"Who Suffers During Recessions"

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Overview

- The Great Recession has generated large reductions in employment; the recovery has been slow and weak.
- The impacts of the recession are not necessary experienced by all workers to the same degree.
  - Much talk of the "man-cession"
- We comprehensively analyze how business cycles affect labor market outcomes in the U.S. We ask two questions:
  - How do cycles affect outcomes across age, education, race/ethnicity and gender groups?
  - Are the across group differences in the Great Recession different from prior recessions?
- We present simple descriptive evidence along with results from state panel data regression models.
- We find that there are significant differences across groups and those patterns are persistent over time.

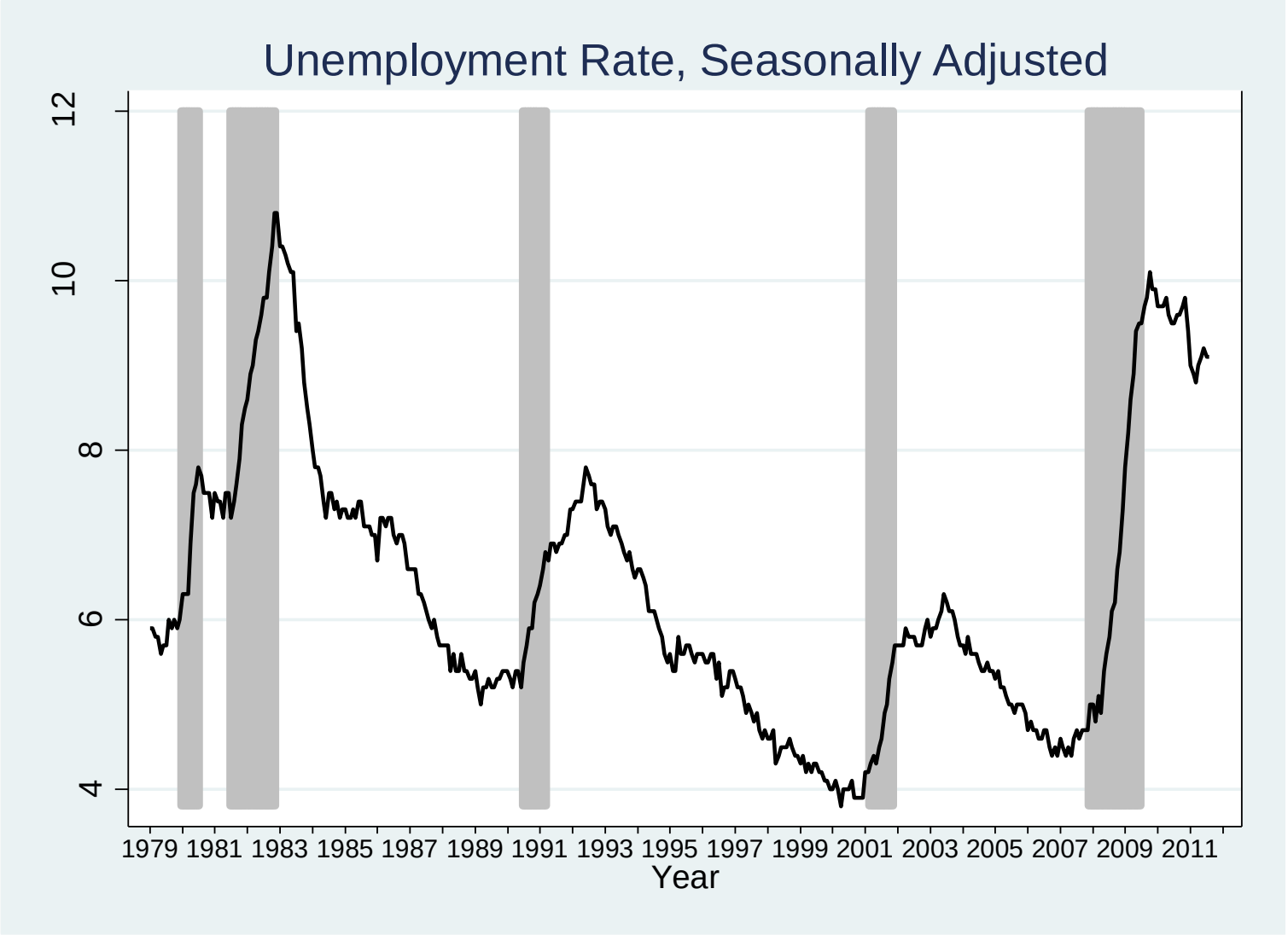
Roadmap for talk

- Brief summary of Great Recession, comparison to earlier recessions
- Related Literature
- Data
- Descriptive Findings
- State Panel Data Model
- Regression Findings
- Concluding Remarks

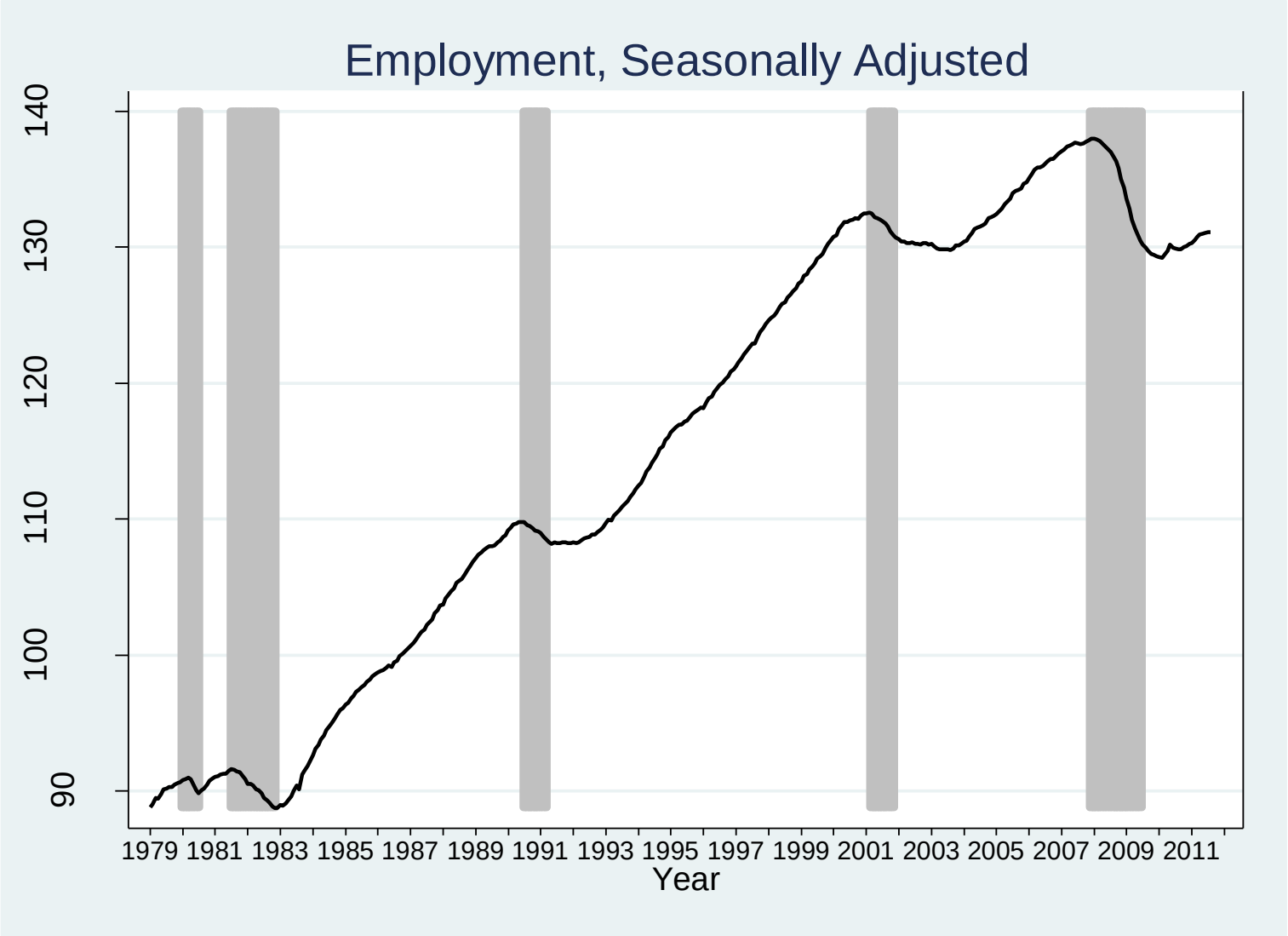
Labor market fluctuations

- Our primary measure of the cycle is the unemployment rate
- We present seasonally adjusted unemployment and employment.

