The Effects of Exposure to a Large-Scale Recession on Higher Education and Early Labor Market Outcomes

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Introduction

Motivation
- Recessions could either increase or decrease an individual's human capital attainment.
- Overall effects and dominant mechanisms could differ by age at the time of the recession.

What we do
- Study the effect of timing of exposure to a large-scale recession on educational attainment and early labor market outcomes
- Exploit variation in age at exposure and regional labor market shocks from the 1997–98 Asian financial crisis in South Korea

Contributions
- Examine age-differential effects using 20+ birth cohorts
- Examine education and labor market outcomes in a unified setting
- Provide evidence on various dimensions to explore behavioral responses and possible mechanisms

Background & Data

1997–98 Asian financial crisis (AFC) in South Korea

- A sharp and deep economic downturn starting in 1997
- The worst recession since the 1950–53 Korean War

- Regional variation in recession severity (increase in regional unemployment rate during 1997–99, ΔUR_r^{97-99}) due to disparities in industrial structure, concentration of SMEs, and temporary workers

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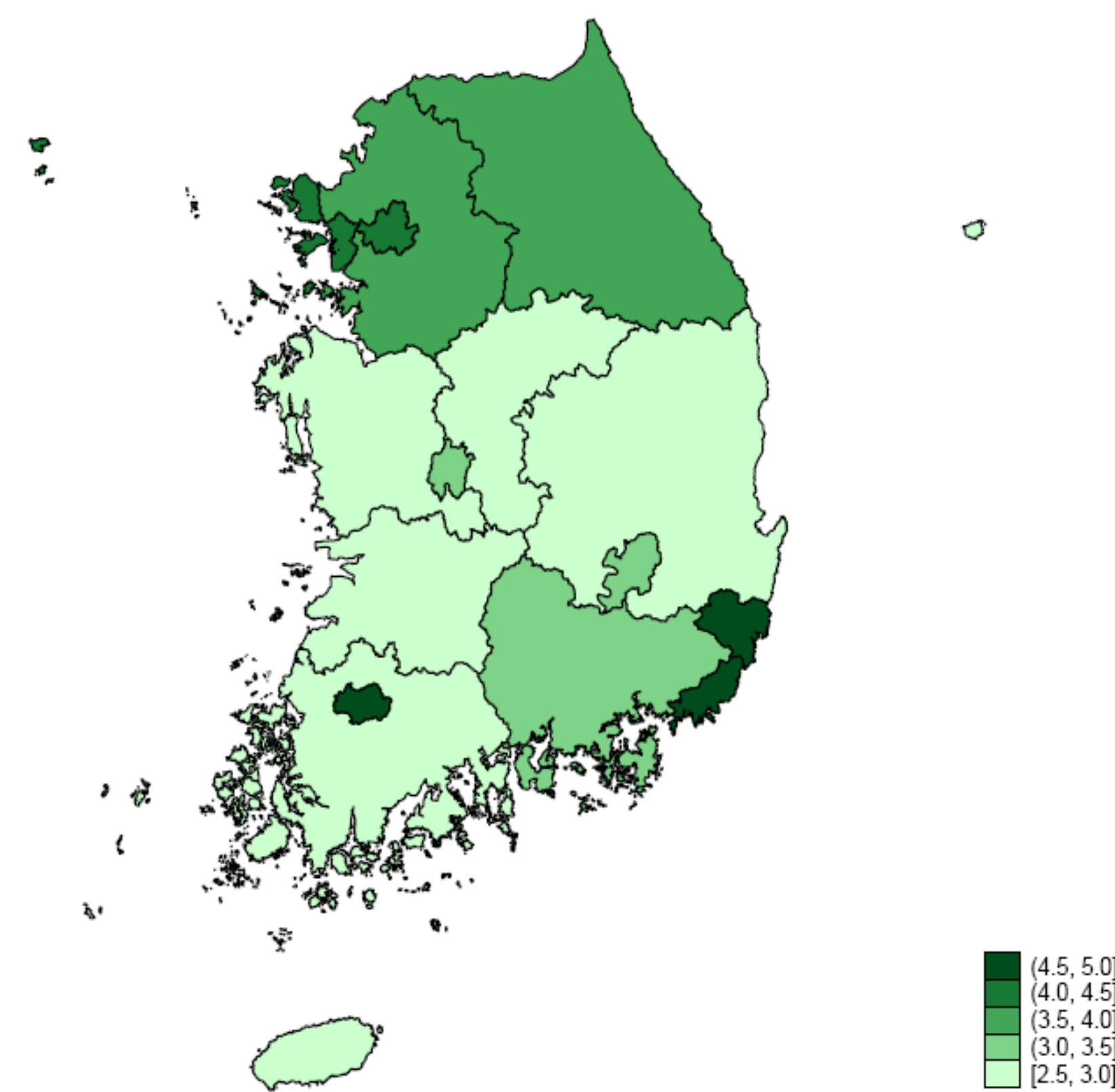
Data and sample

