Gainfully Employed? Assessing the Employment and Earnings of For-Profit College Students Using Administrative Data

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Motivation

- Enormous growth in enrollment in for-profit higher education
  - Currently, more than 1.5 million students (NCES 2015)
- Renewed attention of policymakers
  - Federal investigations and loss of aid for specific colleges
    - Closures of Corinthian & ITT Tech
    - ACICS stripped of accreditation authority
  - DoEd "Gainful Employment" (GE) regulations (2014)
    - Restrict eligibility for aid to programs based on loan payment-to-earnings ratios of graduates
- Ongoing debates over:
  - Defunding/delaying/repealing GE
  - Loan forgiveness for former students
  - Altering accreditation standards with reauthorization of HEA

Motivation

- Limited evidence on the earnings gains to for-profit attendance
  - Cellini & Chaudhary (2014), Deming, Goldin & Katz (2012), Lang & Weinstein (2012, 2013), Jepsen & Mueser (2016)
  - Most based small samples of young workers from survey data or a single state
  - Generally find (with some exceptions):
    - One year of associate's degree or certificate program in FP generates small positive earnings gain = 2-7% per year of ed.
    - Similar or lower earnings relative to public community college students
      - "CAPSEE consensus" $1,500 per quarter for public AA degree completers relative to non-completers (Belfield 2017)

Overview

- New administrative data from the DoEd on all federally-aided students who exited "gainful employment" (GE) programs in 2006-08, merged with longitudinal tax records from the IRS.

- What are the private earnings gains (returns) to for-profit college attendance?
  - 1.4 million for-profit students in AA, BA, MA, and certificate programs.
    - Before-after earnings gain from attendance
  - For certificate students:
    - Can compare gains to those of public sector certificate students in diff-in-diff. Can compare fields of study.
  - Compare annual earnings gains to estimates of annual debt payment.

- Findings: For-profit students are not-so-gainfully employed.

Data

- **Department of Education GE Data**
  - Very close to the universe of federally-aided FP students (all degrees) and public certificate students who complete or withdraw in academic years 2006-07 and 2007-08.
    - Degree program (AA, BA, MA, or certificate)
    - Field of study/major (6-digit CIP code)
    - Program completion
    - Start & end dates
    - Student loan debt at exit
  - Excludes students who re-enroll in GE programs within 3 years, regionally accredited liberal arts programs open since 2007, and non-Title IV students.

Data

- **U.S. Treasury (IRS) Data**
  - Panel of annual earnings data 1999-2014 merged by SSN
    - On average: 6 years pre-education & 6 years post-education
  - W2, 1040, Schedule SE
    - Earnings
    - Zipcode
    - Marital status
    - Number of dependents
    - Age
  - 1098-T
    - Tuition paid at an high ed institution

Estimation

For AA, BA, and MAs:

$$y_{it} = \beta_0 + \beta_1(Post_{it}) + d_t + d_a + d_i + \varepsilon_{it}$$

For Certificates:

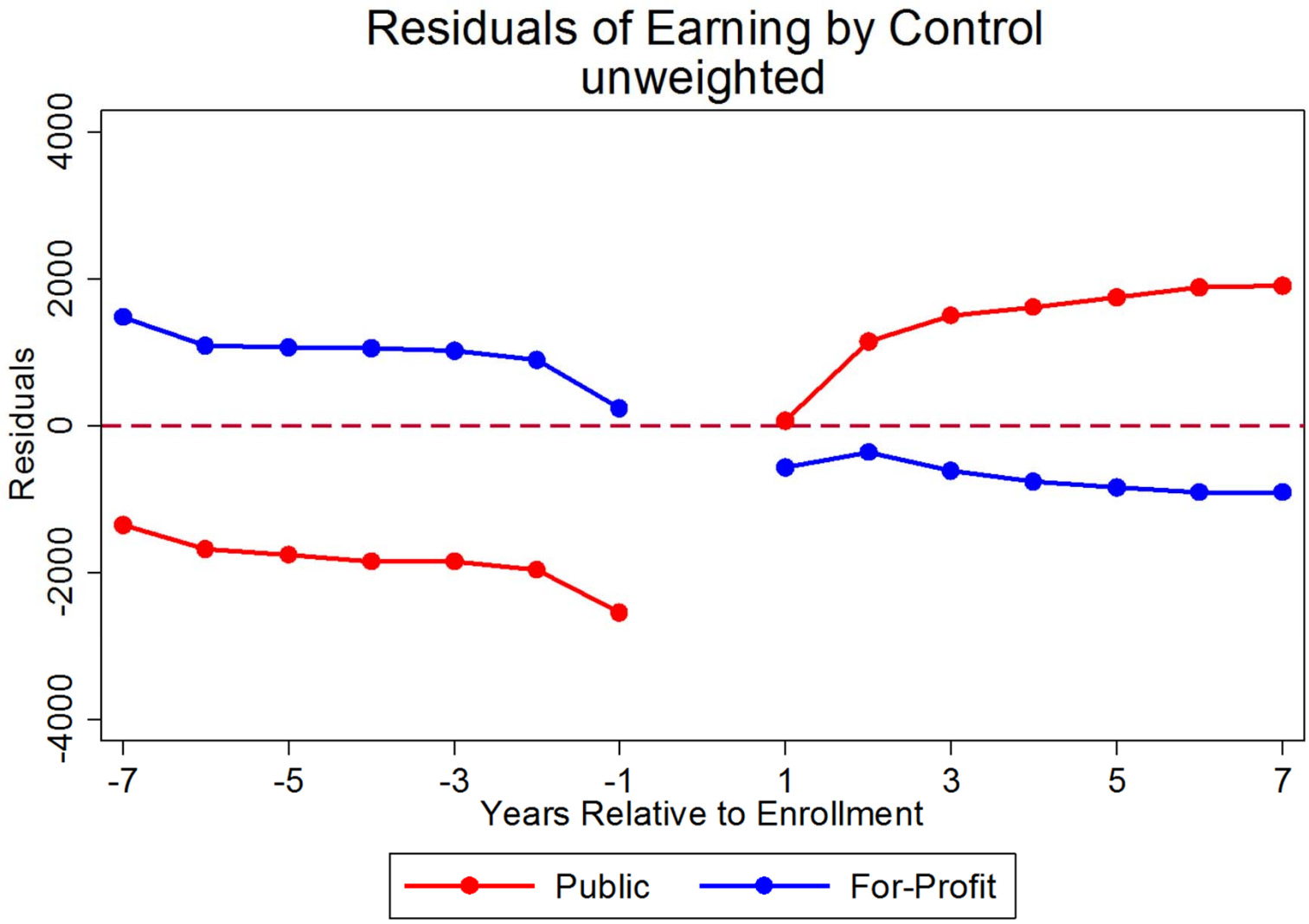
$$y_{it} = \alpha_0 + \alpha_1(Post_{it}) + \alpha_2(Post_{it} * ForProfit_{it}) + d_t + d_a + d_i + \varepsilon_{it}$$