US Monthly Unemployment Rate, Seasonally Adjusted

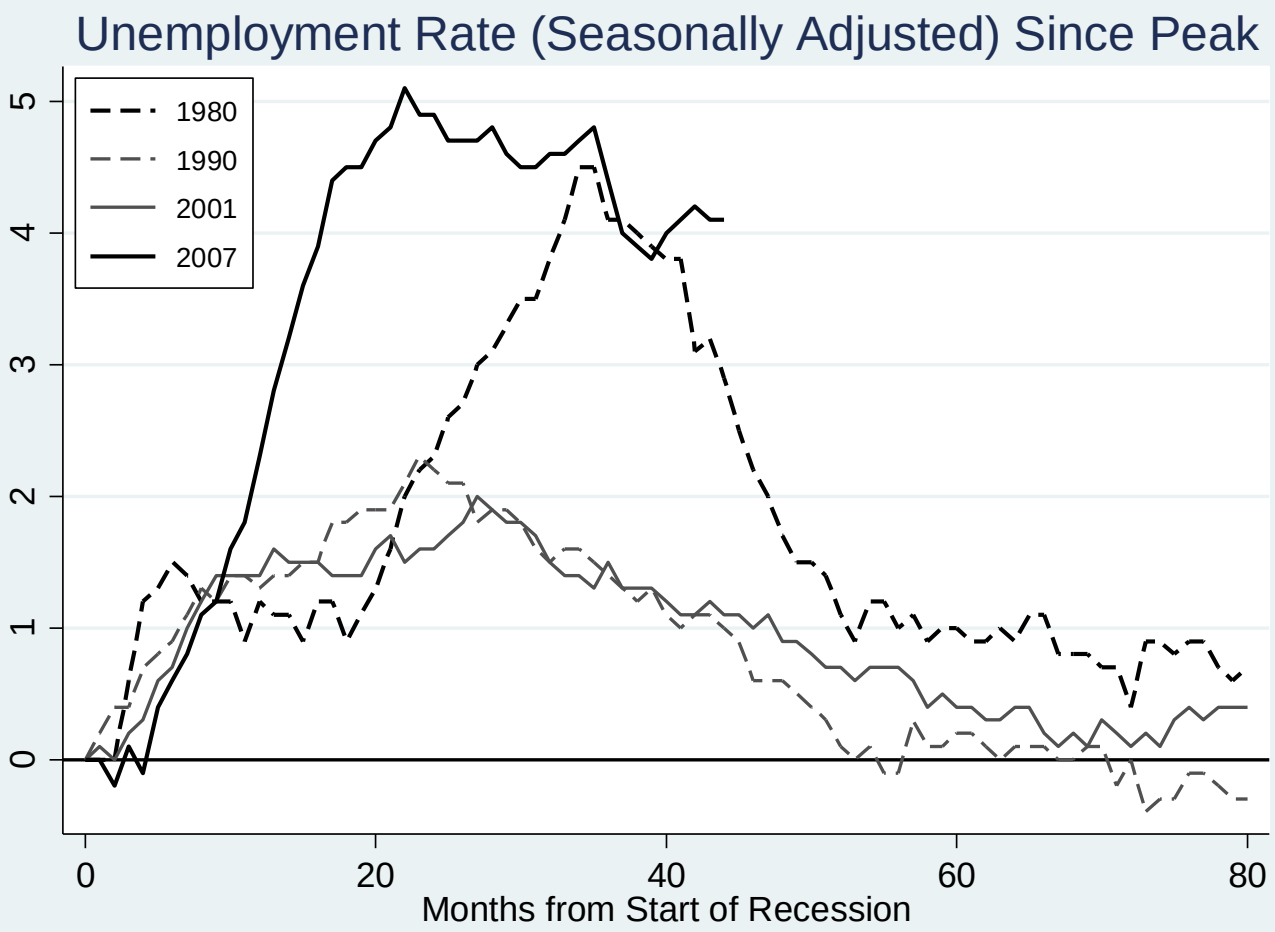


US Monthly Employment, Seasonally Adjusted

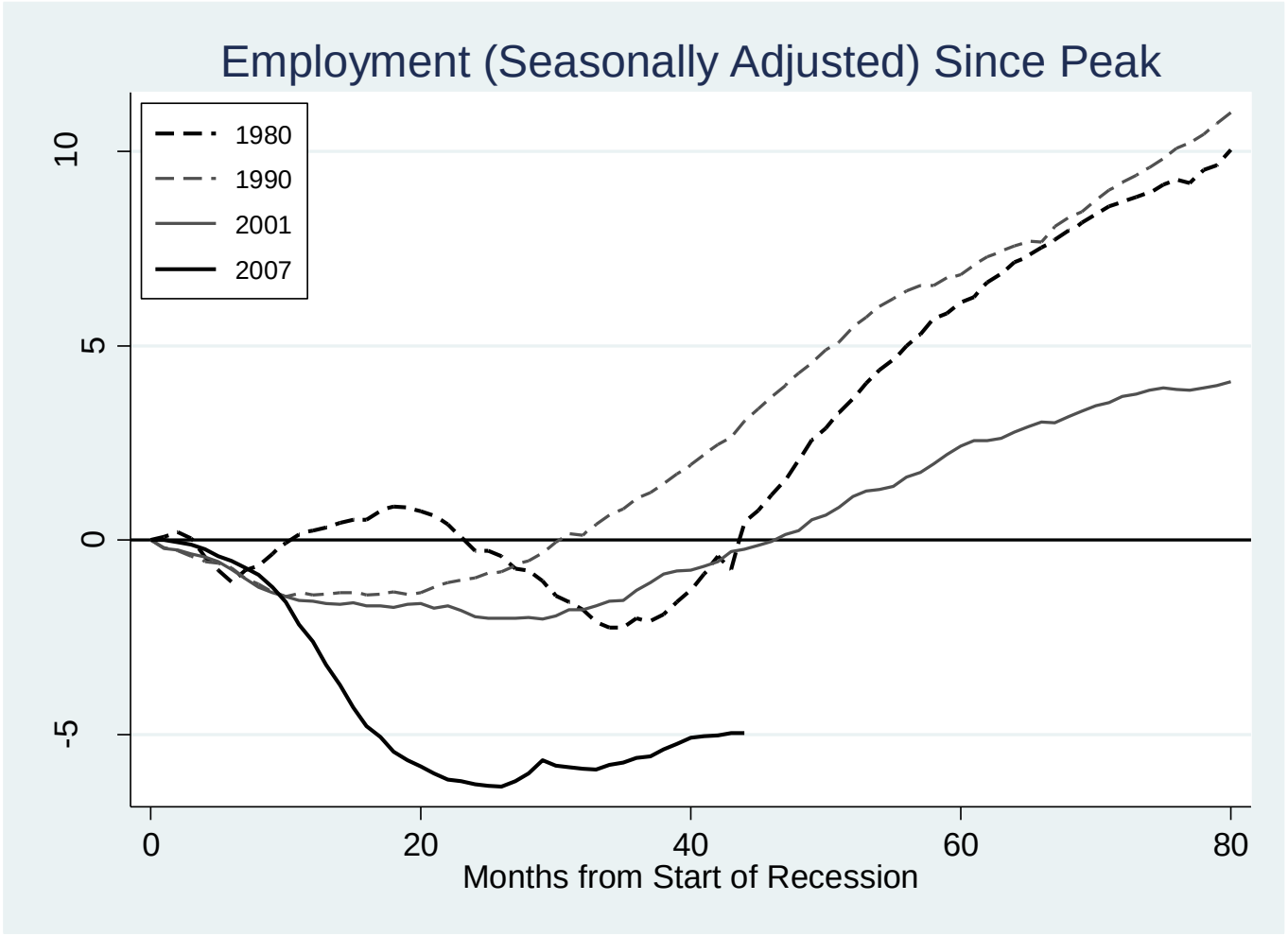


Comparing Across Recessions

- We follow a common practice of combining the 1980 (begins 1/80) and 1981 (begins July 81) recessions.
- Event time: months since the official beginning of the recession:
  - 1980/81: January 1980
  - 1990: July 1990
  - 2001: March 2001
  - 2007: December 2007
- Later we will limit our comparison to the 1980 recession and the Great Recession



2007 recession is steep and largest increase in unemployment rate



2007 expansion is behind other cycles.

Weak job growth coming out of 1990, 2001, 2007 recessions.

Connections to prior work

- Many prior studies have examined the impact of cycles across demographic groups (Bartik 1991, Holzer 1991, Hoynes 2000, Hines, Hoynes and Krueger 2001, Bound and Holzer 1993, Bound and Freeman 1982, etc, etc)
  - Employment , real wage growth, family income and poverty
  - Greater sensitivity among men, blacks, youth, and less educated workers
- Analyses of the Great Recession include Farber 2011 (dislocated workers), Elsby et al 2010 (unemployment across groups)
- Sluggish recovery and unprecedented extension of UI to 99 weeks has led some to conclude that there has been an increase in structural unemployment (Daly et al 2011, Rothstein 2011)
- More generally, there is a growing literature on impacts of the Great recession; impacts on health, happiness and so on.

Our contribution

- Our work is most similar to Hines, Hoynes and Krueger (2001) who use a state panel data model with annual March CPS data.
- We extend their work to include data through July 2011, and obtain significantly larger samples by using the Merged Outgoing Rotation Group data
- We comprehensively estimate and test for differences across groups and over time.