1. Census
- Quinquennial survey collecting info on population, households, and housing characteristics
- Sample: birth cohorts 1968–1996 from 2020 Census 2% sample (N = 369, 816)

2. Youth Panel (YP) 2001 & 2007
- Yearly longitudinal data on a representative sample of youths in South Korea
- Sample: birth cohorts 1972–1996 (N = 13, 878)

Empirical Strategy: Extended DID

$$y_i = \sum_{c<29} \beta_c AFC_r \times 1[\text{Age in 1997} = c] + X_i'\gamma + \delta_c + \lambda_r + \varepsilon_i$$

- y_i: outcome of person i (who was c years old in 1997 and born in region r)
- $AFC_r \equiv \Delta UR_r^{97-99}$: recession severity in region r
- X_i: person i's predetermined characteristics
- δ_c: cohort fixed effects
- λ_r: region fixed effects
- β_c: effect of $AFC_r \equiv \Delta UR_r^{97-99}$ on individuals age c in 1997 relative to the reference group
  - Census sample: 29-year-olds in 1997 (1968 birth cohort)
  - YP sample: 25-year-olds in 1997 (1972 birth cohort)
 - If $\beta_c < 0$, any (−) estimated effects are lower bound estimates

Source of identification: variation in recession severity within cohorts across regions

Identifying assumption: parallel cohort trends across regions without the recession induced by the AFC