- y_{it} = ln(annual earnings), annual earnings in $, or 0/1 employ
- *Post* = 1 in year after exit and thereafter
- d_t = calendar year FE
- d_a = age FE
- d_i = individual FE
- St. errors clustered at state-year level

Estimation

- For AA, BA, and MA students:
  - Single difference can control for time invariant unobservables of students
  - Cannot control for effects of the Great Recession
- For Certificate students:
  - Diff-in-diff can net out recessionary effects, but concerns remain about selection into college and fields of study
    - Differential pre-period earnings trends
    - Ashenfelter's dip
    - Time-varying unobservables
    - Traditional students with no pre-earnings dropped
  - Add inverse probability weights for public students
    - Field of study and demographics (age, married, kids)

Pre-Enrollment Trends



Results

Single-Difference Results: AA students

Table 2. Employment and Earnings Effects of For-Profit Degree Students

A. Associate's Degree	(1) Employment	(2) Annual Earnings ($)	(3) Ln Annual Earnings
Post-Education	-0.008** [0.002]	-697** [133]	-0.015 [0.008]
Observations	5,159,673	5,159,673	4,392,945
Individuals	438,965	438,965	435,952

Mean pre-period employment = .85
Mean pre-period earnings = $14,300

Single Difference Results: BA & MA Students

B. Bachelor's Degree

	Employment	Annual Earnings ($)	Ln Annual Earnings
Post-Education	-0.012**	-593**	-0.039**
	[0.002]	[173]	[0.008]
Observations	3,286,449	3,286,449	2,924,476
Individuals	279,795	279,795	278,260

Mean employment BA = .89
Mean earnings BA = $23,000

C. Master's Degree

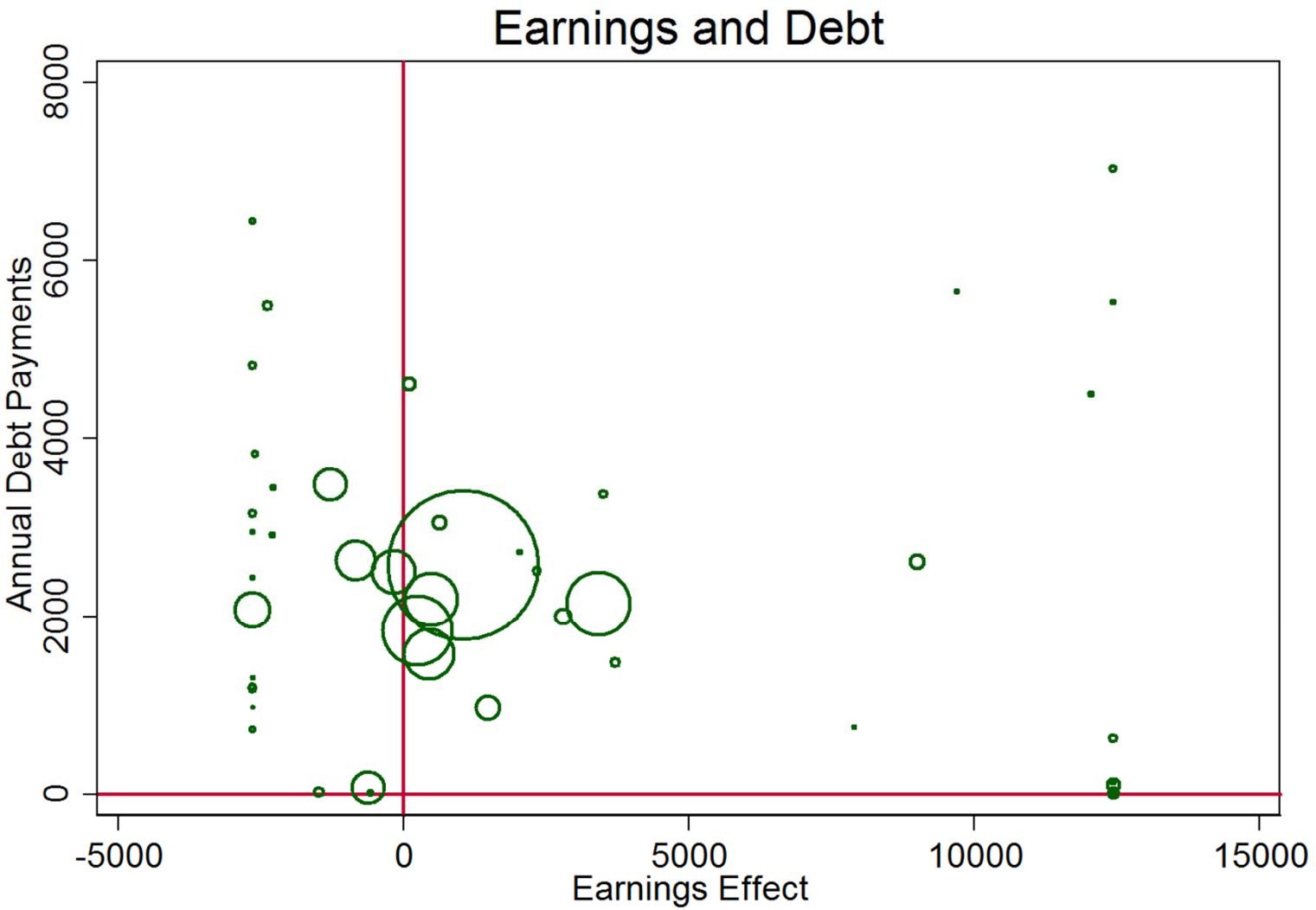
	Employment	Annual Earnings ($)	Ln Annual Earnings
Post-Education	-0.006	946**	0.003
	[0.003]	[267]	[0.013]
Observations	1,463,357	1,463,357	1,369,711
Individuals	115,548	115,548	115,278