Data

- To facilitate comparisons across groups we need to move beyond the published aggregate data presented earlier.
- CPS Merged Outgoing Rotation Group (MORG) January 1979 though July 2011
- Representative household survey data containing information monthly on employment, unemployment, earnings and demographics
- 25,000 individuals per month
- Our sample includes persons 16-60 years of age
- We collapse the data to cells: age x gender x race/ethnicity x education x state x year-month

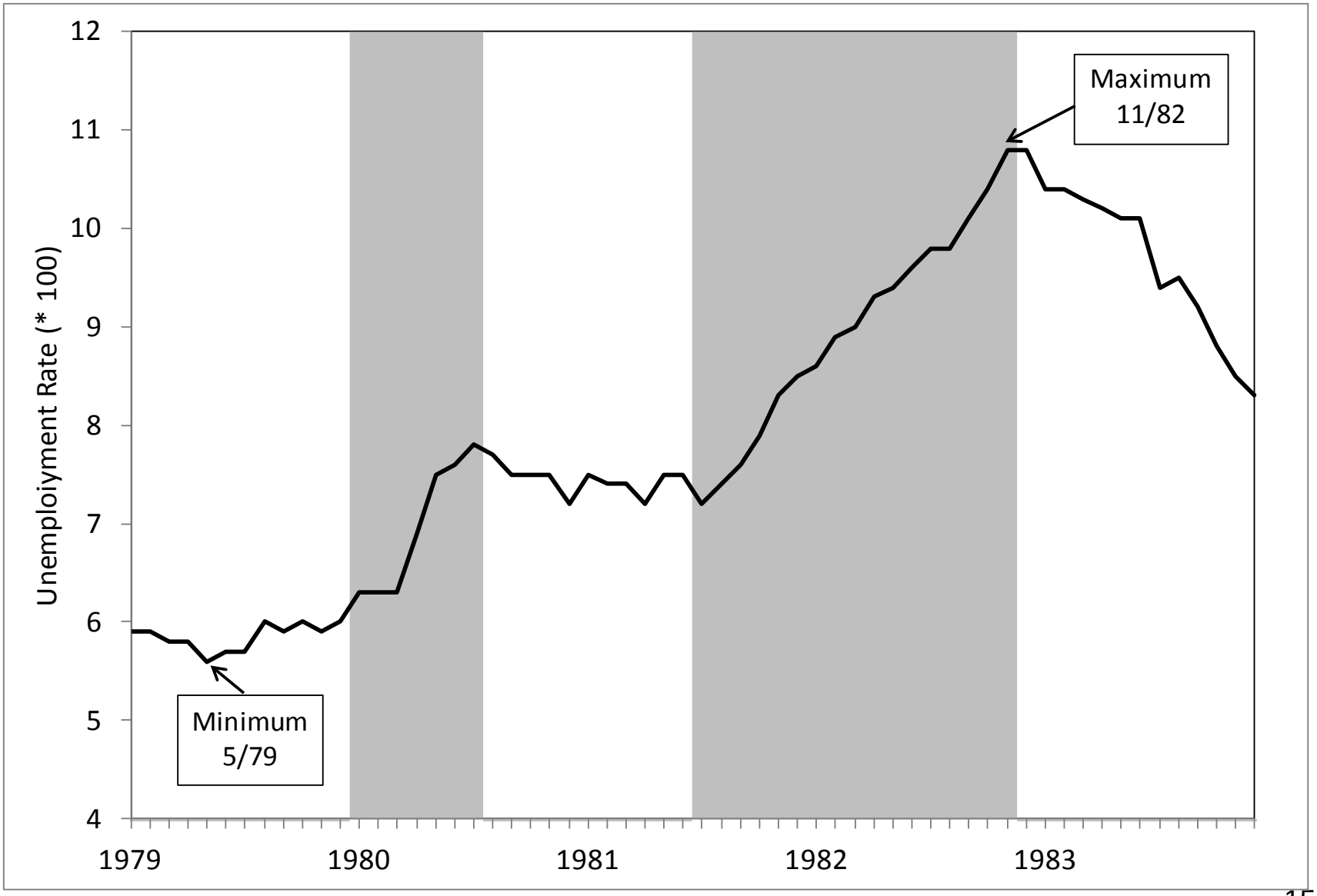
Outcomes

- Percent employed (among population)
- Percent unemployment (among labor force)
- Average real weekly earnings (among population, including 0s)
  - Captures extensive and intensive margin, gets around issues of selection over cycle
  - Deflated using personal consumption expenditure price index
  - Drop self employed, adjust for topcode following Autor et al (2008)

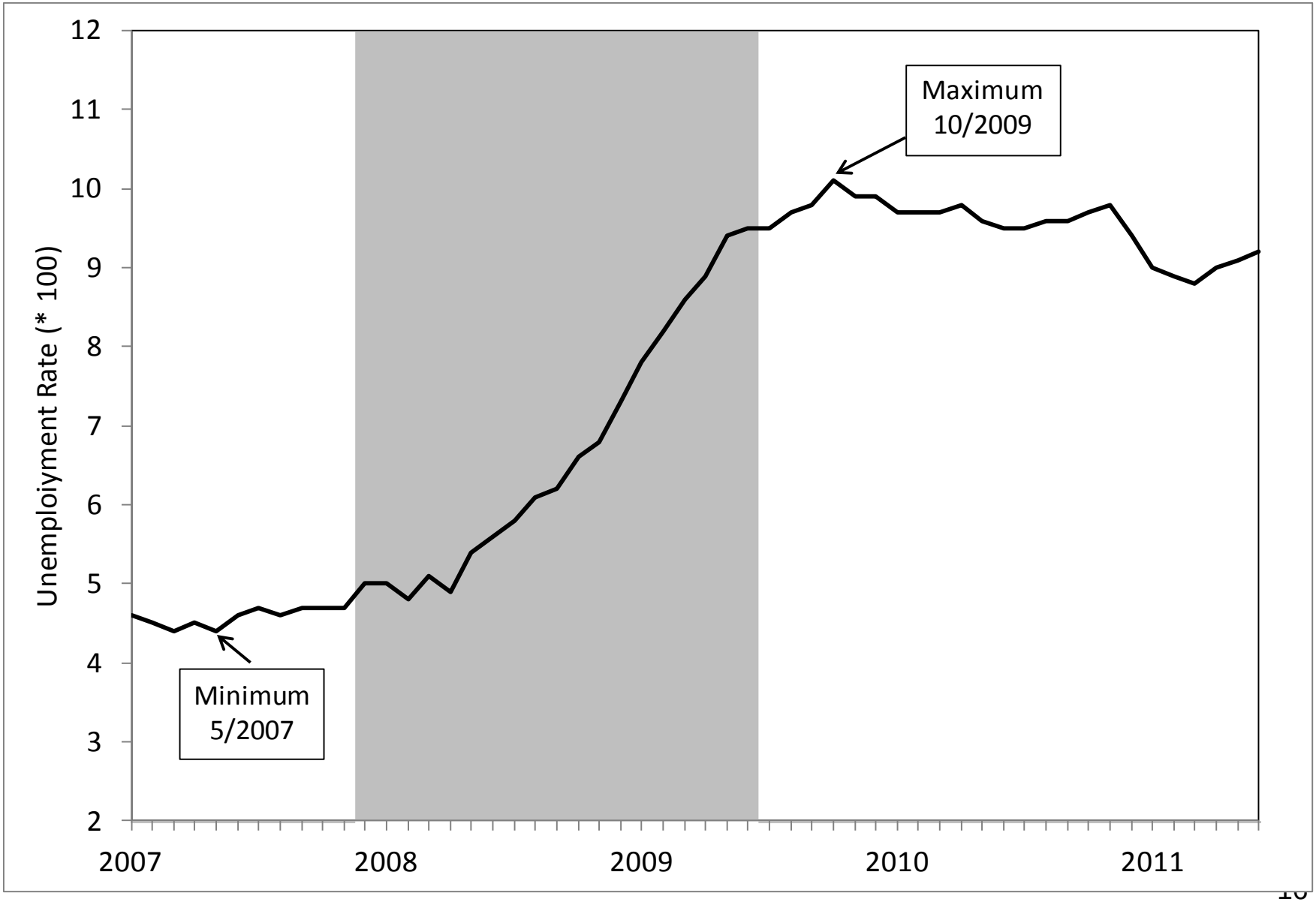
Identifying cycles

- Our main comparison is the 1980s recession to the 2007 recession.
- Official cycle dating largely depends on GDP growth and labor market measures tend to lag changes in GDP. Therefore we use the observed seasonally adjusted unemployment rate to identify the peak and trough of the two cycles.
- Recessions:
  - 2007: May 2007 – October 2009
  - 1980: May 1979 – November 1982
- Expansions:
  - 2007: October 2009 – July 2011 (end of data)
  - 1980: November 1982 – August 1984 (22 months of expansion to match 2007)

Our dating of 1980s recession (using MORG)



Our dating of 2007 recession (using MORG)

