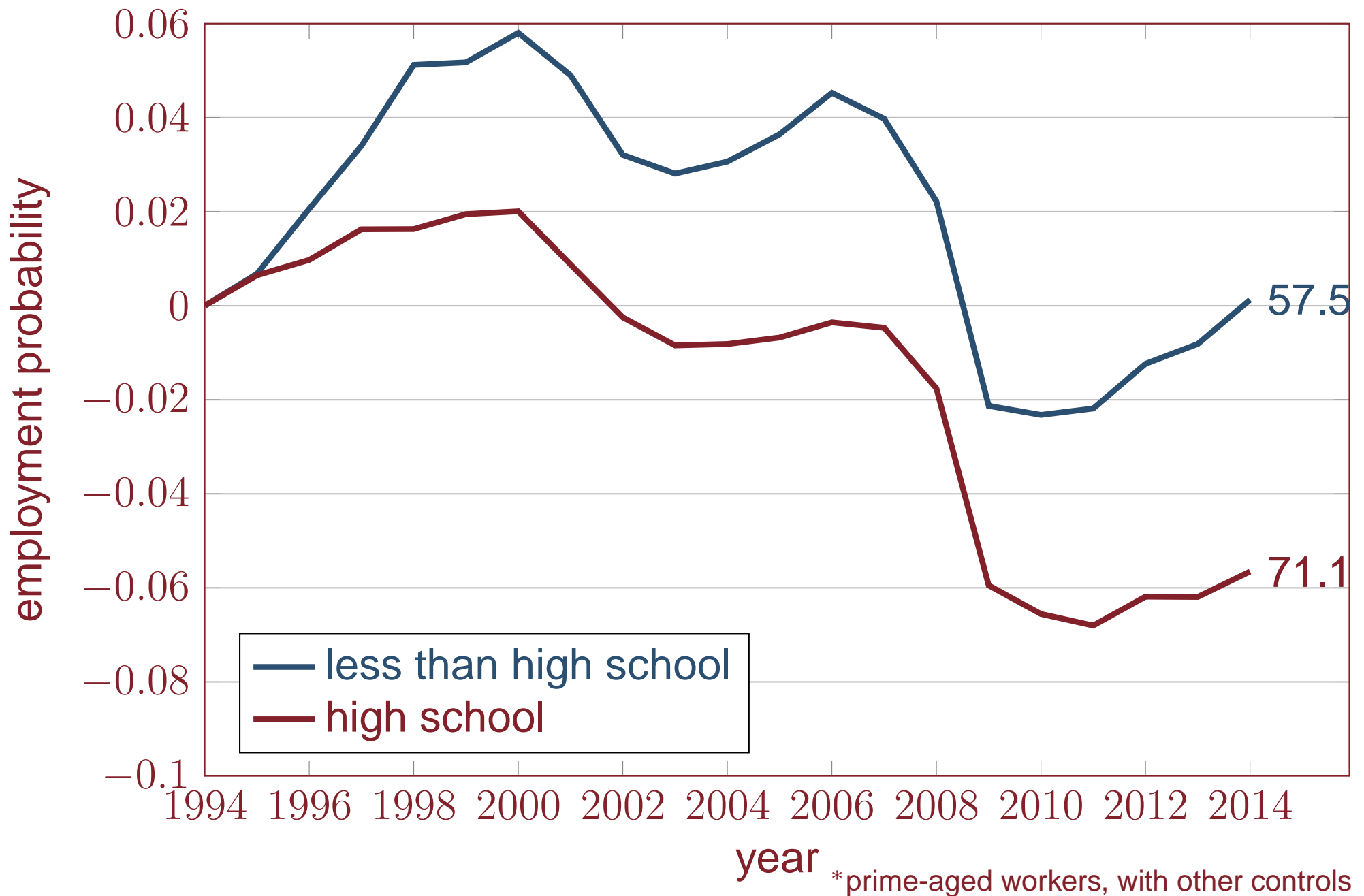
Forecasting

- ❑ future demographic adjustments are conceptually straightforward
- ❑ what about future within-group changes?
 - ▷ unemployment rate is virtually the same in 1994 and 2014
 - ▷ e-pop is down 3 percentage points (4 for prime-aged workers)
 - ▷ why? job polarization phenomenon
 - ▷ will this continue?