Mean employment MA = .93
Mean earnings MA = $36,000

Earnings & Debt by School: AA Degrees

Earnings & Debt by School: BA Degrees

Earnings & Debt by School: MA Degrees



Diff-in-Diff Results for Certificate Students, Weighted Full Sample

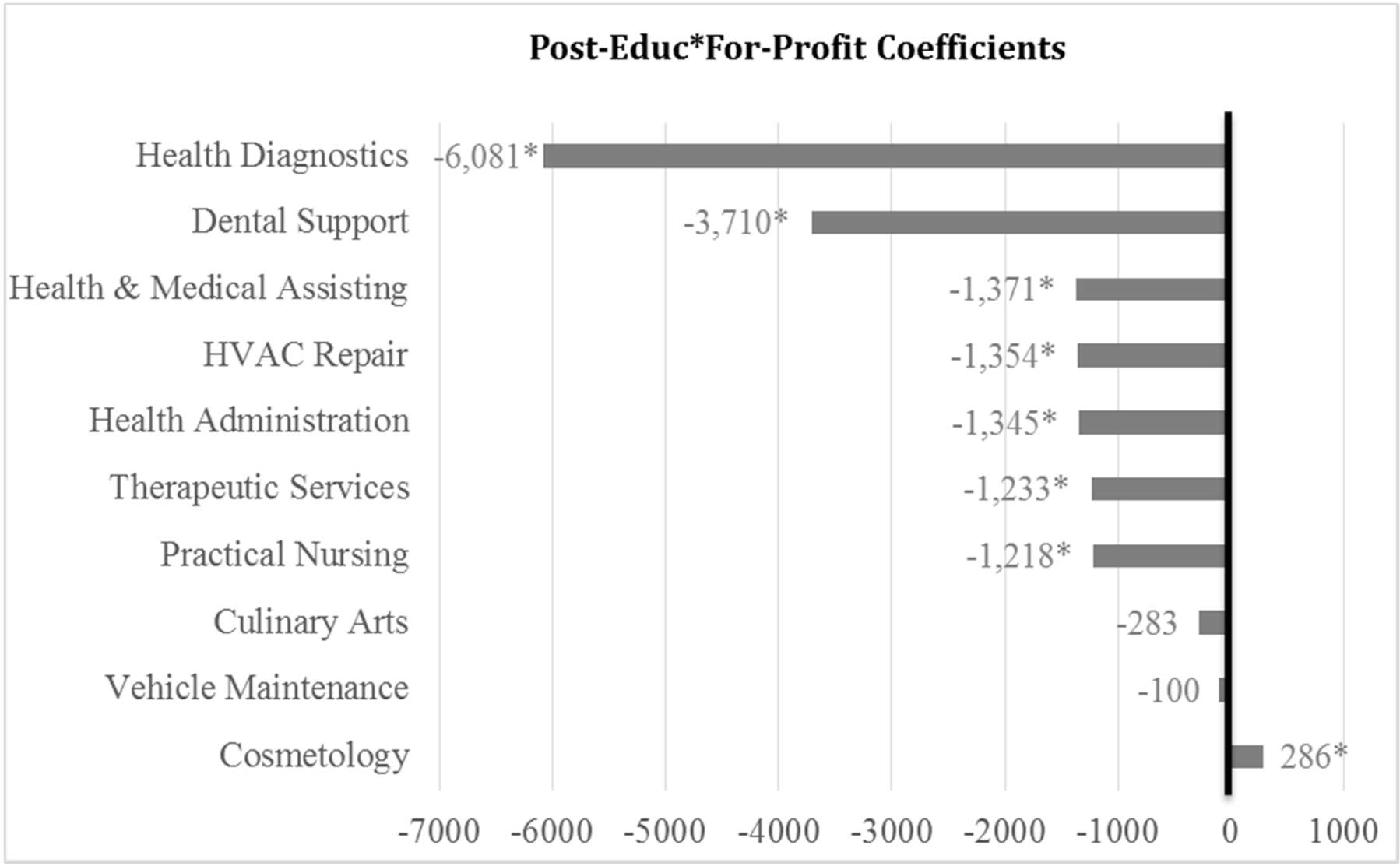
	Employment	Annual Earnings ($)	Ln Annual Earnings
	(1)	(2)	(3)
Post-Education	-0.007	1,544**	0.105**
	[0.004]	[263]	[0.015]
Post-Educ*For-Profit	0.020**	-2,463**	-0.107**
	[0.003]	[198]	[0.008]
Total Effect	0.013**	-919**	-0.002
	[0.003]	[225]	[0.014]
Observations	9,895,377	9,895,377	8,195,795
Individuals	844,715	844,715	838,196