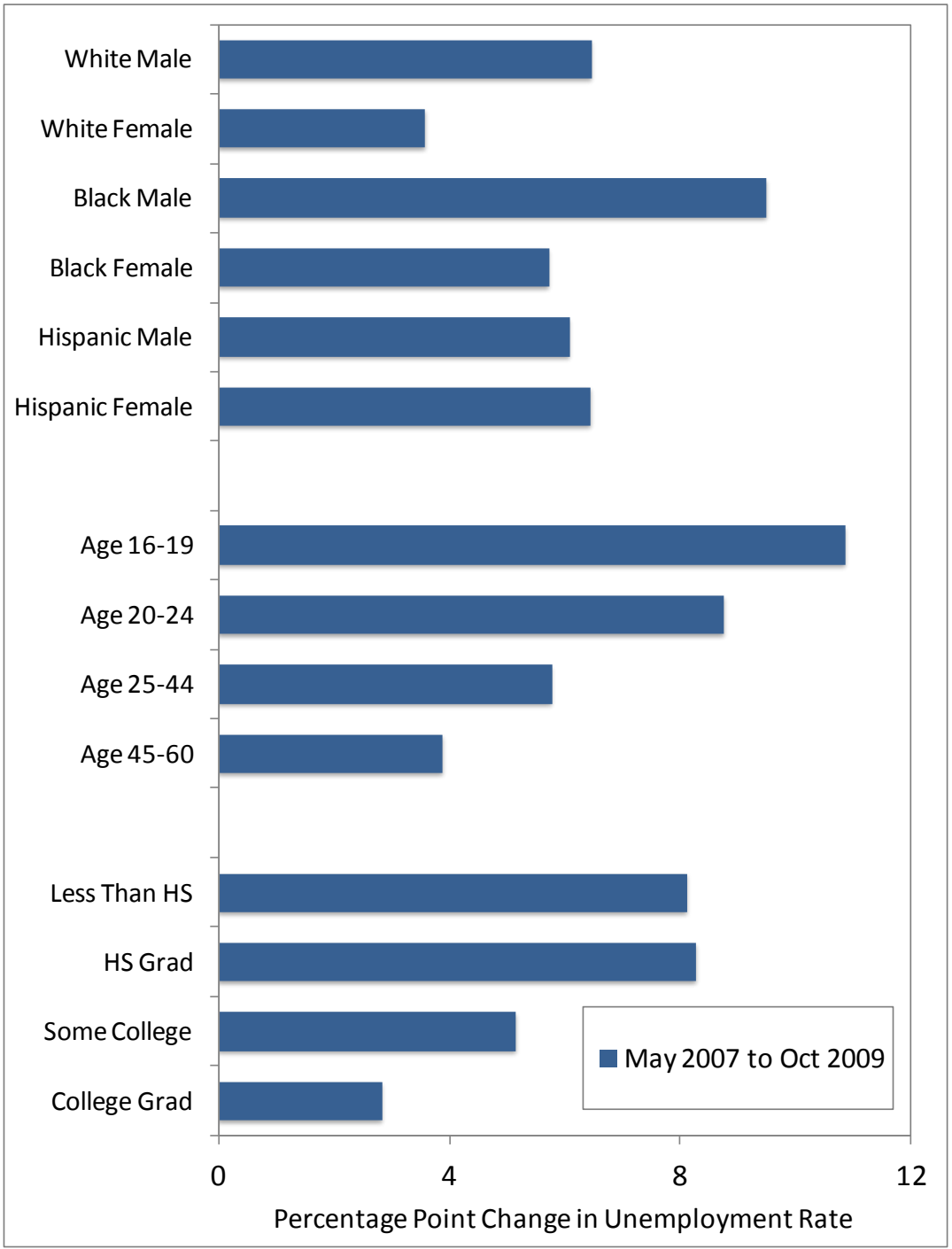


Results I: Raw Changes by Group

- Use MORG to compare outcomes at the peak and trough of the recession
- Show first for 2007 and compare to 1980
- Seasonal adjustment: All of our analyses of the MORG start with a simple seasonal adjustment. We regress each time series on a set of month dummies (with December omitted) and use the constant and residuals from the regression to create the seasonally adjusted series.

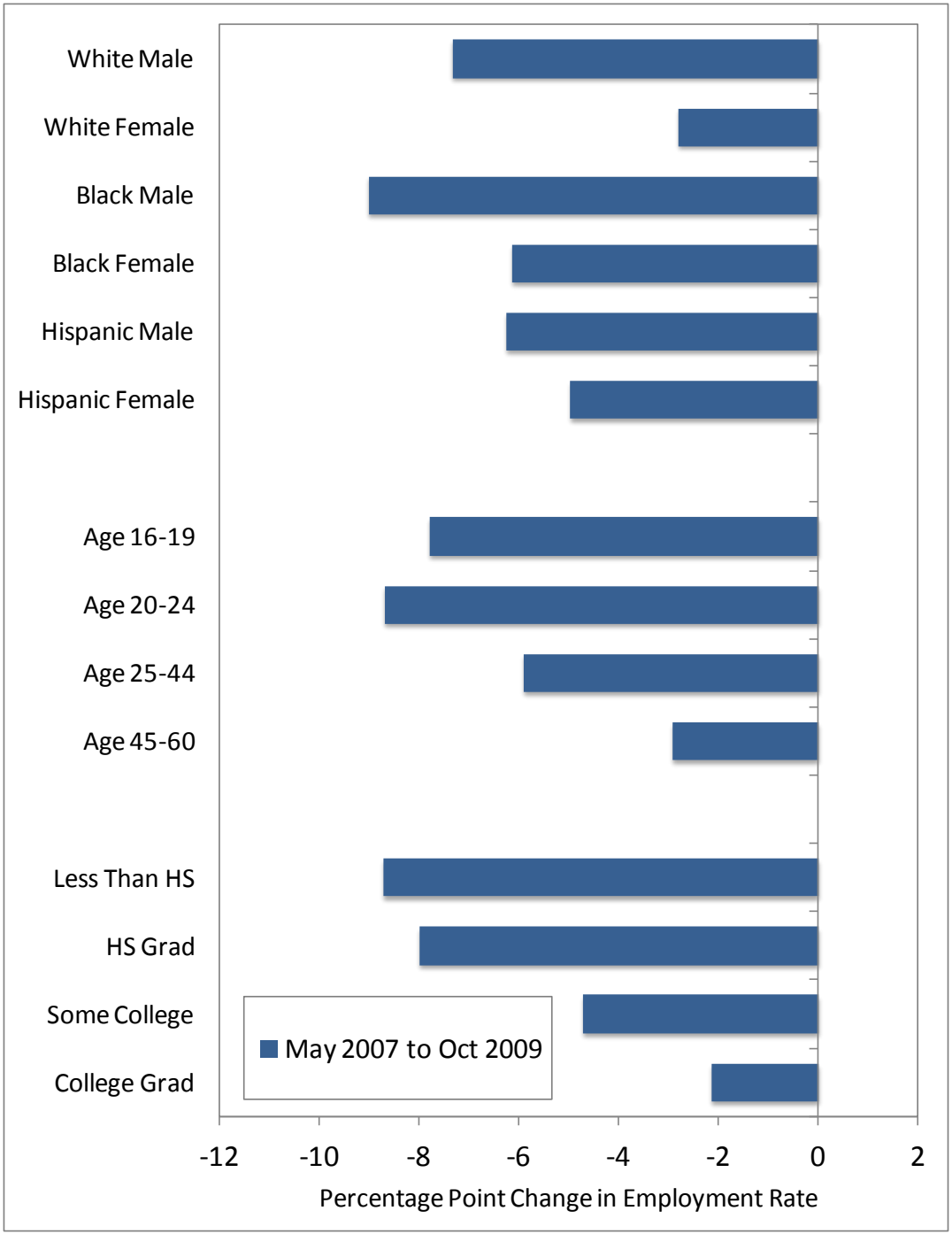
Table 1: Labor market outcomes by group, May 2007

	Employment Rate	Unemployment Rate	Usual Weekly Earnings (2010$)	Hours Last Week
White Male	81	3.6	$830	34
White Female	71	3.2	499	25
Black Male	66	9.1	448	26
Black Female	59	6.5	401	24
Hispanic Male	79	6.2	524	32
Hispanic Female	58	4.9	298	20
Less Than HS	48	10.1	187	16
HS Grad	72	5.4	306	28
Some College	76	3.6	545	29
College Grad	86	1.6	1037	35
Age 16-19	33	14.4	69	8
Age 20-24	68	6.4	306	23
Age 25-44	81	3.7	679	32
Age 45-60	75	3.3	707	30



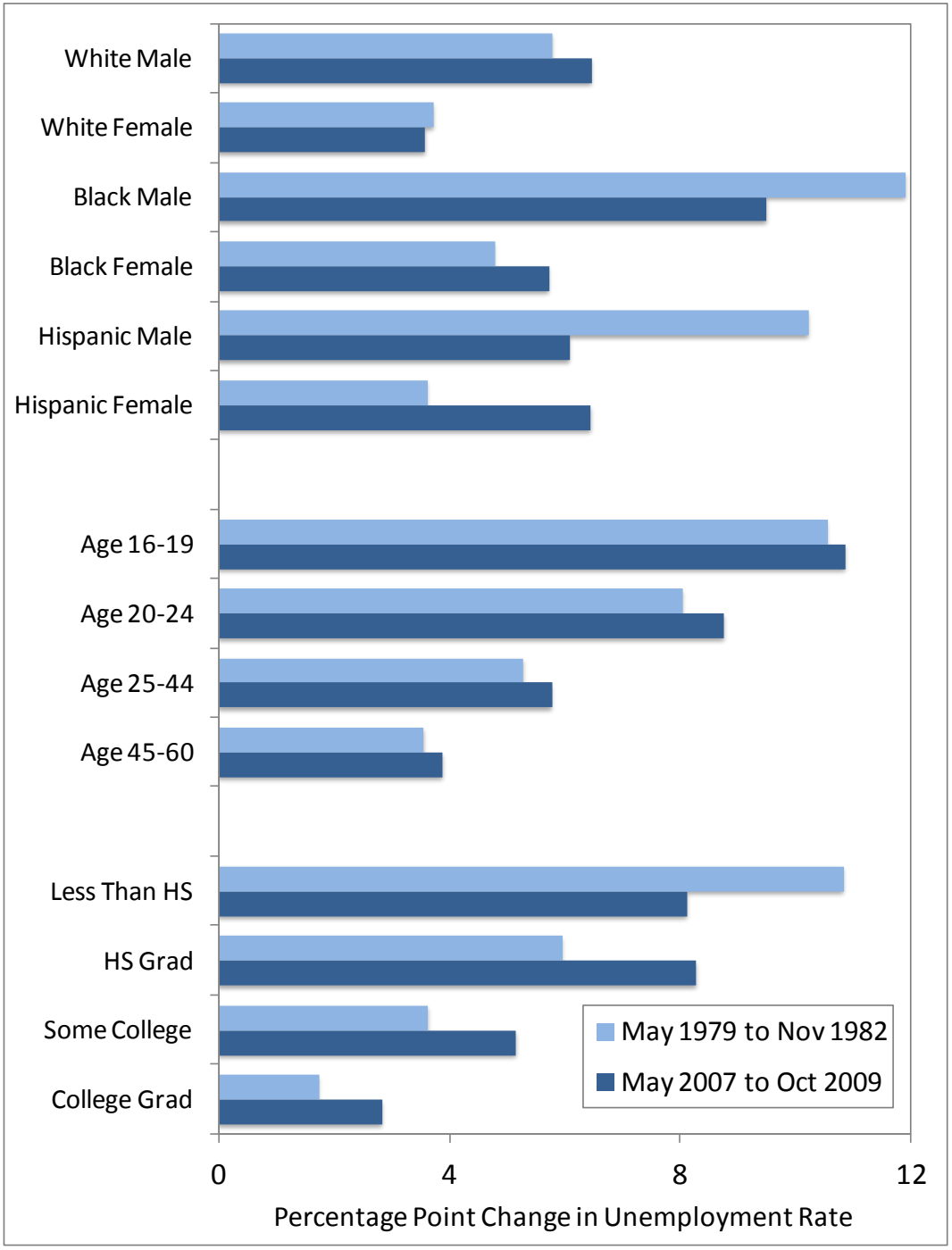
Percentage point change in UN Rate, peak to trough 2007 recession

