

Do students benefit from going backward?  
The academic and labor market  
consequences of four to two-year transfer

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2016 AIR Forum

June 1<sup>st</sup>, 2016

# Overview

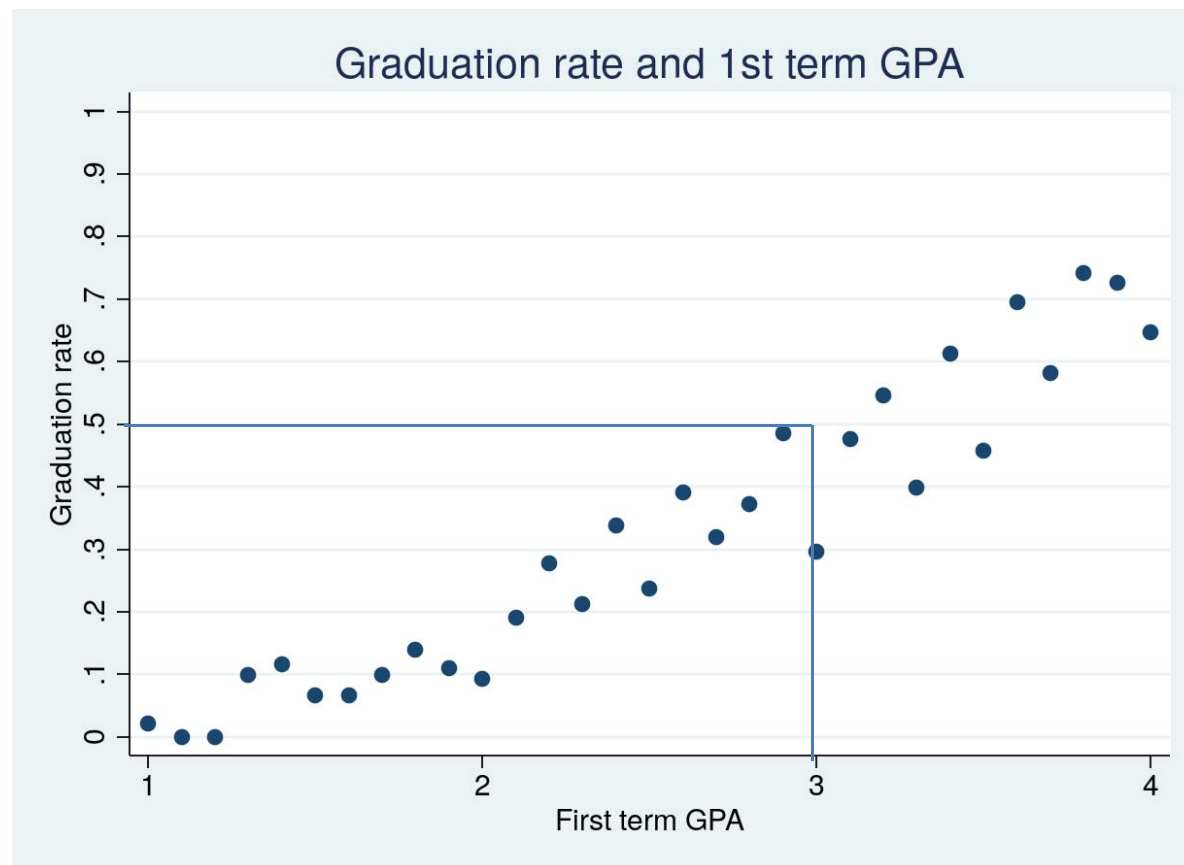
- Why is it important?
- Literature review
- Conceptual and empirical framework
- Results
- Discussion and Conclusion
- Q & A

# Introduction

- Access to higher education  $\neq$  guarantee to graduation
  - 4 year & 6 year graduation rates are 39% and 59% respectively
  - As low as 12% for students with GPA<3.0 in the 1<sup>st</sup> term