Mean employment FP cert = .80
Mean earnings FP cert = $12,500

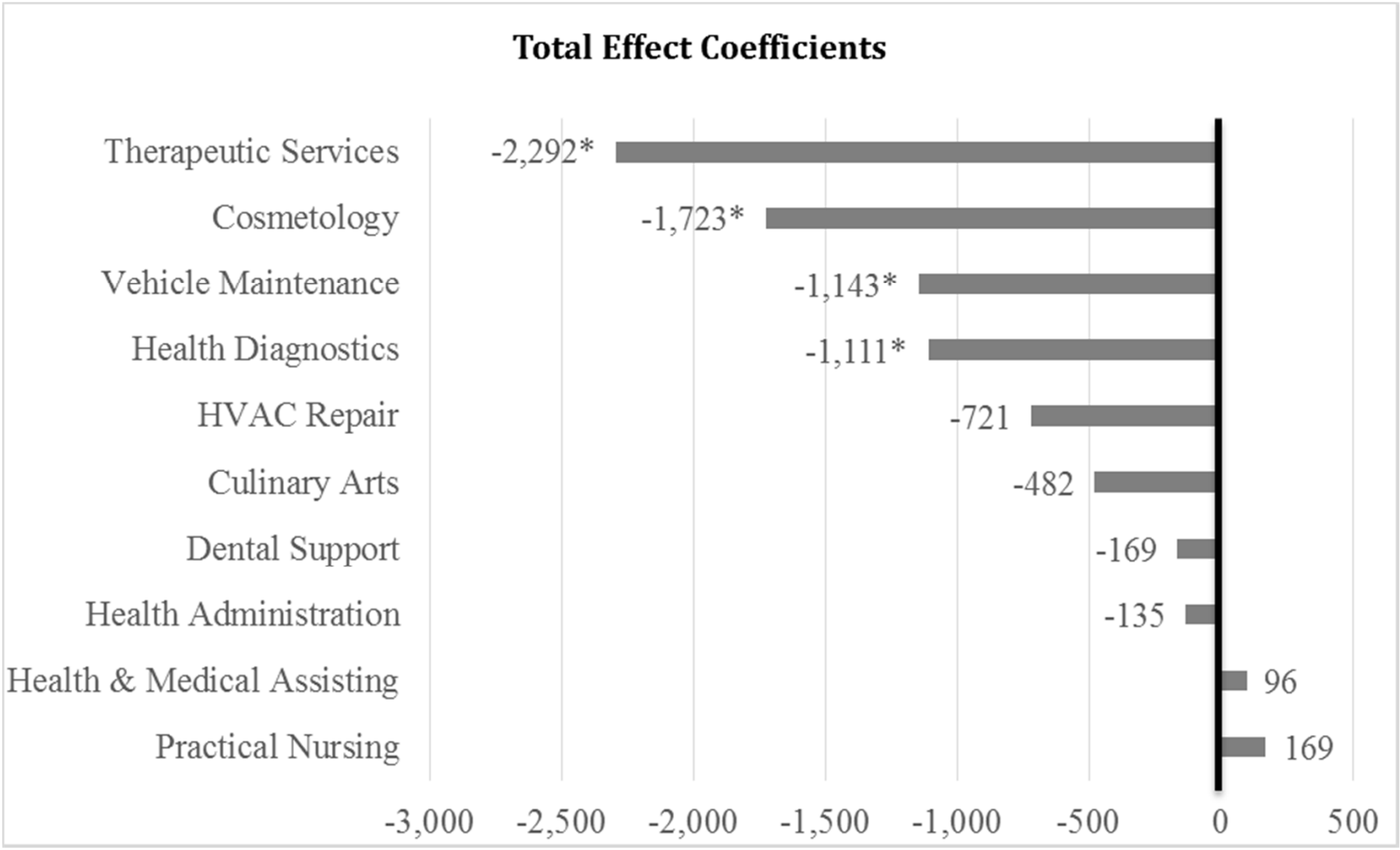
Diff-in-Diff Certificate Students, by Completion

	Employment	Annual Earnings ($)	Ln Annual Earnings
	(1)	(2)	(3)
A. Graduates			
Post-Education	0.042**	4,510**	0.291**
	[0.007]	[220]	[0.014]
Post-Educ*For-Pro	0.022**	-3,192**	-0.141**
	[0.004]	[151]	[0.008]
Total Effect	0.064**	1,319**	0.150**
	[0.006]	[191]	[0.013]
Observations	5,161,183	5,161,183	4,346,561
Individuals	450,274	450,274	445,294
B. Drop-Outs			
Post-Education	-0.009**	1,212**	0.055*
	[0.004]	[400]	[0.026]
Post-Educ*For-Pro	-0.010**	-3,308**	-0.143**
	[0.004]	[307]	[0.012]
Total Effect	-0.020**	-2,096**	-0.089**
	[0.003]	[348]	[0.025]
Observations	4,734,194	4,734,194	3,849,234
Individuals	406,607	406,607	402,899