Groups with higher baseline UR rates experienced larger increases:
men, nonwhites, youth, low education



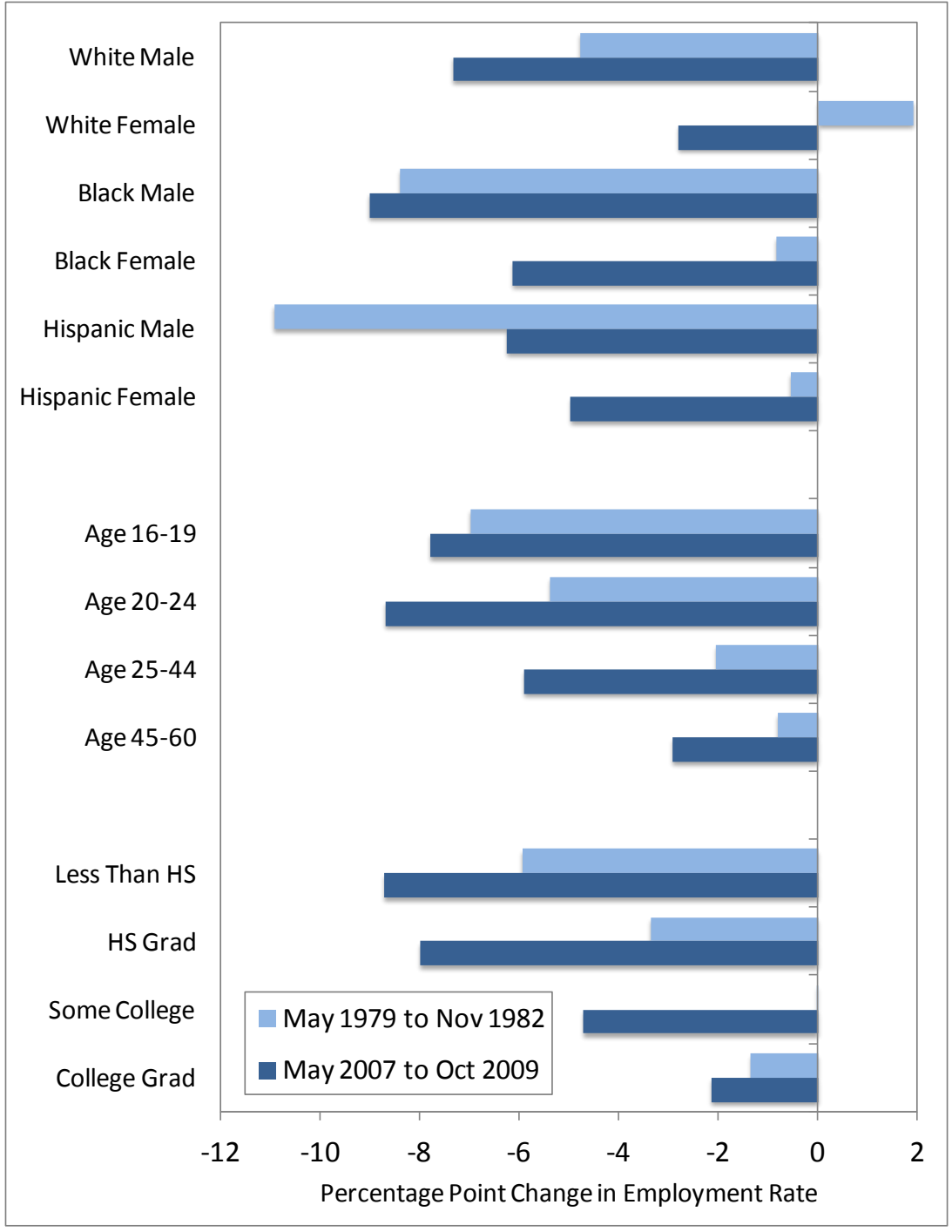
Percentage point change in EMP rate, peak to trough 2007 recession

Similar patterns across groups.



Percentage point change in UN rate, comparison of 2007 and 1980 recession

- Increase is larger for most groups in current recession (except black men, Hispanic men, <12)
- Biggest increases (relative to 1980 recession) are for Hispanic women and hs grads
- Similar patterns across two recessions



Percentage point change in EMP rate, comparison of 2007 and 1980 recession

- Decrease is larger for most groups in current recession (except Hispanic men)
- Limitation of this approach is that it does not net out any secular trends such as the rising LFPR of women through the 1990s.

- Findings thus far:
  - Massive differences in cyclicality of outcomes across groups: men, nonwhites, youth and low educated are more cyclical
  - The patterns across groups appear quite stable over time
- These crude changes over time across recessions are informative about cross-group patterns
- But they are limited because they can be confounded by changes in other determinants of labor market outcomes (non recession based trends, shifts in composition of groups). Example: female employment changes in 1980 recession.

Results II: State panel data model

- To address the limitations of the raw changes analysis, we estimate a state panel data model that allows us to absorb general trends in the outcome variables.
- Using our collapsed data (state x year-month x demographic group) we estimate

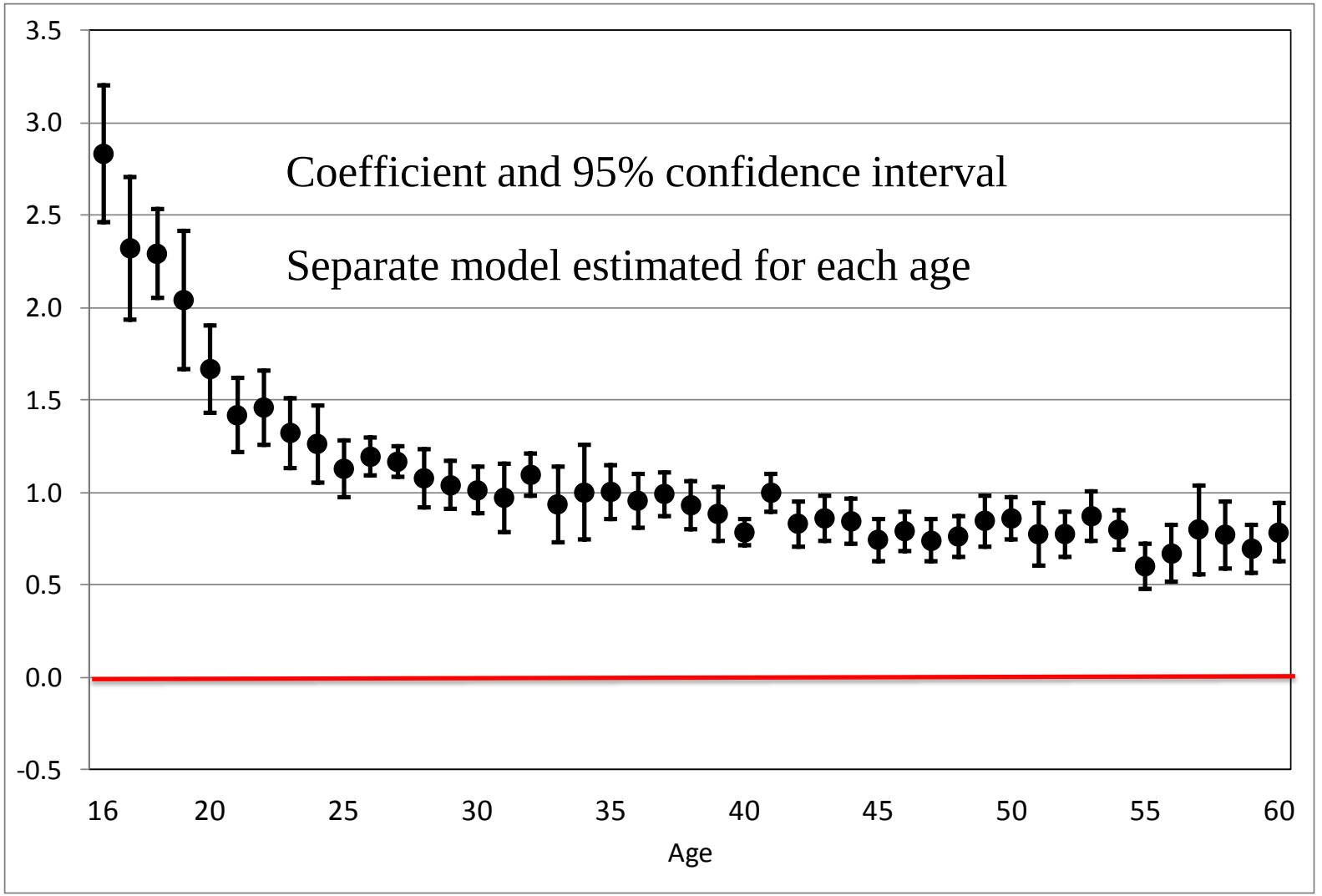
$$y_{gst} = \beta \cdot UN_{st} + RaceSex_g + Age_g + Educ_g + \alpha_s + \delta_t + year_t \cdot \gamma_s + \varepsilon_{gst}$$