# Students at risk of dropping out

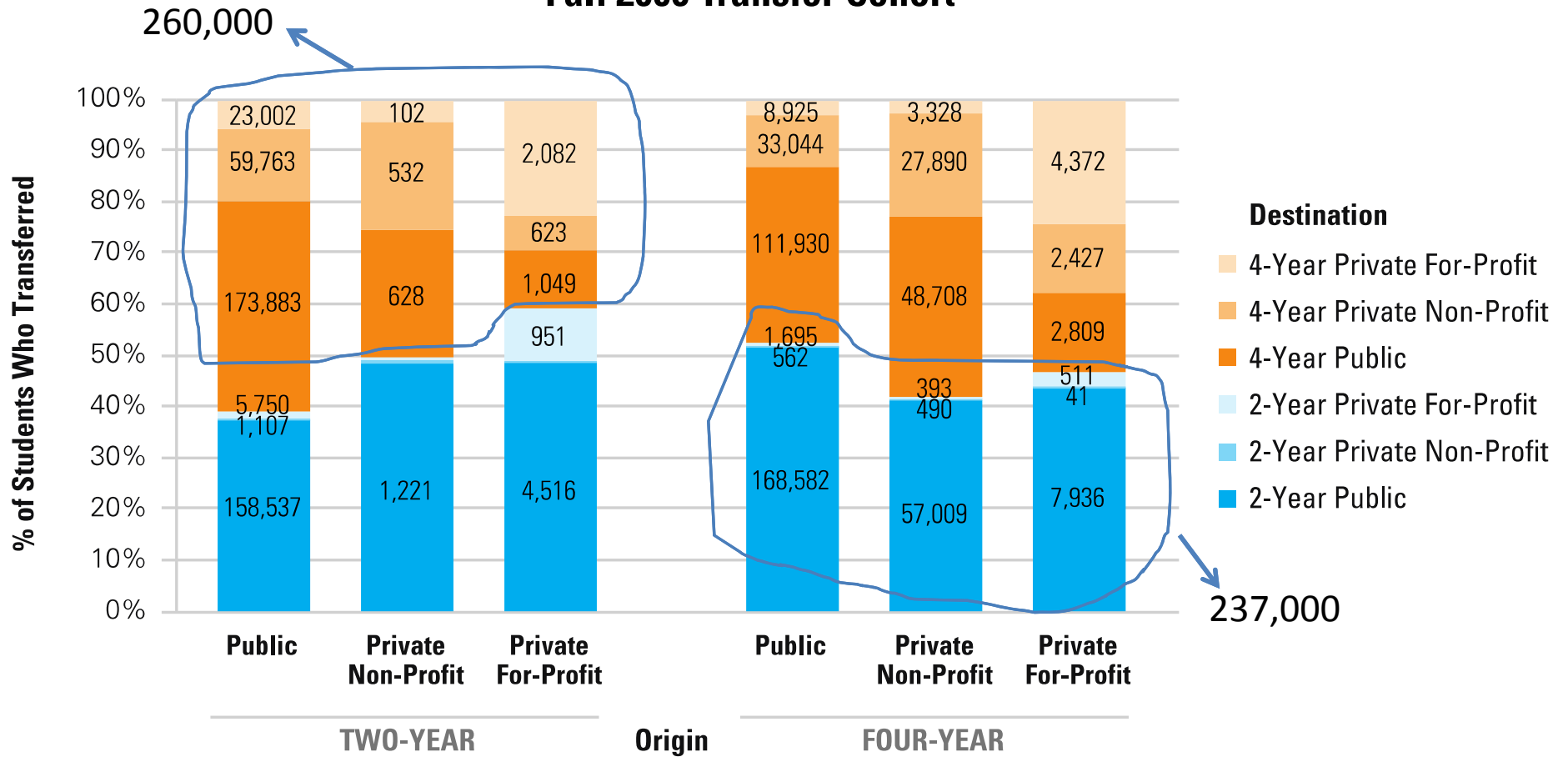
- First year GPA < 2.0
- First year GPA between 2 & 3 – “The Murky Middle” (Education Advisory Board, 2014)



# Introduction

- Access to higher education  $\neq$  guarantee to graduation
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  - As low as 12% for students with GPA<3.0 in the 1<sup>st</sup> term
- Seek postsecondary education in community colleges
  - The missing group of students
  - Each year, 16% of 4yr beginning students transfer to 2yr colleges

**Figure 3. Origin and Destination of Initial Transfer by Institutions' Sector and Control, Fall 2006 Transfer Cohort\***



# Introduction

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- Seek postsecondary education in community colleges
  - The missing group of students
  - Each year, 16% of 4yr beginning students transfer to 2yr colleges
- Is this transfer path beneficial to 4yr struggling students?
- First causal study
  - Distance to the closest 2yr college as instrument variable
  - National data and State administrative data

# Previous literature

- The transfer literature mostly focuses on 2-4 year transfer
- First 4-2 transfer spotted in the 1950s
- Rich qualitative literature on 4-2 transfer students' characteristics and motivation to transfer



# Previous literature

- Two major motivations to transfer from 4 to 2 yr schools
  - **Struggling students seeking to complete postsecondary education**
  - High achieving students take 2yr courses strategically to complete 4yr requirement
- Only 4 studies look at the outcomes of RT students  
(Hossler et al, 2012; McCormick & Carroll, 1997; Kalogrides & Grodsky, 2011; Yang, 2007)

# 4-2 year transfer: The good and the bad

- Advantages
  - Better have a 2 year credentials than none at all
  - Cheaper higher education option
  - More career choices
  - Some technical degrees earn more than some BA degrees
- Disadvantages
  - Diversion effect
  - Peer and instructor's quality