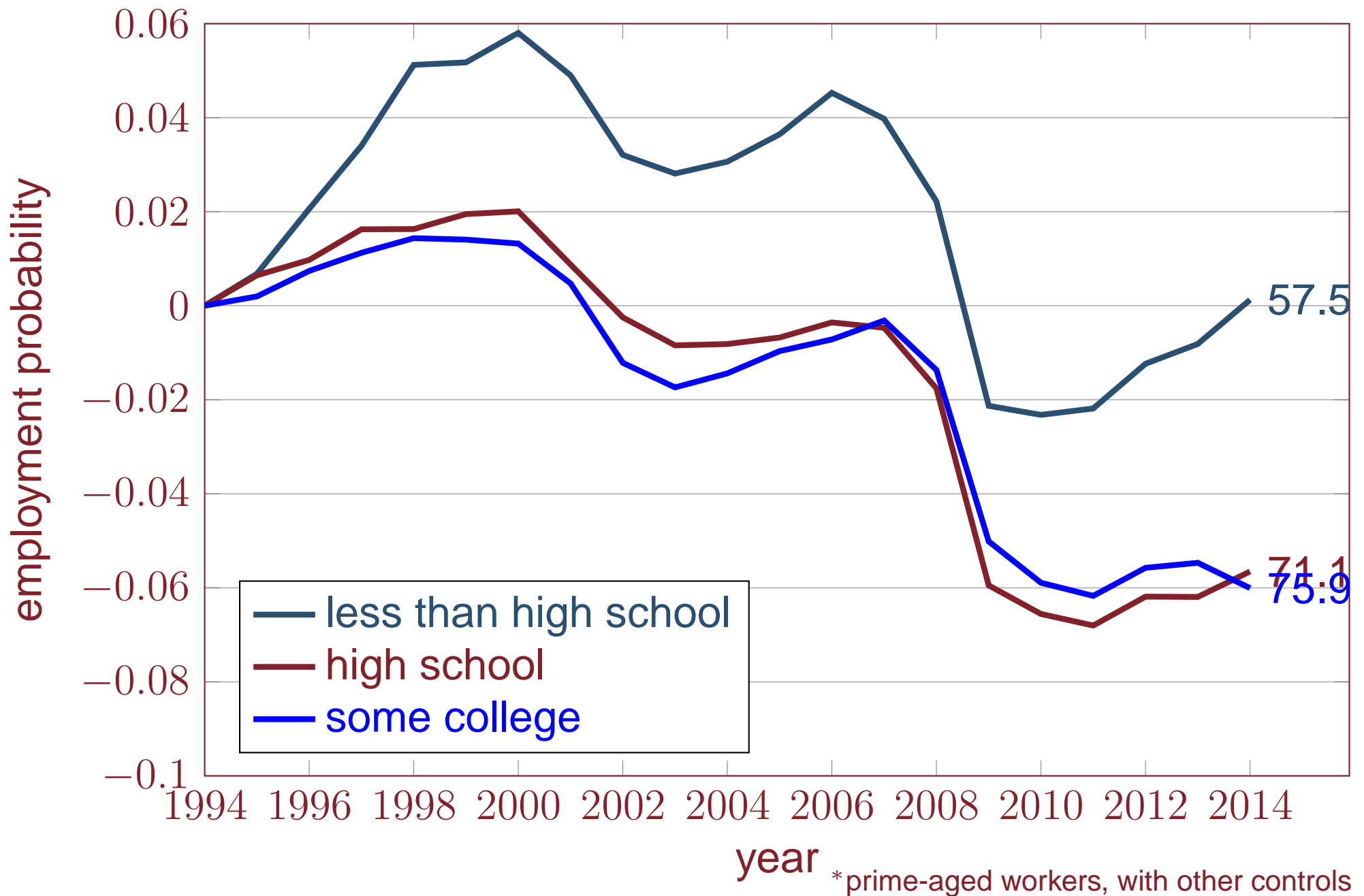
Employment Probability by Education



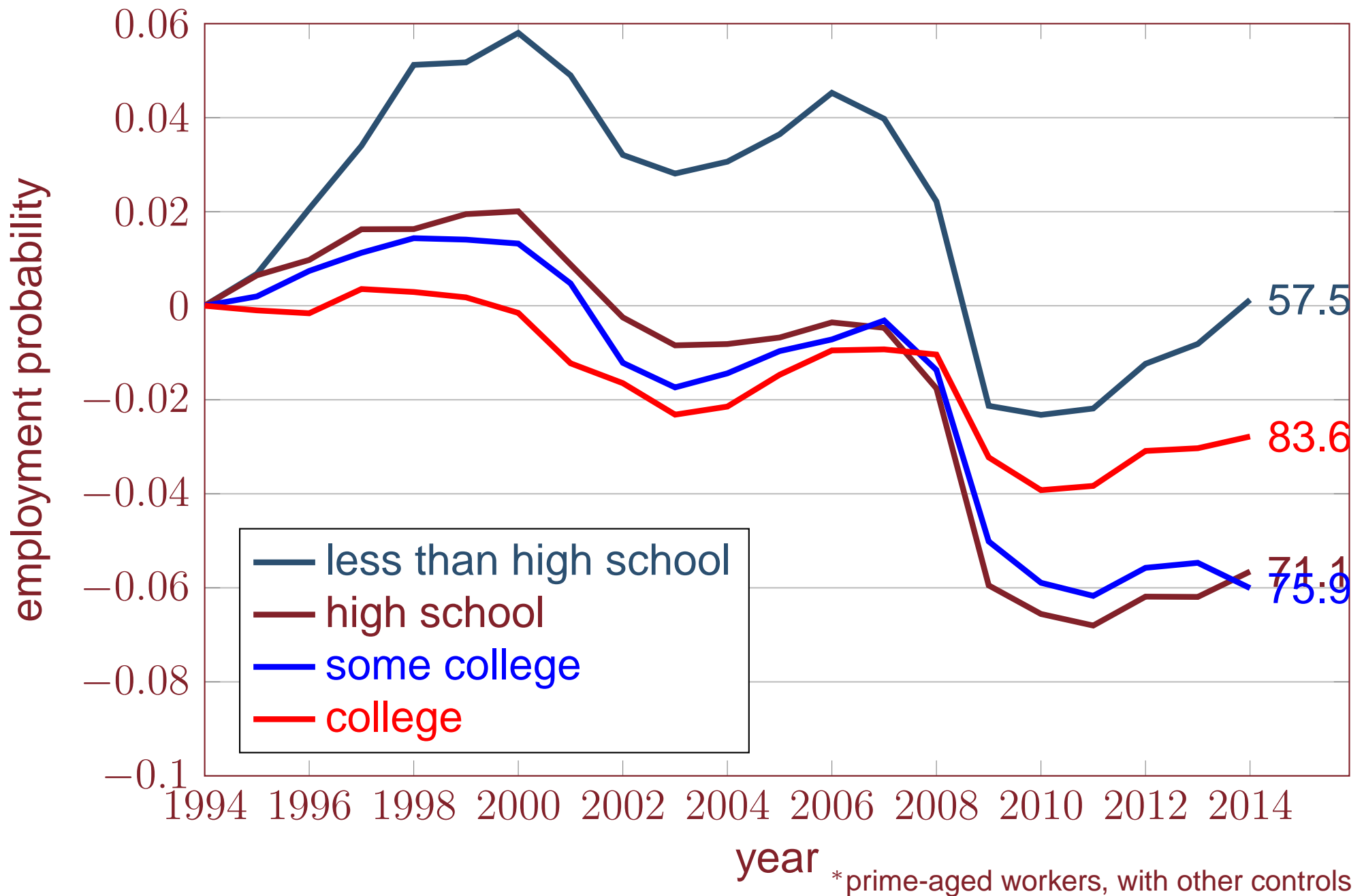