- Measure of the cycle: state seasonally adjusted unemployment rate.
- Additional controls for demographic group, year-month, state, and state linear time trends
- All estimates clustered by state, weighted by cell weights

Comparing results to raw differences

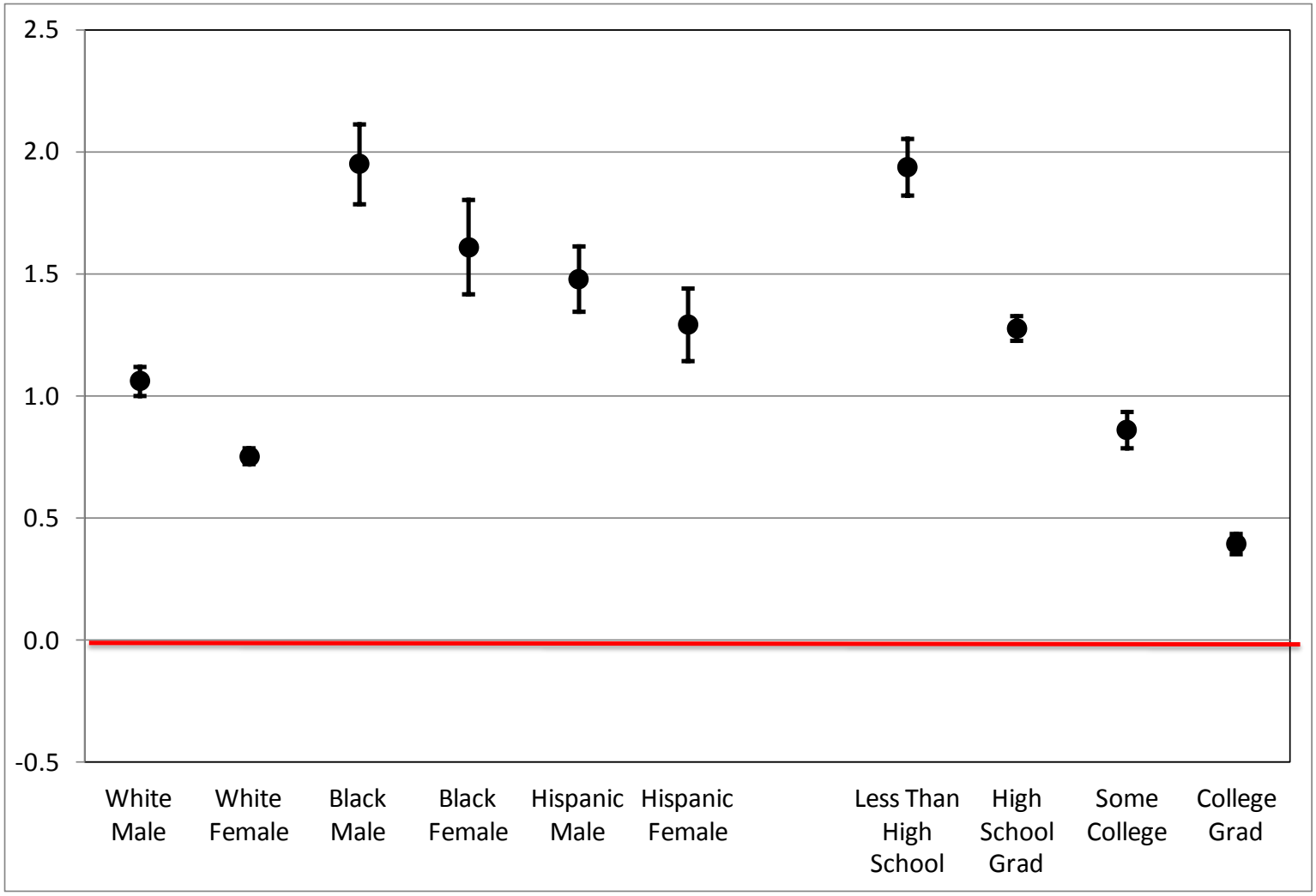
- Different source of variation: here we identify the cycle by leveraging the timing and severity of cycles across states (rather than using aggregate changes). In fact this approach absorbs the national cycle.
- Here we use data from January 1979 through July 2011. We therefore identify the differences across groups using periods of recession and expansion. (more on this later).
- First we will show the results graphically using the entire period. Then we will present statistical tests for differences in the 1980 versus 2007 recession.

Cyclical Effect on Group UN Rate, by Age (1979-2011)



Interpretation: 1 pp increase in state UN rate leads to a 2.8 pp increase in UN rate for 16 year olds

Cyclical Effect on Group UN Rate, Race-Sex & Education

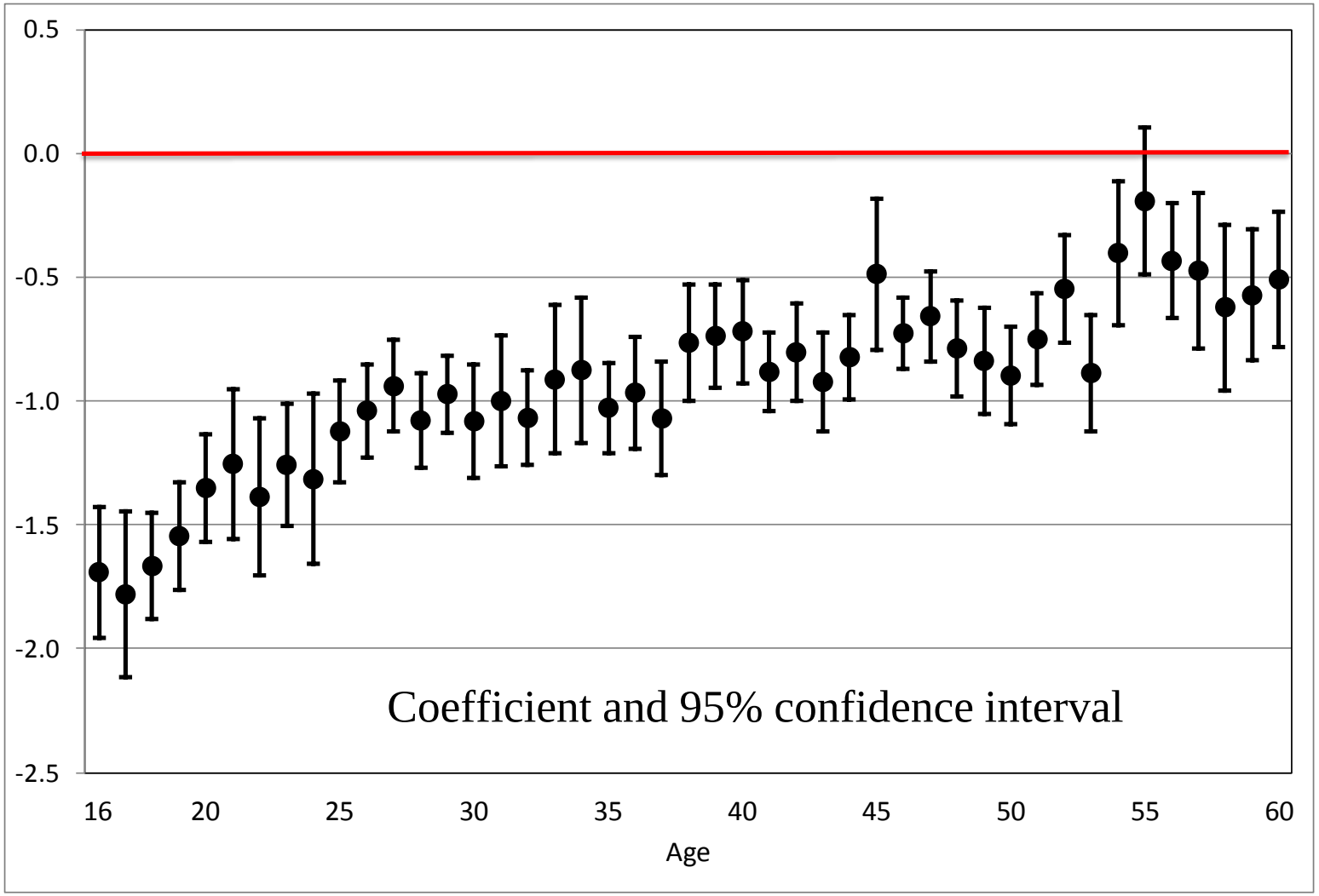


Large differences across race, gender, education.