# Empirical Methods

Ordinary Least Square

Propensity Scores Matching

Instrumental Variables

# Ordinary Least Square

$$Y_t = \int (4 - 2 \text{ transfer}, X, \psi_d, \Theta_c, \mu_m, \Phi_s, SES)$$

where

$X$ : demographic characteristics, ability controls, geographic controls

$\psi_d, \Theta_c, \mu_m, \Phi_s$ : district, cohort, major, and initial 4yr specific effects

SES: county level SES indicators

# Ordinary Least Square



Stay in 4yr



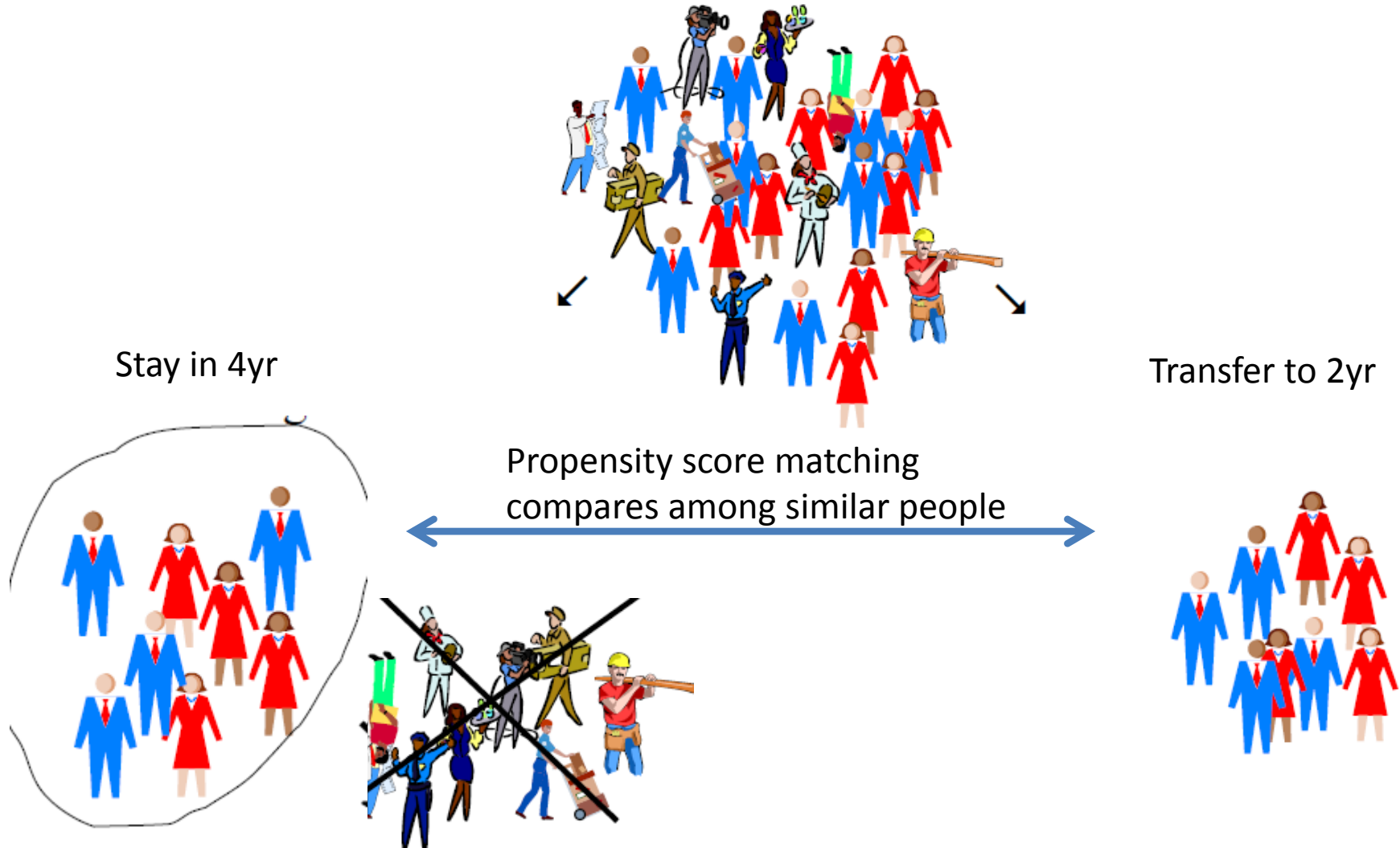
Transfer to 2yr



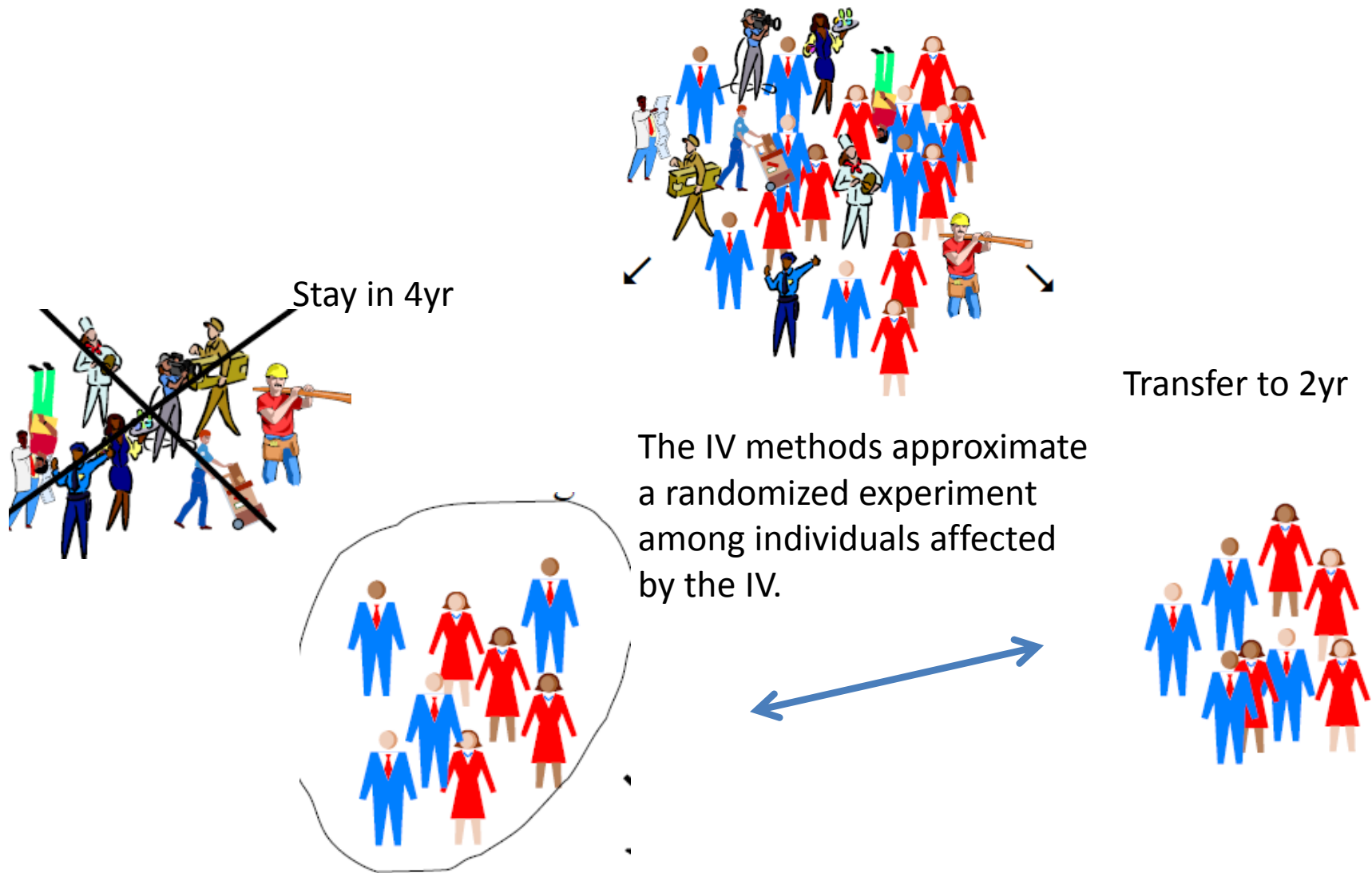
Ordinary Least Square directly  
compare these two groups.



# Propensity Score Matching



# Instrumental Variable Approach



# Instrumental Variable

*Second Stage*

$$Y_t = f(4-2 \text{ transfer}, X, \psi_d, \Theta_c, \mu_m, \Phi_s, SES_c) \quad (1)$$

*First Stage*

$$4-2tran = f(\text{Distance}, X, \psi_d, \Theta_c, \mu_m, \Phi_s, SES_c) \quad (2)$$

where

Distance: miles to the closest 2yr college

X: demographic characteristics, ability controls, geographic controls

$\psi_d, \Theta_c, \mu_m, \Phi_s$ : district, cohort, major, and initial 4yr specific effects

SES: county level SES indicators



# Data

Educational Longitudinal Survey of 2002

State administrative data

# National Data

- National representative of 12<sup>th</sup> grader in 2004
- Include public, non-profit and for-profit sectors
- Follow up in 2006 and 2012
- Survey of students, parents, institutions
- High school and college transcripts
- Zip code

# State Data

- State administrative data
  - Cohort 2005-06, 2006-07 & 2007-08
  - 2yr and 4yr beginning students at *public* colleges
  - Follow up through summer 2013
  - Demographic info, transcript, UI records
- BLS & State DOH
  - County level SES indicators (income, % of drinkers/smokers/teen moms/without insurance/students with free or reduced-price lunch at schools)