Relative Returns ($ Earnings) to For-Profit Certificates, by Field

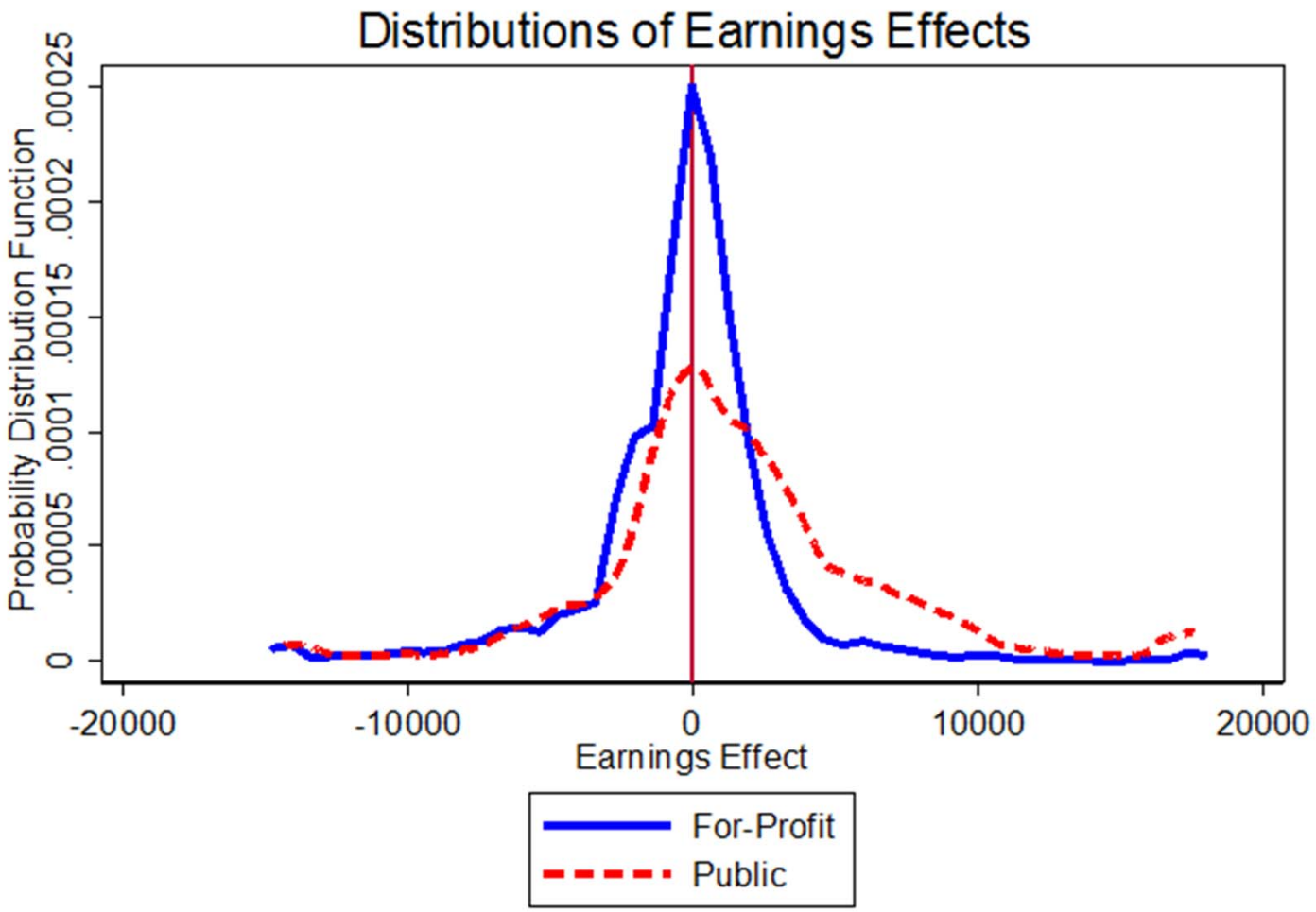


Absolute Returns ($ Earnings) to For-Profit Certificates, by Field

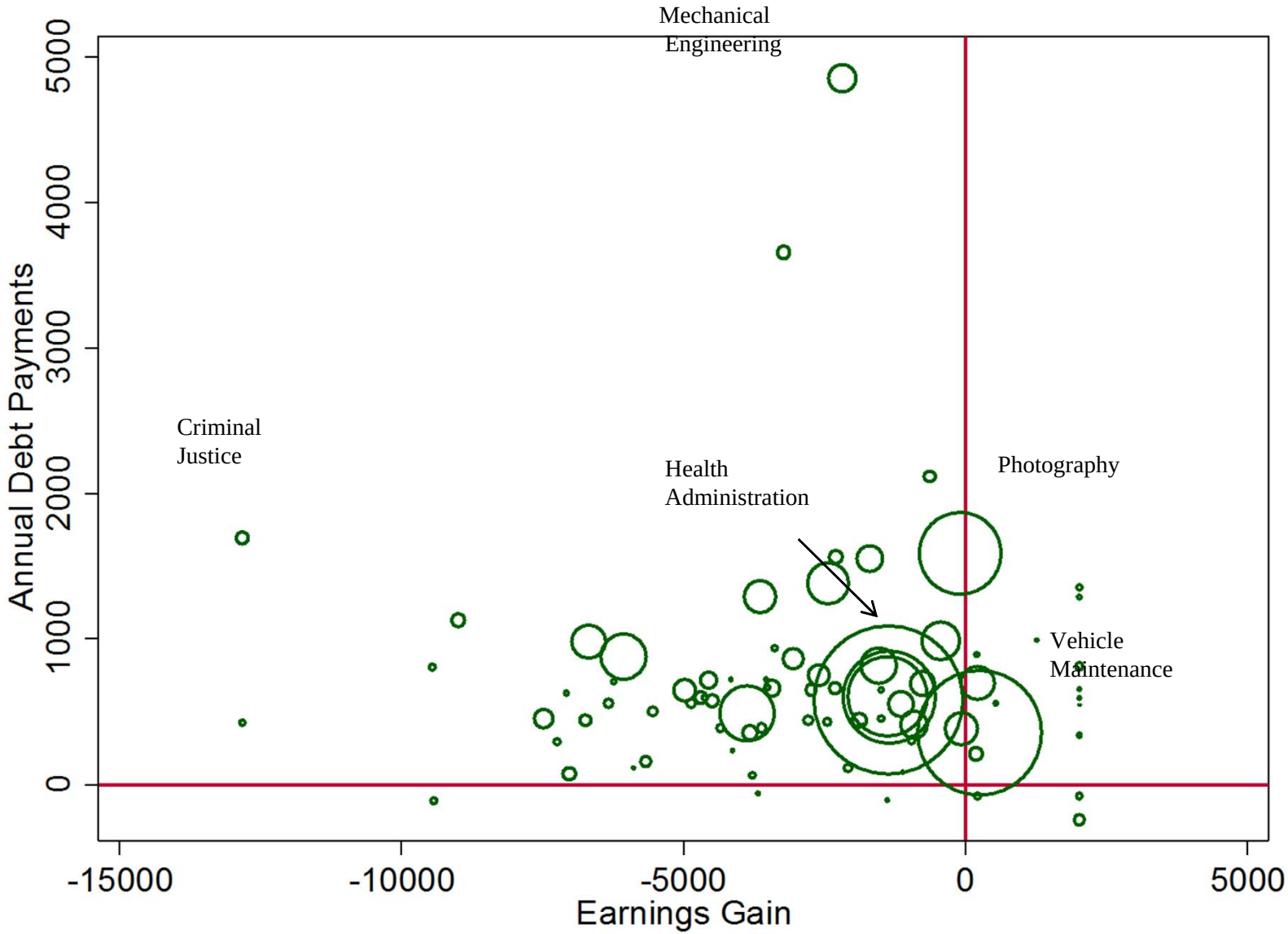


PDF of School-Level Earnings Effects ($)