Paper available at https://ssrn.com/abstract=4465692

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Results

College education

A. Attendance   B. Graduation
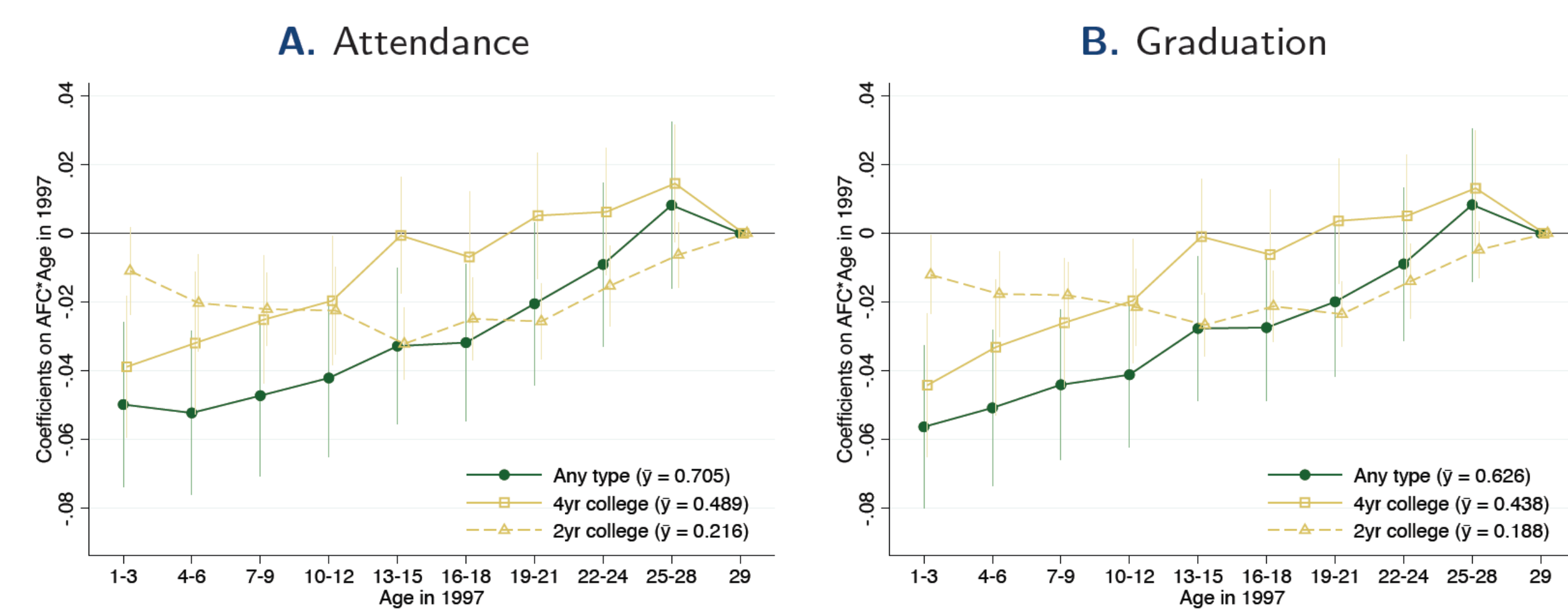
- (−) effects on college enrollment and graduation
- Larger effects on those exposed to AFC at younger ages (under age 13)
- Mainly driven by reduction in 4-year college education

College major choice (among college attendees)

	Humanities (1)	Social sci. (2)	STEM (3)
$AFC \times 1[\text{Age in 1997} = 1–12]$	−0.101*	−0.025	0.062
	(0.039)	(0.038)	(0.048)
$AFC \times 1[\text{Age in 1997} = 13–24]$	−0.075*	−0.010	0.050
	(0.038)	(0.037)	(0.047)
Adjusted R^2	0.032	0.010	0.106
N	10,976	10,976	10,976
Dependent variable mean	0.116	0.234	0.409

- Humanities and social sciences ↓, STEM ↑ (although insig.)
- No differential effect by age at exposure