# Final sample

- Restrictions
  - 1<sup>st</sup> term GPA < 3.0
  - Intent to earn a 4yr degree
  - Enroll full time in only 4yr college in the first term
- 4-2 transfer students only take classes in fall/spring
- Final sample – targeting struggling students
  - 7,522 students (State), 650 (ELS)
  - 29% have ever taken a 2yr course in fall or spring
  - 10% only took a 2yr course in the summer
  - Balanced sample on pre-transfer characteristics

# Descriptive Statistics-State Data

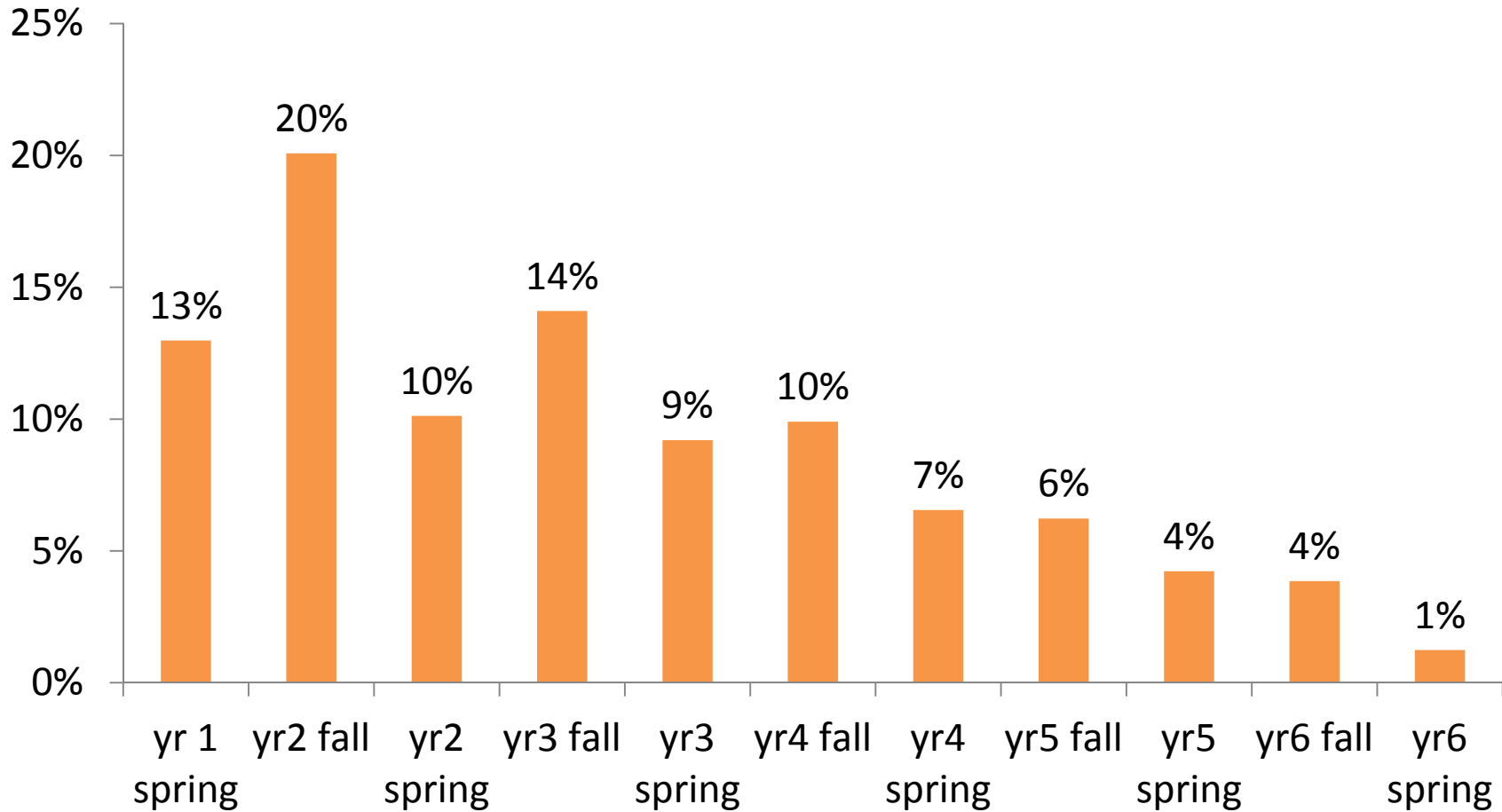
	4-2 transfer	Exclusive 4yr	4-2 transfer	Exclusive 4yr
GPA term 1	<3.0	<3.0	>=3.0	>=3.0
Female	56%	47%	65%	55%
Black	25%	30%	28%	21%
Hispanic	2%	2%	2%	2%
Other Race	3%	3%	3%	3%
GPA term 1	2.23	2.25	3.36	3.48
GPA year 1	2.31	2.32	3.09	3.32
Credits earned in year 1	20	21	19	23
High School GPA	2.98	2.96	3.08	3.33
Live in Metropolitan area	62%	63%	63%	65%
County household income	\$ 32,678	\$ 31,941	\$ 32,289	\$ 32,069
Miles to 2yr from HS	14.4	17.5	14.6	17.0
Observation	1913	5609	1561	7309