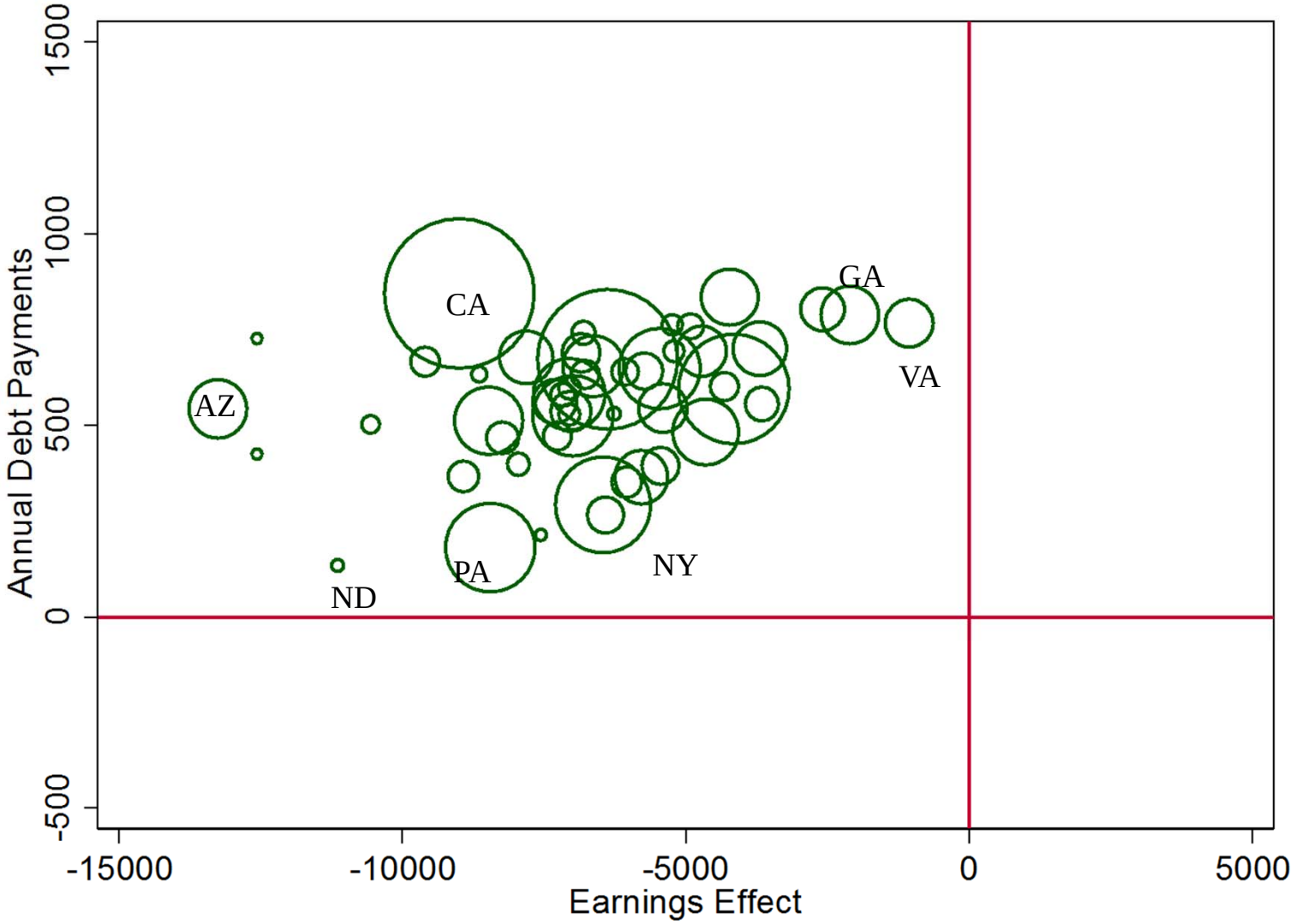
$\gamma_{j,1}$ for all j with N>=30 students



Relative Returns ($) and Debt, by CIP4



Relative Returns and Debt, by State



Diff-in-Diff Certificate Students, by Online FP

	Online = 1	Online = 0
A. Online		
Post-Education	1,219*	1,501**
	[487]	[288]
Post-Educ*For-Profit	-4,090**	-2,508**
	[235]	[199]
Total Effect	-2,870**	-1,007**
	[528]	[263]
Observations	3,409,644	7,872,483
Individuals	287,128	669,296

Summary of Results

- Students in AA and BA programs in for-profits:
  - Experience a small decline in earnings after attendance (-$500)
  - Likely a lower bound, due to the Great Recession
- Students in MA programs in for-profits:
  - Experience a small positive earnings gain (+$900)
- In relative terms, for-profit certificate students:
  - See slightly higher probability of employment than public sector (+2 pp)
  - Experience lower earnings than public students (-$2,400), except in cosmetology
- In absolute terms, for-profit certificate students experience:
  - Slightly higher probability of employment (+1 pp)
  - Lower earnings after attendance (-$920)
  - Graduates (60%) see positive earnings gains (+$1,300)
  - Dropouts (40%) see negative returns (-$2,100)

Discussion

- Completion appears to matter, but we do not control for endogeneity.
- Field of study matters, but need to look at differential completion within fields.
- Not just a few “bad apple” schools.