Again, larger cyclical response for men, nonwhites, lower education

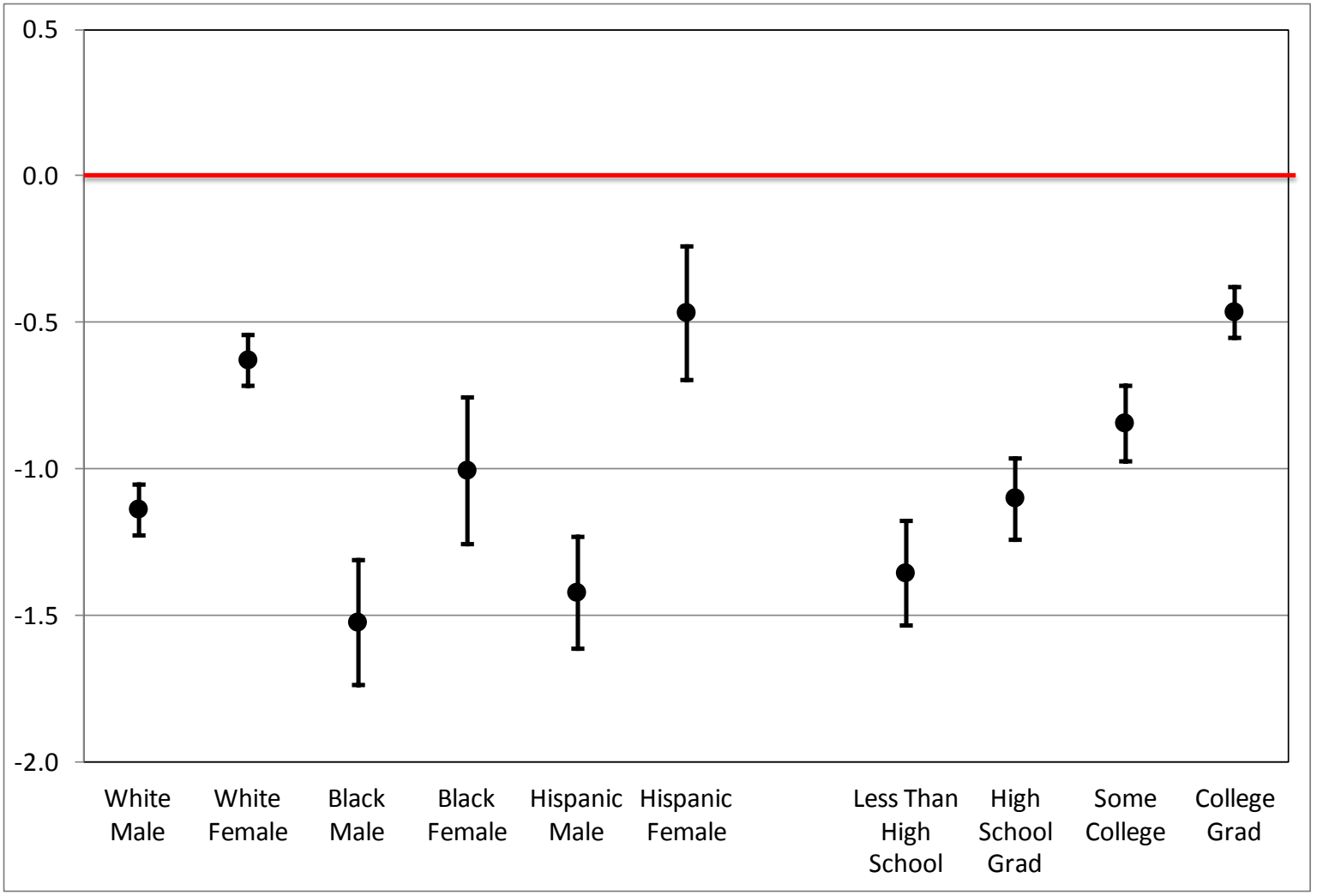
Remarkable correspondence to “raw changes”

Cyclical Effect on Group EMP Rate, by Age



Interpretation: 1 pp increase in state UN rate leads to a 1.7 pp decrease in EMP rate for 16 year olds.

Cyclical Effect on Group UN Rate, Race-Sex & Education



Gender differences are larger. Consistent with women being more likely to be added workers (LF incr. in recession) and men as discouraged workers (LF decr. in recession). Hispanic women – more added workers?

Testing

- We want to test for differences across groups and over time.
- Thus we drop the stratified model and estimate pooled models.
- Pooling groups, we allow the impact of the state UN rate to vary by group and time period.
  - To capture the different trends by group we allow for a group-specific quadratic time trend and group-specific state fixed effects

$$y_{gst} = \sum_{RaceSex\ j} \sum_{Time\ period\ w} \left[\beta_{w,j} \cdot UN_{st} \cdot D_w \cdot RaceSex_j\right] + RaceSex_g + Age_g + Educ_g + year_t \cdot \gamma_s + year_t \cdot \theta_j + year_t^2 \cdot \mu_j + \alpha_{s,j} + \delta_t + \varepsilon_{gst}$$

Testing across time periods

- We continue to use data for 1/1979 – 7/2011
- We estimate one model with dummies for recessions: 1980 recession, 2007 recession, rest of period
- We estimate another model with dummies for expansions: 1980 expansion, 2007 expansion, rest of period

	Estimates Across Recessions		
	1980s	2007	p-value
White Men	1.09 (0.03)	1.14 (0.07)	0.47
White Women	0.76 (0.03)	0.76 (0.05)	0.99
Black Men	2.00 (0.09)	2.00 (0.14)	0.99
Black Women	1.45 (0.07)	1.39 (0.09)	0.54
Hispanic Men	1.59 (0.06)	1.72 (0.08)	0.22
Hispanic Women	1.40 (0.05)	1.33 (0.05)	0.38
Age 16 to 19	2.11 (0.11)	2.24 (0.11)	0.17
Age 20 to 24	1.51 (0.04)	1.54 (0.05)	0.41
Age 25 to 44	0.97 (0.03)	1.10 (0.05)	0.01**
Age 45 to 60	0.70 (0.02)	0.85 (0.04)	0.01***
Less than HS	1.74 (0.06)	2.01 (0.09)	0.00***
HS Grad	1.21 (0.03)	1.40 (0.04)	0.00***
Some College	0.80 (0.04)	0.97 (0.04)	0.01***
College Grad	0.37 (0.03)	0.53 (0.04)	0.01***

Table 2: Impact of cycle on subgroup UN rate (percentage points), recessions

- Cross-group patterns similar to raw changes, and similar across this 30 year period
- Coefficients for 2007 larger for most but not all groups (more cyclical)
- Differences over time are very small compared to the persistent differences across groups
- Statistically significantly increase in cyclicality for men (pooling races), older workers, and across ed groups.

	Estimates Across Expansions		
	1980s	2007	p-value
White Men	1.13 (0.04)	0.97 (0.03)	0.00***
White Women	0.76 (0.03)	0.61 (0.03)	0.00***
Black Men	2.14 (0.09)	1.89 (0.10)	0.01***
Black Women	1.58 (0.07)	1.34 (0.06)	0.00***
Hispanic Men	1.69 (0.06)	1.45 (0.05)	0.00***
Hispanic Women	1.31 (0.05)	1.18 (0.05)	0.10*
Age 16 to 19	2.04 (0.09)	2.17 (0.12)	0.08*
Age 20 to 24	1.46 (0.04)	1.41 (0.04)	0.28
Age 25 to 44	1.02 (0.03)	0.99 (0.03)	0.20
Age 45 to 60	0.79 (0.03)	0.79 (0.03)	0.93
Less than HS	1.84 (0.04)	1.86 (0.09)	0.76
HS Grad	1.23 (0.02)	1.30 (0.03)	0.04**
Some College	0.84 (0.03)	0.88 (0.06)	0.44
College Grad	0.39 (0.02)	0.41 (0.04)	0.58

Table 2: Impact of cycle on subgroup UN rate (percentage points), expansions

- Coefficients for 2007 smaller for most but not all groups (weaker response to recovery)

	Estimates Across Recessions		
	1980s	2007	p-value
White Men	-0.88	-1.03	0.21
	(0.08)	(0.14)	
White Women	-0.48	-0.50	0.81
	(0.07)	(0.11)	
Black Men	-1.56	-1.53	0.80
	(0.10)	(0.18)	
Black Women	-1.07	-1.24	0.19
	(0.10)	(0.15)	
Hispanic Men	-1.52	-1.68	0.16
	(0.09)	(0.13)	
Hispanic Women	-0.67	-0.90	0.12
	(0.11)	(0.13)	
Age 16 to 19	-1.44	-1.69	0.05**
	(0.08)	(0.14)	
Age 20 to 24	-1.29	-1.32	0.74
	(0.11)	(0.14)	
Age 25 to 44	-0.80	-0.88	0.48
	(0.06)	(0.12)	
Age 45 to 60	-0.34	-0.61	0.02**
	(0.06)	(0.13)	
Less than HS	-1.14	-1.48	0.01***
	(0.10)	(0.17)	
HS Grad	-0.94	-1.13	0.10*
	(0.08)	(0.12)	
Some College	-0.61	-0.74	0.26
	(0.09)	(0.11)	
College Grad	-0.25	-0.32	0.56
	(0.07)	(0.12)	

Table 3: Impact of cycle on subgroup EMP rate (percentage points), recessions

- Cross-group patterns similar to raw changes, and similar across this 30 year period
- Coefficients for 2007 larger for most but not all groups (more cyclical)
- Differences over time are very small compared to the persistent differences across groups
- Statistically significantly increase in cyclicality for youngest & oldest, low ed groups