Early labor market outcomes

A. Ever employed   B. Log monthly earnings
C. Firm size ≥ 300   D. White collar job
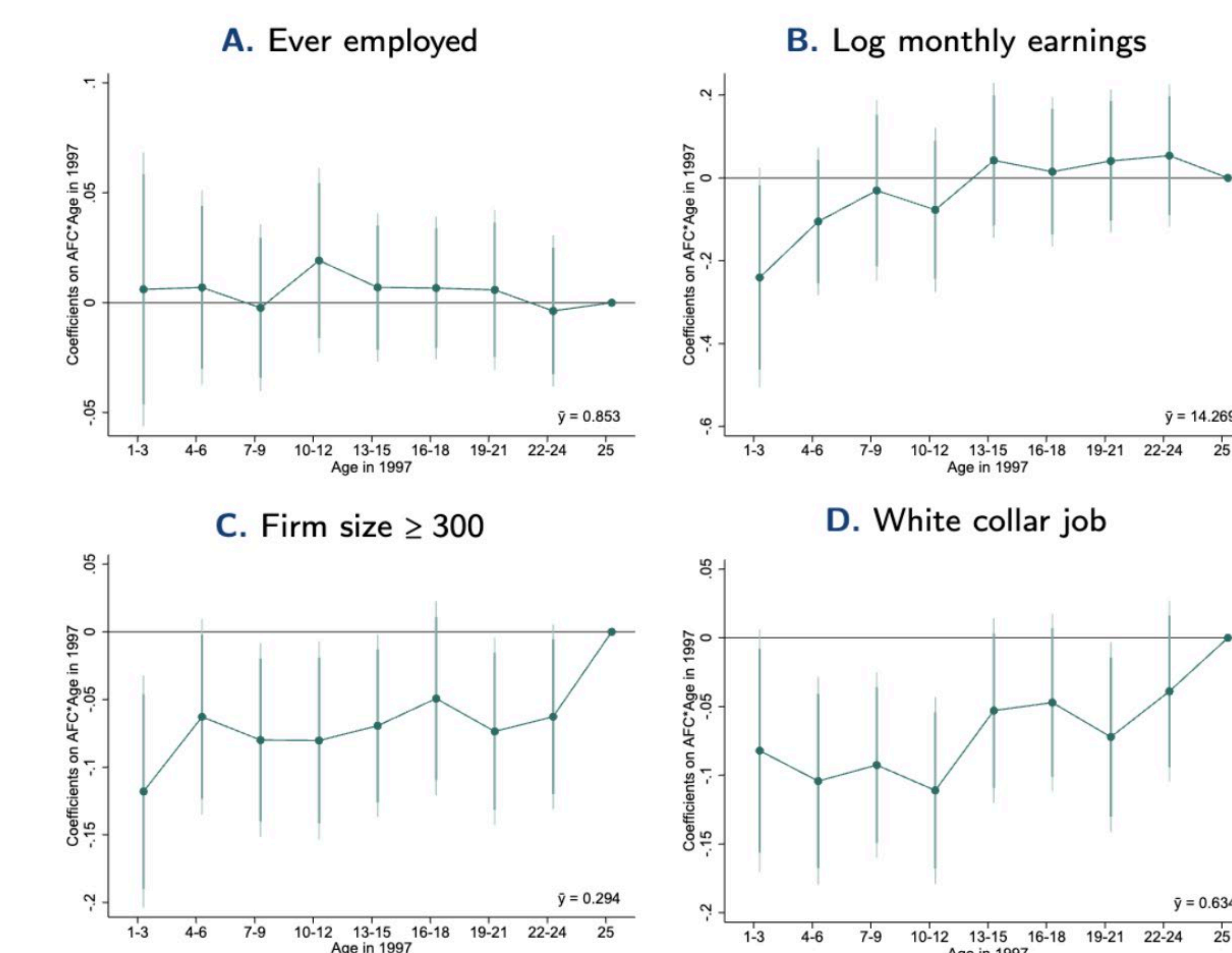
- No effect on employment probability
- (−) effects on quality of first job (earnings, firm size, white collar status)

Possible Mechanisms

Negative recession effect
1. Household credit constraints (rejected)
   - No heterogeneous effect by parental education
   - No reduction in parental monetary investment (e.g. private out-of-school education spending)
2. Non-monetary factors: family instability
   - A slight increase in parental divorce due to AFC
   - Across regions, corr(AFC shocks, Δdivorce rate due to financial reasons) > 0
3. Decline in community-level inputs: quality of neighborhoods or schools
   - Across regions, corr(AFC shocks, Δgovernment spending per capita on K–12 education) < 0

Age-differential effect
- Lack of labor market substitution effect for individuals not old enough to work
- Younger ages may be critical periods in human capital development
- Differences in the duration of exposure to aftereffects of AFC

Summary

Magnitude of the estimates (relative to $\bar{y}$): ΔUR_r^{97-99} ↑ by 1 SD leads to:

	Col attend	Col grad	Earnings	White collar	Large firm
1–12 yr olds in 97	−5.4%	−6.1%	−7.8%	−11.5%	−21.6%
13–24 yr olds in 97	−2.6%	−2.7%	no effect	−6.2%	−16.2%