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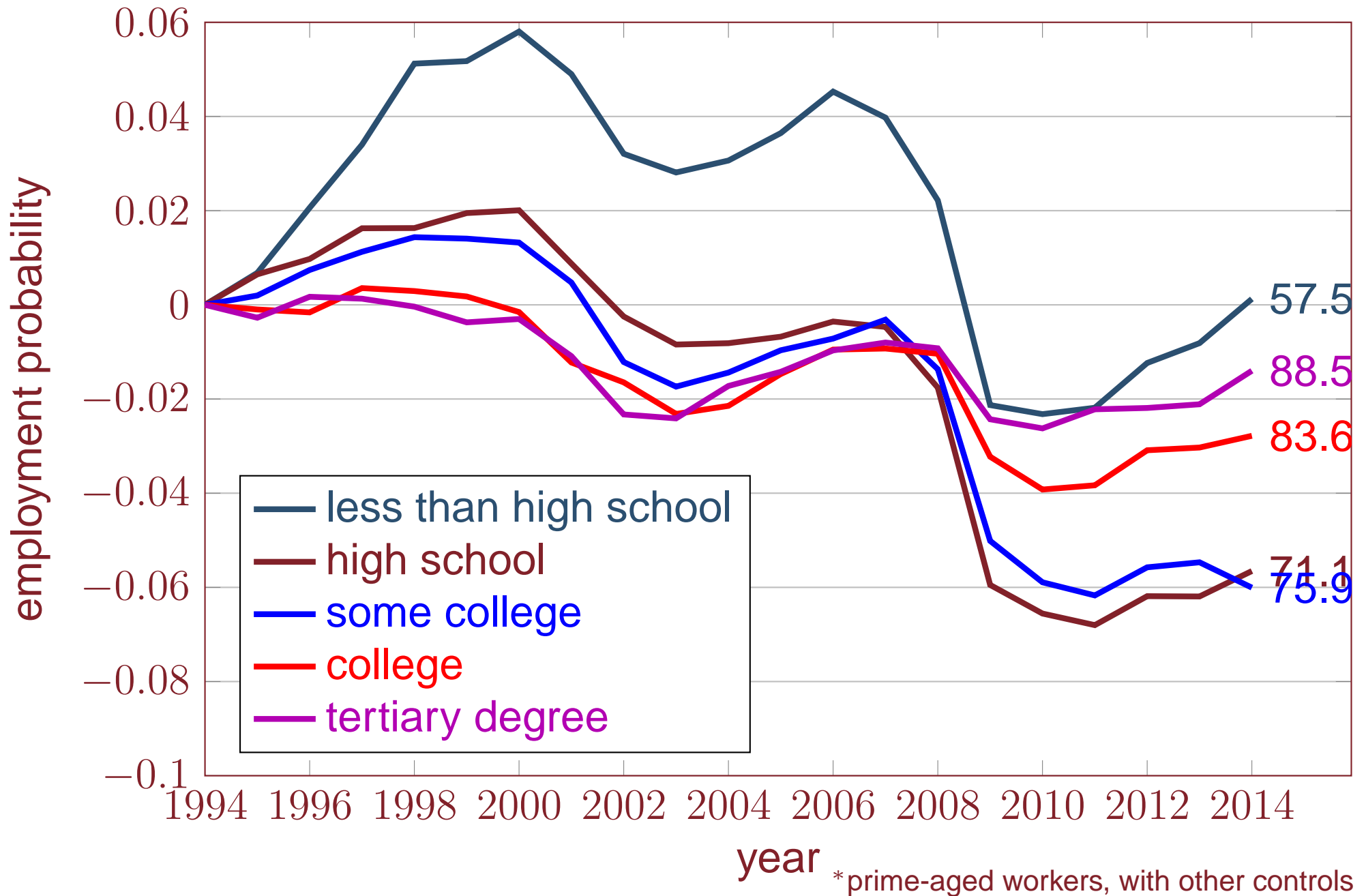
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