	Estimates Across Expansions		
	1980s	2007	p-value
White Men	-0.99	-0.90	0.29
	(0.06)	(0.08)	
White Women	-0.59	-0.34	0.01***
	(0.05)	(0.06)	
Black Men	-1.57	-1.43	0.19
	(0.10)	(0.12)	
Black Women	-1.22	-1.15	0.60
	(0.08)	(0.10)	
Hispanic Men	-1.59	-1.48	0.40
	(0.08)	(0.08)	
Hispanic Women	-0.90	-0.71	0.02**
	(0.10)	(0.09)	
Age 16 to 19	-1.63	-1.56	0.45
	(0.08)	(0.08)	
Age 20 to 24	-1.24	-1.28	0.63
	(0.07)	(0.07)	
Age 25 to 44	-0.83	-0.75	0.33
	(0.04)	(0.08)	
Age 45 to 60	-0.60	-0.50	0.29
	(0.04)	(0.08)	
Less than HS	-1.32	-1.34	0.93
	(0.08)	(0.16)	
HS Grad	-1.01	-0.99	0.81
	(0.05)	(0.06)	
Some College	-0.70	-0.69	0.86
	(0.06)	(0.05)	
College Grad	-0.28	-0.16	0.14
	(0.04)	(0.06)	

Table 3: Impact of cycle on subgroup EMP rate (percentage points), <u>expansions</u>

- Coefficients for 2007 smaller for most groups (weaker response to recovery)
- Statistically significant changes for white women, Hispanic women,

	Estimates Across Recessions			Estimates Across Expansions		
	1980s	2007	p-value	1980s	2007	p-value
White Men	-0.016 (0.002)	-0.022 (0.002)	0.02**	-0.017 (0.002)	-0.021 (0.001)	0.06*
White Women	-0.004 (0.005)	-0.012 (0.004)	0.04**	-0.008 (0.004)	-0.006 (0.002)	0.65
Black Men	-0.027 (0.003)	-0.035 (0.004)	0.04**	-0.029 (0.004)	-0.034 (0.003)	0.11
Black Women	-0.016 (0.006)	-0.023 (0.005)	0.14	-0.020 (0.006)	-0.019 (0.003)	0.74
Hispanic Men	-0.025 (0.003)	-0.031 (0.003)	0.06*	-0.026 (0.003)	-0.030 (0.002)	0.16
Hispanic Women	-0.007 (0.007)	-0.020 (0.006)	0.04**	-0.013 (0.007)	-0.012 (0.003)	0.89
Age 16 to 19	-0.031 (0.011)	-0.137 (0.027)	0.00***	-0.073 (0.014)	-0.101 (0.025)	0.26
Age 20 to 24	-0.024 (0.004)	-0.046 (0.007)	0.00***	-0.033 (0.004)	-0.044 (0.005)	0.04**
Age 25 to 44	-0.014 (0.002)	-0.019 (0.003)	0.10*	-0.015 (0.003)	-0.017 (0.002)	0.42
Age 45 to 60	-0.009 (0.002)	-0.013 (0.003)	0.19	-0.010 (0.003)	-0.010 (0.002)	0.95
Less than HS	-0.018 (0.005)	-0.056 (0.012)	0.00***	-0.030 (0.006)	-0.044 (0.010)	0.15
HS Grad	-0.019 (0.003)	-0.030 (0.005)	0.03**	-0.021 (0.003)	-0.026 (0.003)	0.16
Some College	-0.017 (0.002)	-0.021 (0.004)	0.28	-0.016 (0.003)	-0.019 (0.002)	0.40
College Grad	-0.009 (0.002)	-0.010 (0.002)	0.51	-0.008 (0.002)	-0.008 (0.002)	0.99

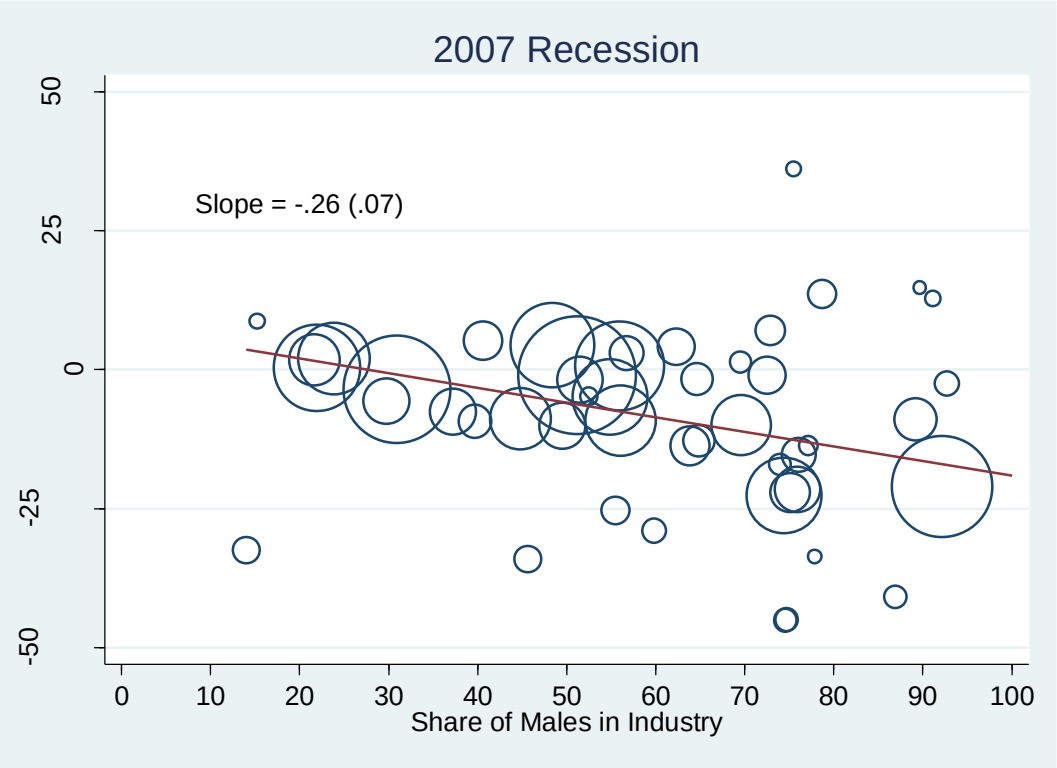
Table 3: Impact of cycle on subgroup earnings (percent impacts of 1 pp increase in UN rate)

- More changes across recessions

Summary of findings

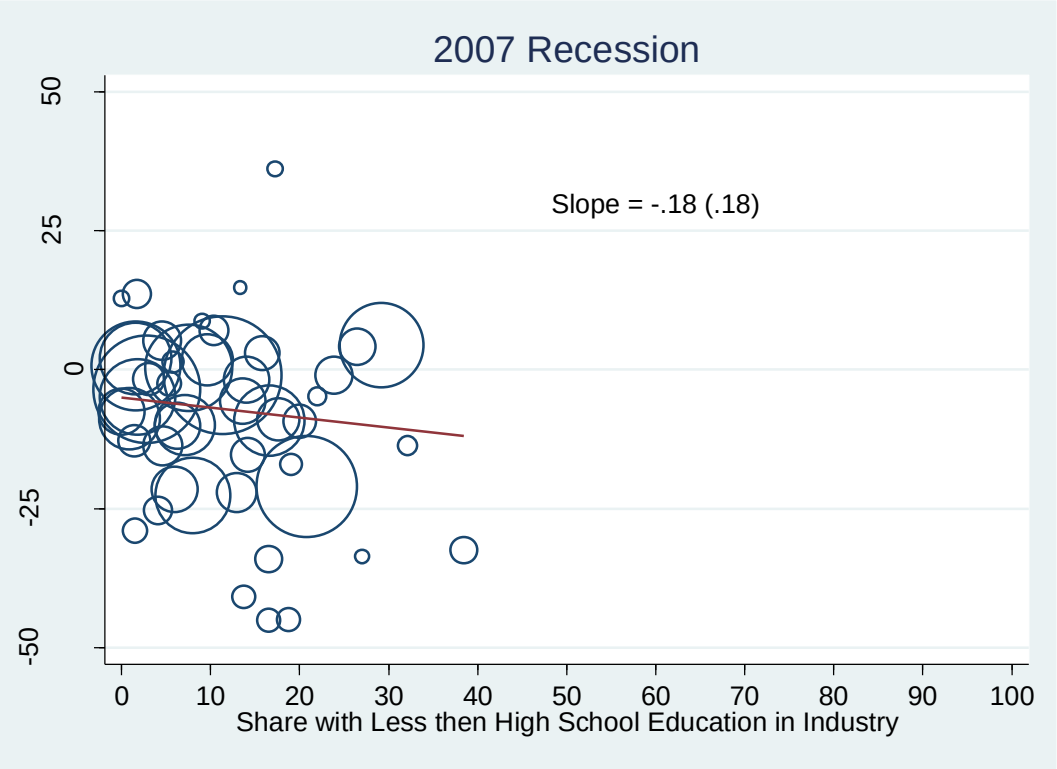
- 2007 recession deeper and longer than 1980s recession; recovery much weaker
- Impacts of the Great Recession are not uniform across groups: men, blacks, Hispanics, youth and low education groups are more cyclical. These SES differences are large.
- These differences across demographic groups are remarkably stable over this 30 year period, and across recessions and expansions.
- Any changes over time are small relative to the baseline differences across groups. Amazing given the changes in the economy over this period (increase in female emp, increase in Hispanics, decline of manufacturing)
- These results are evident in the raw changes and the state panel data model. Given the important differences in these methodological approaches, we interpret their similarity as evidence of the robustness of the findings.

Illustration of differences by gender



- Industries with a greater share male, experience larger reduction in employment (true for women and men in these industies)
- Very similar pattern in 1980 recession

Illustration of differences by education (HS dropout)



- Industries with a greater share HS dropout, experience larger reduction in employment (true for women and men in these industies)
- Very similar pattern in 1980 recession