- What about Benefits – Costs? Still more to do, but…
  - For most fields and degrees, annualized debt payment is higher than annual gains in earnings (which are close to zero or negative).
  - Benefits-costs for students appear higher in the public sector.

- Still to do:
  - Additional weighting/matching, particularly on geography
  - Construct a non-college control group (young workers only)

Implications for Policy & Research

- Why are students choosing FPs over CCs? More research needed!
  - Capacity constraints? Specialized programs?
  - Lack of information? Aggressive recruiting?
  - Will students switch to CCs if for-profits close? (Yes! With Darolia, & L. Turner)
- Supports additional investment in public community colleges.
- Gainful employment and other accountability measures may be warranted:
  - Emphasize high completion rates and target specific fields
  - Revise accreditation standards to focus on outcomes
  - Consider risk-sharing proposals (Akers 2016, Webber 2017)

Thanks!

Summary Stats, Degree Students

Table 1. Summary Statistics, For-Proft Degree Students

	Associate's Degree		Bachelor's Degree		Master's Degree	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	mean	sd	mean	sd	mean	sd
Age	27.6	8.36	29.7	8.84	34.7	8.35
Male	0.40	0.49	0.46	0.50	0.35	0.48
Married	0.24	0.43	0.33	0.47	0.48	0.50
Has children	0.54	0.50	0.51	0.50	0.51	0.50
Number of children (if >0)	1.76	0.88	1.79	0.90	1.81	0.89
Pre-enrollment earnings ($)	14,317	13,939	23,177	21,646	35,876	26,976
Pre-enrollment employment	0.85	0.27	0.89	0.24	0.93	0.19
Observations	5,159,673		3,286,449		1,463,357	
Individuals	438,965		279,795		115,548	
Institutions	473		162		69	

Summary Statistics, Certificate Students

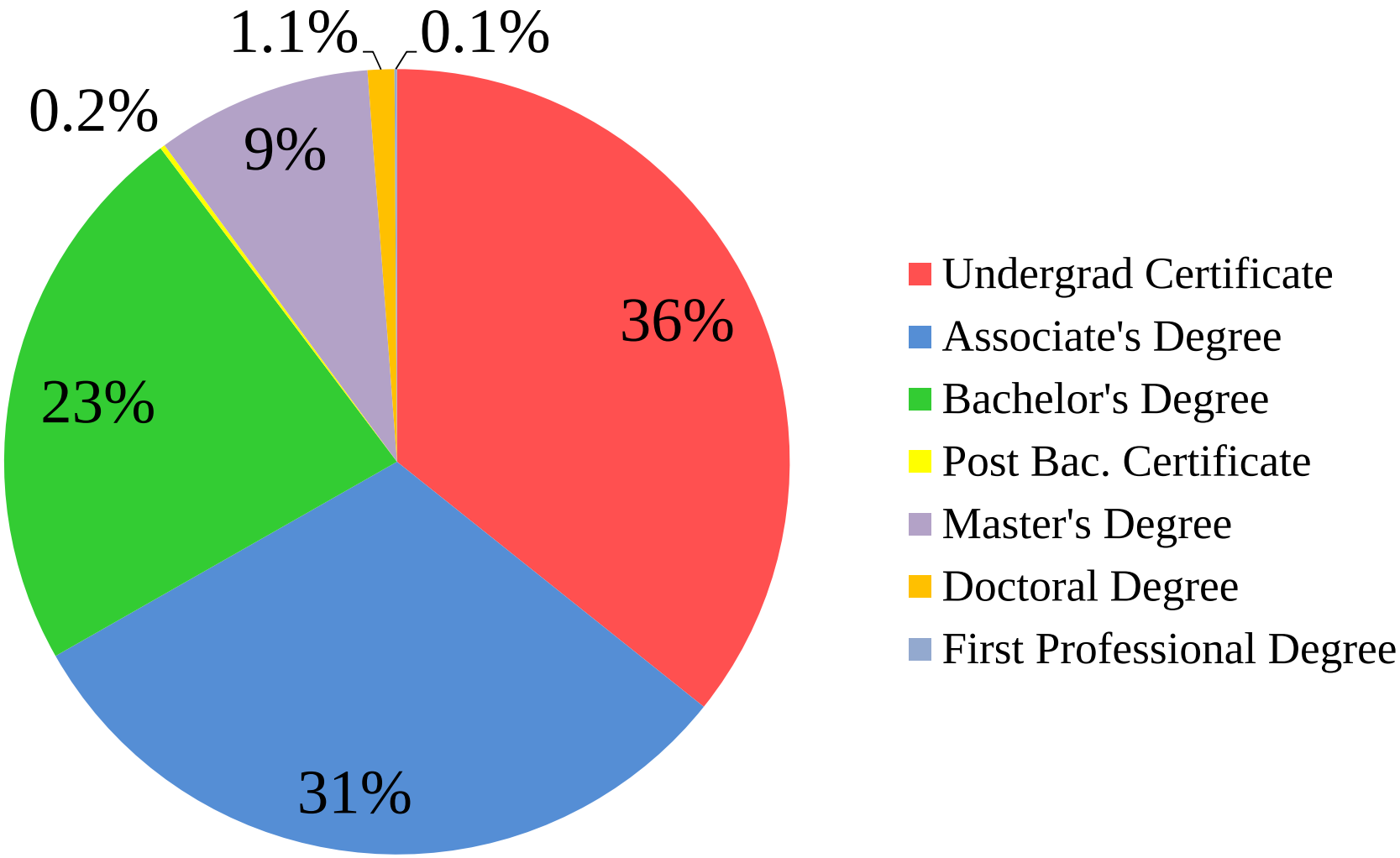
Table 5. Summary Statistics, Certificate Students