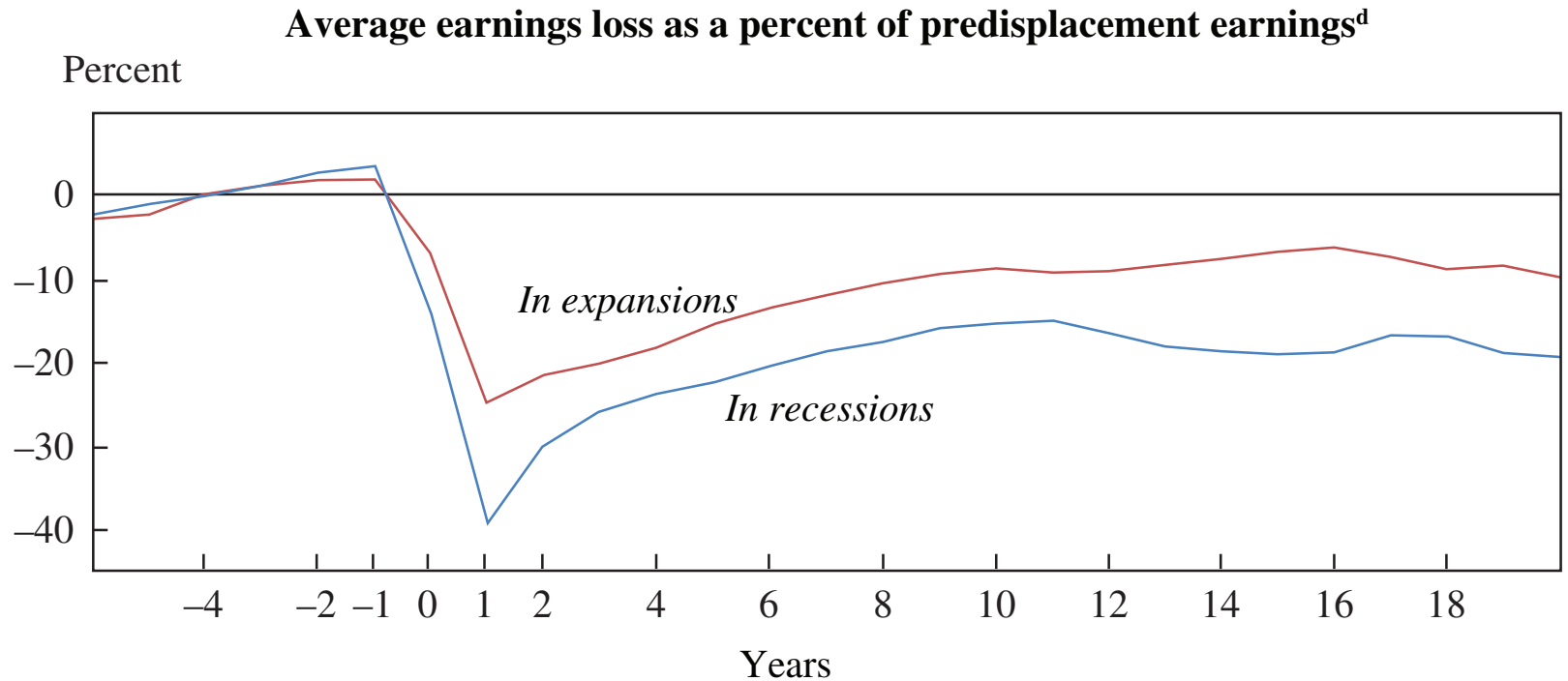
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Hysteresis