# Descriptive Statistics-State Data

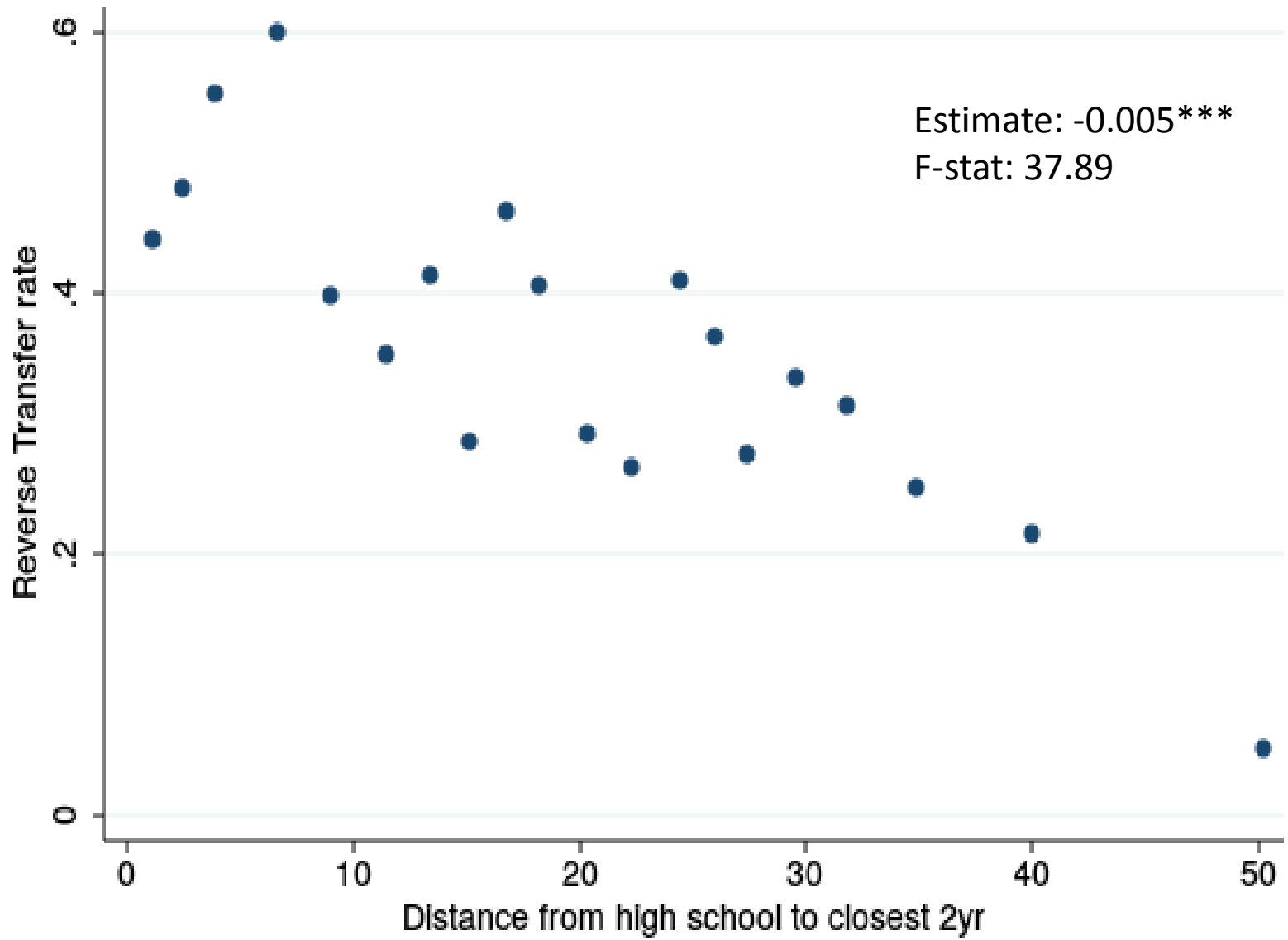
	4-2 transfer	Exclusive 4yr	4-2 transfer	Exclusive 4yr
GPA term 1	<3.0	<3.0	>=3.0	>=3.0
Last institutions = 4yr school	39%	93%	48%	96%
Highest Degree earned in 2013				
Certificates	11%	0%	8%	0%
Associate Degree	20%	0%	27%	0%
Bachelor's Degree	13%	32%	18%	57%
Still Enrolled in the 6th year	40%	26%	41%	26%
Still Enrolled in the 7th year	24%	12%	21%	12%
Employed in the 6th year	83%	77%	83%	74%
Employed in the 7th year	85%	79%	85%	76%
Wage in the 6th year	\$18,575	\$18,703	\$19,485	\$21,656
Missing/zero earnings	237	908	188	1,372
Wage in the 7th year	\$19,1875	\$19,970	\$20,3692	\$23,333
Missing/zero earnings	110	403	91	643
Observation	1913	5609	1561	7309