	For-Profit		Unweighted Public		Weighted Public	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	mean	sd	mean	sd	mean	sd
Age	27.7	7.78	29.2	8.45	28.3	7.96
Male	0.29	0.46	0.37	0.48	0.31	0.46
Married	0.20	45.00	0.29	0.45	0.22	0.52
Has children	0.62	0.48	0.57	0.49	0.60	0.49
Number of children (if >0)	1.75	0.67	1.79	0.88	1.77	0.88
Pre-enrollment earnings ($)	12,546	14,514	16,293	17,779	14,541	15,862
Pre-enrollment employment	0.80	0.40	0.85	0.35	0.85	0.36
Observations	6,595,978		3,299,399		3,299,399	
Individuals	566,671		278,044		278,044	
Institutions	1,666		1,283		1,283	

Robustness Check: Adding State*Year Effects

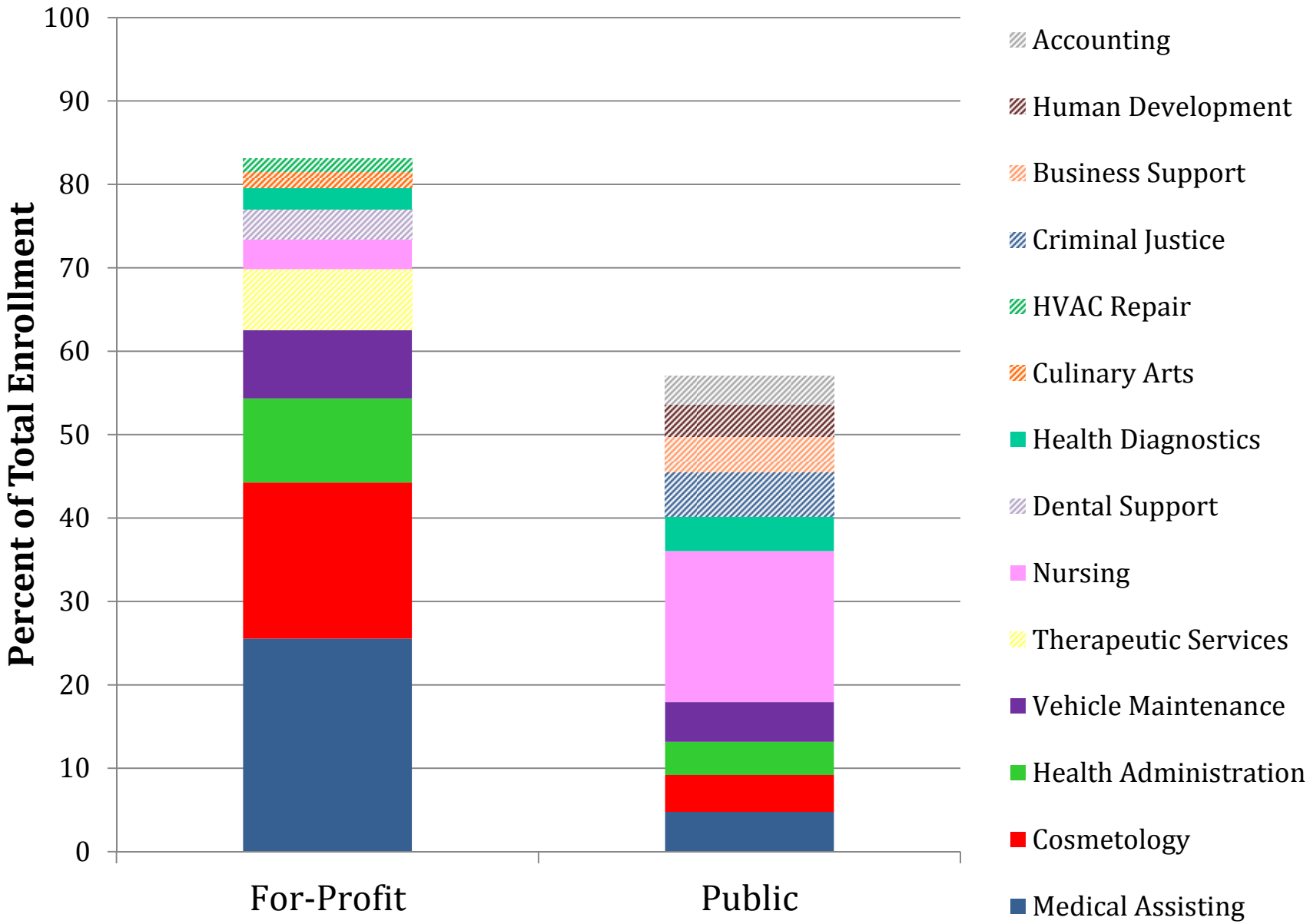
	Baseline Earnings ($)		State*Year Fixed Effects	
	Unweighted	Weighted	Unweighted	Weighted
	(1)	(2)	(5)	(6)
Post-Education	3,926**	1,544**	4,401**	2,165**
	[371]	[263]	[340]	[251]
Post-Educ*For-Profit	-5,555**	-2,463**	-6,346**	-3,397**
	[276]	[198]	[213]	[168]
Total Effect	-1,629**	-919**	-1,945**	-1,231**
	[316]	[225]	[305]	[224]
Observations	9,895,377		9,895,377	
Individuals	844,715		844,715	

Distribution of For-Profit Programs



SOURCE: Authors' tabulations of DoEd GE data, 2008

Top 10 Fields of Study, by Sector



NPSAS 2008: Certificate Student Characteristics, by Aid Status and Sector

	Title IV Students		Non-Title IV Students	
	Public	For-Profit	Public	For-Profit
A. Demographics				
Age as of 12/31/07	28.1	26.4	32.6	26.6
Independent (%)	73.2	69.5	74.0	60.0
Female (%)	71.2	73.0	44.5	77.2
Married (%)	27.9	24.1	35.8	24.2
Non-White Race/Eth (%)	55.3	58.5	37.8	48.1
Single Parent (%)	37.3	32.6	20.2	22.1
B. Income and Work				
Parents' income if dependent ($)	45,638	43,296	78,554	82,808
Hours worked per week while in school	23.8	19.9	27.4	17.5
Earnings from work while enrolled ($)	8,604	7,700	15,834	7,500