Hysteresis

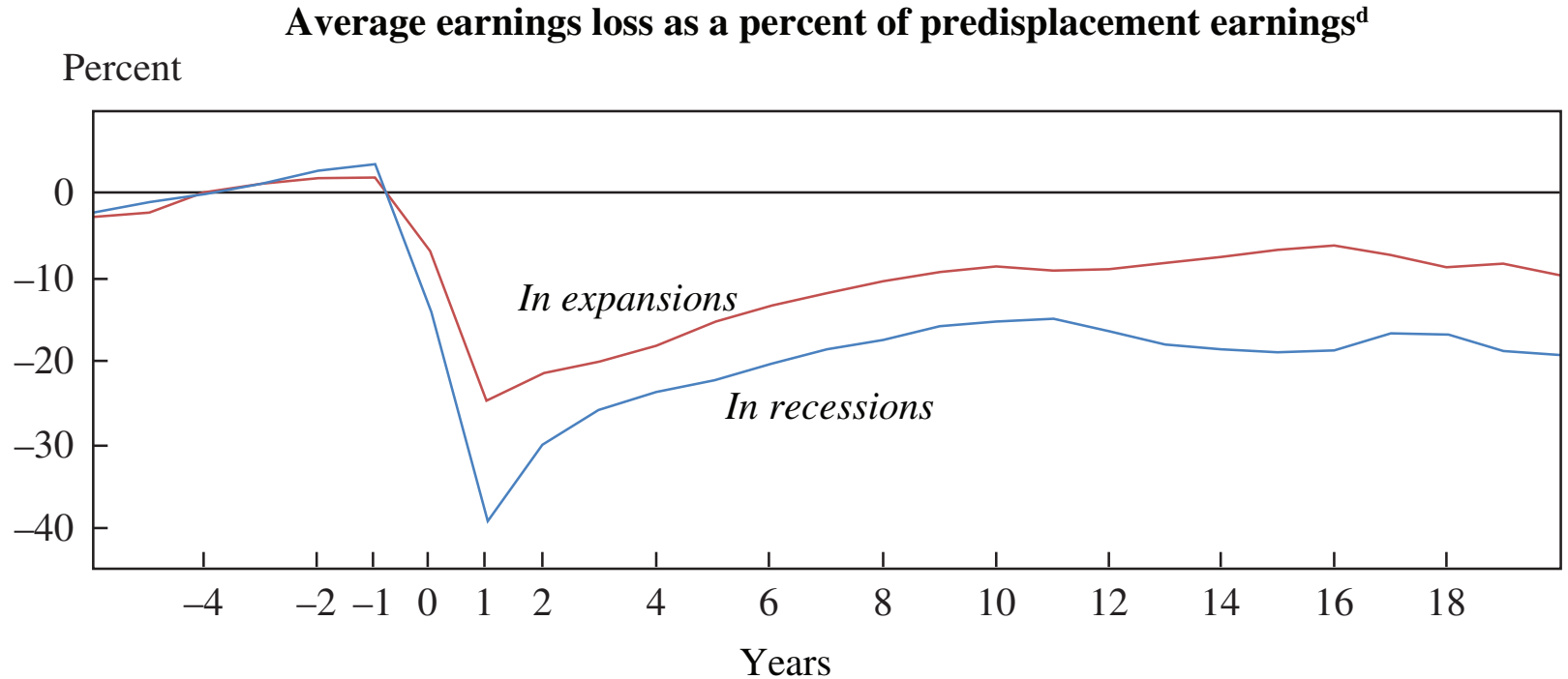
□ consequences of job loss for long-tenure workers