# Timing for 4-2 transfer (state data)

(2006-07 & 2007-08 fall entering cohorts)



# Reverse Transfer rate





# Academic Outcomes

Enrollment & Degree Attainment

# ELS: Academic results

<b>Outcomes</b>	<b>Estimate</b>	<b>Std. Error</b>	<b>N</b>	<b>R-squared</b>
<u>Bachelor's Degree</u>				
OLS	-0.243***	[0.056]	653	0.453
Matching	-0.242***	[0.055]	650	0.458
IV	-0.268	[0.236]	653	0.263
<u>Two-Year College Credential</u>				
OLS	0.342***	[0.033]	653	0.551
Matching	0.343***	[0.033]	650	0.572
IV	0.102	[0.160]	653	0.341

- As per IES requirement, all tables are weighted.

# State data: Degree Attainment

<b>Outcomes</b>	<b>Estimate</b>	<b>Std. Error</b>	<b>N</b>	<b>R-squared</b>
<u>Bachelor's Degree</u>				
OLS	-0.191***	[0.010]	7,522	0.234
IV	0.066	[0.139]	7,522	0.174
<u>2yr credentials</u>				
OLS	0.292***	[0.015]	7,522	0.245
IV	0.086	[0.071]	7,522	0.141
<u>Any credentials</u>				
OLS	0.101***	[0.017]	7,522	0.199
IV	0.152	[0.141]	7,522	0.197

# State's IV Results By gender

<b>Outcomes</b>	<b>Estimate</b>	<b>Std. Error</b>	<b>N</b>	<b>R-squared</b>
<u>Bachelor's Degree</u>				
Women	0.024	[0.195]	3,705	0.194
Men	0.124	[0.175]	3,817	0.164
<u>2yr credentials</u>				
Women	0.279**	[0.110]	3,705	0.271
Men	-0.092	[0.109]	3,817	
<u>Any credentials</u>				
Women	0.303	[0.218]	3,705	0.162
Men	0.032	[0.173]	3,817	0.208

# Labor Market Outcomes

Employability & Earnings

# National Employment Results

<b>Outcomes</b>	<b>Estimate</b>	<b>Std. Error</b>	<b>N</b>	<b>R-squared</b>
<u>Log Earnings 2011</u>				
OLS	-0.204**	[0.097]	592	0.496
Matching	-0.159*	[0.094]	591	0.510
IV	0.193	[0.342]	580	0.482
<u>Employment 2011</u>				
OLS	-0.016	[0.033]	653	0.355
Matching	-0.019	[0.032]	650	0.379
IV	0.183	[0.153]	640	0.291

- As per IES requirement, all tables are weighted.

# National Employment Results

<b>Outcomes</b>	<b>Estimate</b>	<b>Std. Error</b>	<b>N</b>	<b>R-squared</b>
<u>Job Satisfaction: Earnings</u>				
OLS	0.120	[0.147]	620	0.399
Matching	0.144	[0.149]	590	0.430
IV	1.663*	[0.881]	580	0.223
<u>Job Satisfaction: Usefulness of degree</u>				
OLS	0.365**	[0.147]	620	0.431
Matching	0.392***	[0.149]	590	0.475
IV	0.373	[0.913]	580	0.450

- As per IES requirement, all tables are weighted.

# State: Employment results

Outcomes	Estimate	Std. Error	N	R-squared
<u>7<sup>th</sup> Year Earnings</u>				
OLS	1,300**	[606]	2,653	0.23
IV	10,489	[7,528]	2,653	0.16
<u>7<sup>th</sup> Year Employment</u>				
OLS	0.012	[0.016]	2,653	0.226
IV	0.249	[0.209]	2,653	0.171

\* Similar results using 5<sup>th</sup> or 6<sup>th</sup> year employment outcomes.



# Validity of the IV

Is distance random?

Does Distance and SES correlate?

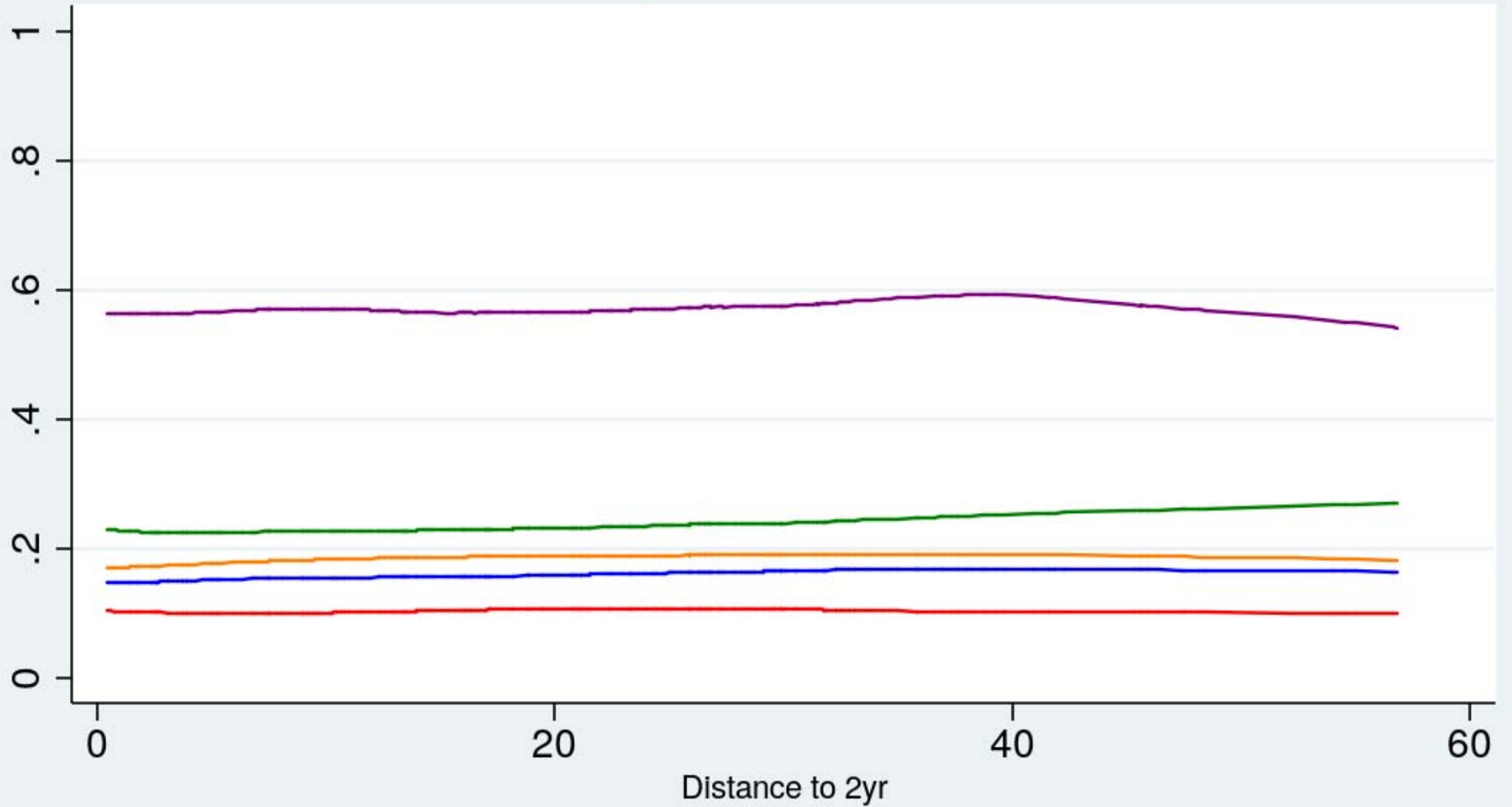
# Exclusion Restriction-State Data

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	Outcomes	Distance	S.E.	F-stat	Sample	Obs	R-squared
(1)	Dropout completely	-0.000	[0.001]	0.74	Starting 4yr, GPA>=3.0	7,280	0.261
(2)	Ever upward transfer	0.000	[0.000]	0.02	Starting 2yr	15,746	0.119

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# County SES & Distance



# Conclusion & Discussion

# Conclusion

- Compared to struggling students who stay at 4yr, 4-2 transfer students are
  - More likely to receive 2yr credentials (women)
  - No less likely to receive 4yr degrees
  - More likely to have some postsecondary credentials
  - Equally likely to be employed and have similar earnings
- Limitations
  - Short employment outcomes follow up
  - Small national sample (limited controls)
  - Results could be state-specific

# Policy Implications

- Students
  - Economical path to continue higher education
- Institution
  - Collaboration between 4 and 2-year institutions
  - Understanding of the mobile generation
  - Importance of accurate data
  - Collaboration with researchers

- Policymakers

- Community colleges continue to provide a second chance in higher education
- 4-2 transfer is likely to increase if CC were to be free
- Facilitate 4-2 transfer could be one way to achieve college completion goal

Thank you for your time.

For more questions:

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