—Davis and von Wachter (2011)

Hysteresis

□ consequences of job loss for long-tenure workers



—Davis and von Wachter (2011)

□ consequences of entering the labor market during a recession

Causes of Earnings Hysteresis

□ wages versus employment rates

- ▶ Ruhm (1991): unemployment impact mostly gone in four years
- ▶ Jarosch (2014): employment impact lasts ten+ years (Germany)
- ▶ von Wachter: full year nonemployment elevated after 20 years

□ some evidence that wage declines reflect lost experience

- ▶ Borovičková, Davis, and Rogerson (2014)

□ simplest search models miss out on much of this persistence

- ▶ declining hazard of finding a job
- ▶ repeated job displacement episodes
- ▶ lower wage once a worker finds a job

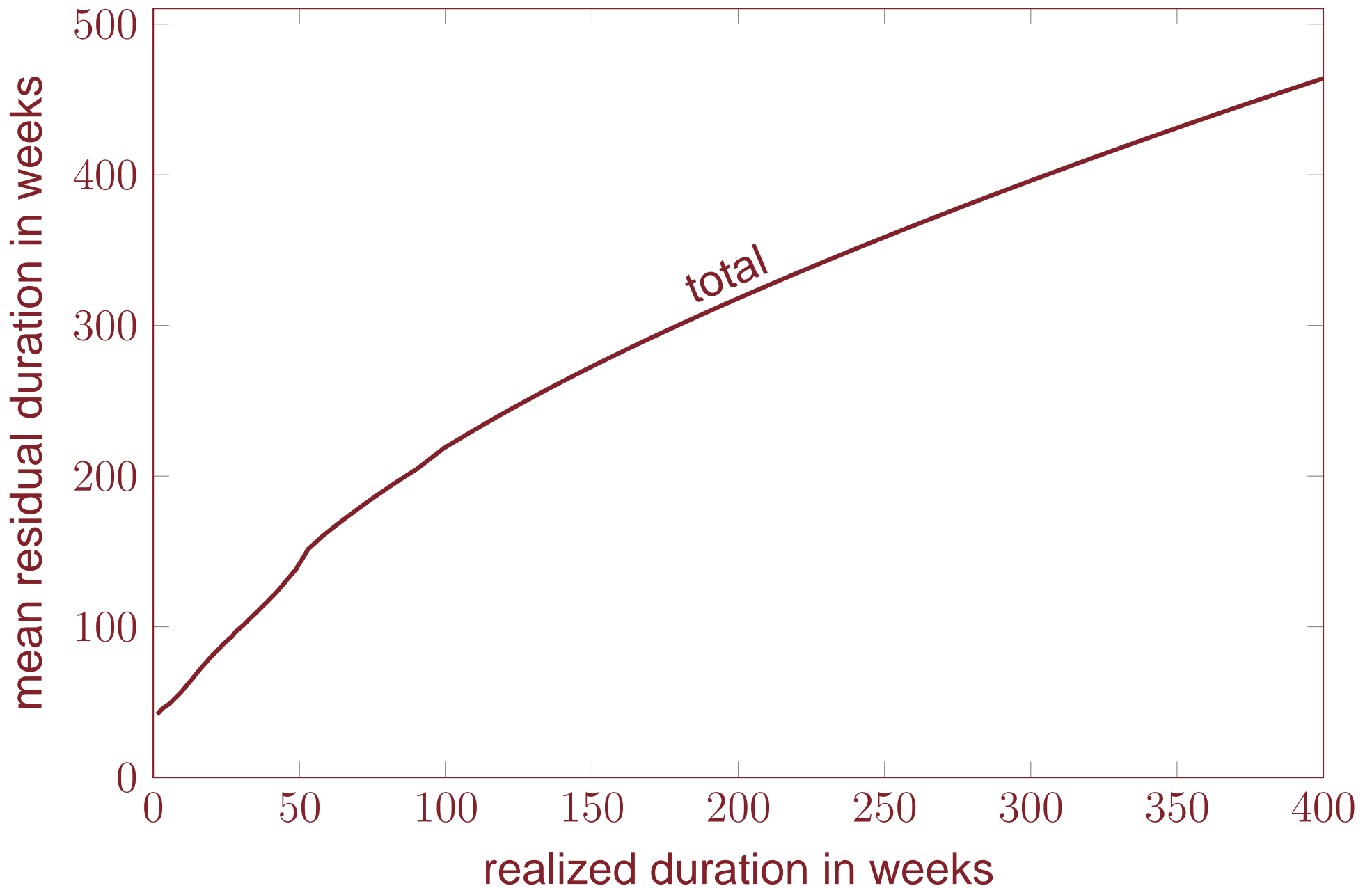
Stopping Time Model

- persistent state variable $x(t)$: wage or productivity
 - ▷ work when state is high
 - ▷ stop working when state is low

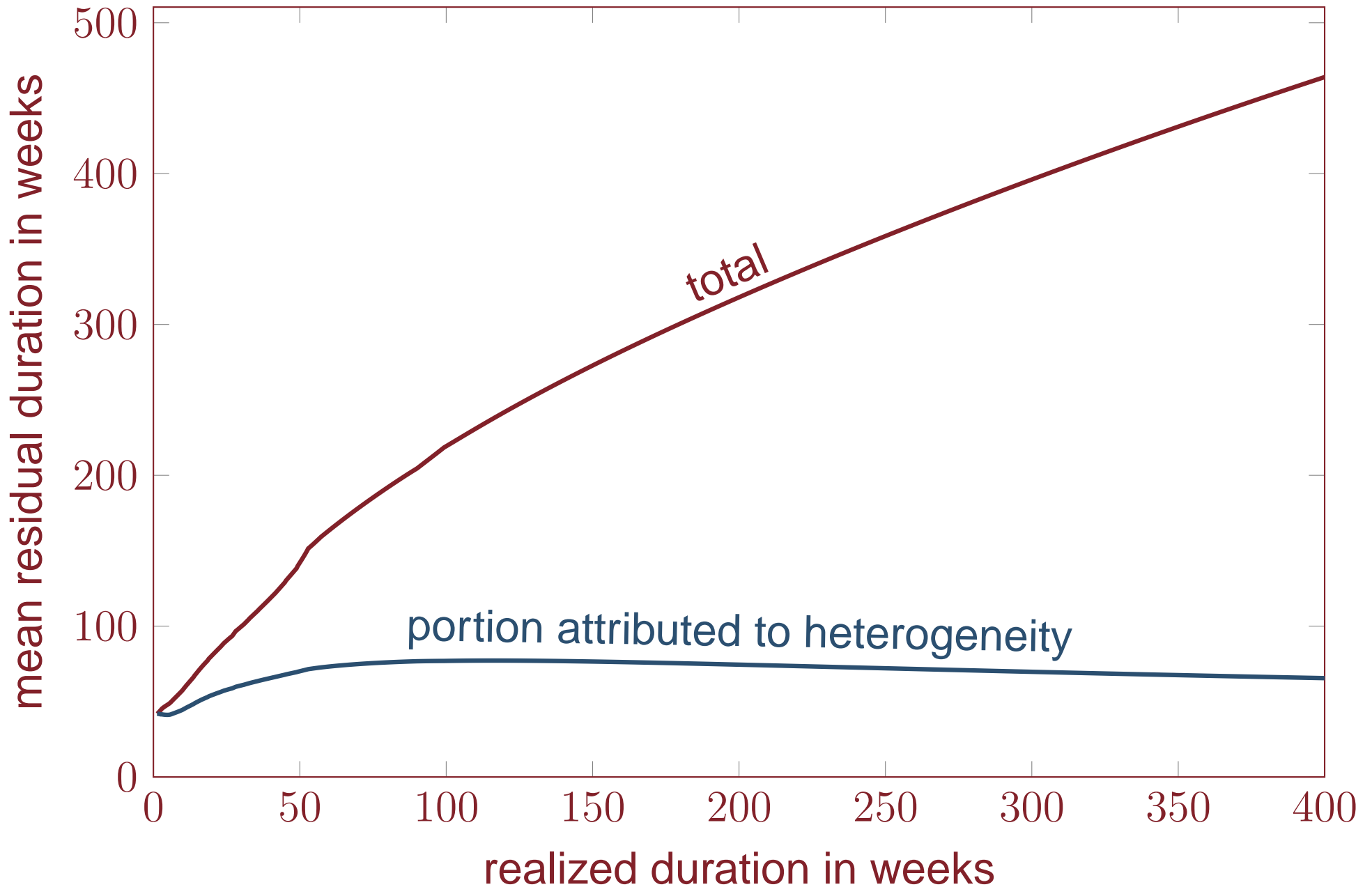
- recession causes a persistent decline in the distribution of $x(t)$
 - ▷ lower future wages
 - ▷ lower future employment

- current research (with Alvarez and Borovičková):
 - ▷ nonparametric test and estimate of the model
 - ▷ decompose duration dependence into structural v. heterogeneity

Alvarez, Borovičková, and Shimer (2014)



Alvarez, Borovičková, and Shimer (2014)



Summary of our Research

- substantial persistence in job loss
- most duration dependence is structural
- caveats
 - ▷ Austrian data, not U.S.
 - ▷ different sources of shocks, not the Great Recession
 - ▷ no direct implications for what happens to new entrants
 - conjecture they start with a stochastically lower value of $x(t)$
 - similar subsequent dynamics to existing employees

The Impact of Fiscal Policy

What is the Elasticity of Labor Supply?

CBOs microsimulation model indicates the percentage change in labor input that would be caused by the expected increase in the marginal tax rate on labor. That model incorporates estimated labor supply elasticities (the percentage change in total hours of work supplied that would result from a 1 percent increase in both after-tax income and the after-tax wage rate) that average 0.07 for primary earners within a household and 0.40 for secondary earners, **implying an average elasticity of 0.14 for the entire labor force**. Consistent with the available evidence, CBO assumed that about half of the response reflects people entering and exiting the labor force; the rest reflects decisions by working people to change their hours on the job. (CBOs Labor Force Projections Through 2021, 2011)

What is the Elasticity of Labor Supply?

I estimate a Hicksian labor supply elasticity of 0.33 on the intensive margin and 0.25 on the extensive margin after accounting for frictions. (Chetty “Bounds on Elasticities” Econometrica 2012)

- large long-run responses to tax changes ($4\times$ CBO estimates)
 - ▷ wealth effects are not that important
 - ▷ top of the Laffer curve at around $\tau = 0.63$
- modest short-run responses to tax changes
 - ▷ adjustment costs are important
 - ▷ workers may not be able to choose labor supply
 - ▷ (still larger a bit larger than the long-run response)

Appendix: Laffer Curve Calculations

- representative worker maximizes $\log c - \gamma \varepsilon h^{1/\varepsilon}$
 - ▷ budget constraint $c = (1 - \tau)wh + T$
- government rebates taxes lump-sum to households
 - ▷ $T = \tau wh$, but each person treats T as given
- solution: $h = ((1 - \tau)/\gamma)^\varepsilon$
 - ▷ ε is the Frisch elasticity of labor supply
- tax revenue is proportional to $\tau(1 - \tau)^\varepsilon$
 - ▷ maximized at $\tau = 1/(1 + \varepsilon) \approx 0.63$