

# PROMOTING OR PERTURBING ACCESS

**An Event History Analysis of the  
Effects of Financial Aid on Latinos'  
Educational Attainment**

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# Themes for This Session

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- Policies and approaches to promoting equity in education and beyond
  - ▣ What can be done to improve postsecondary completion among Latinos?
  - ▣ Can financial aid policy be used to promote attainment? If so, to what extent?

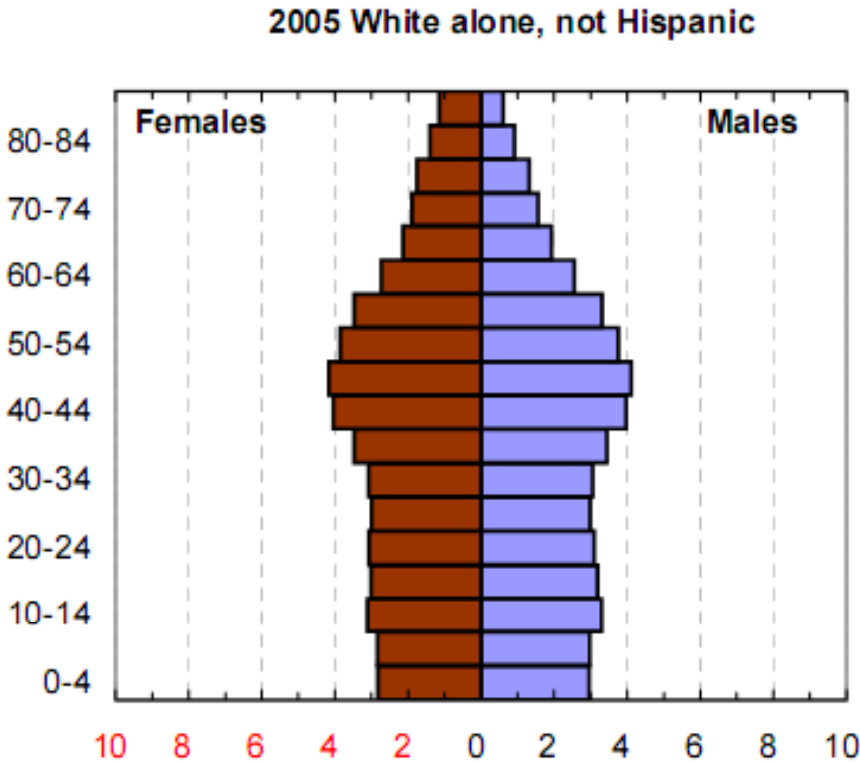
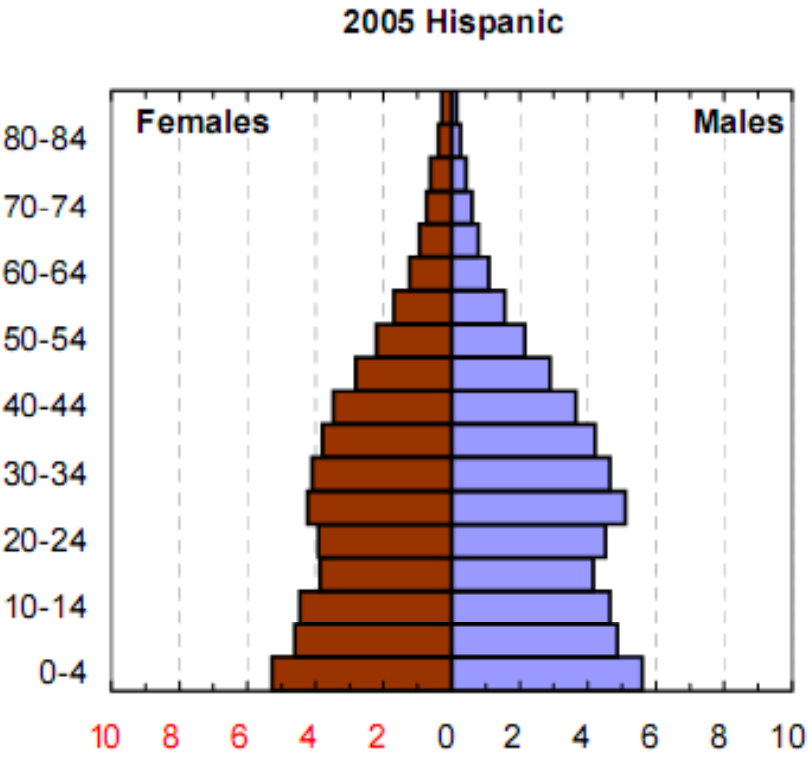
# Cause for Concern About Equity

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“Demographics and affordability — they seem to be on a collision course.”

Male admissions official at a religious institution,  
*quoted in The Chronicle of Higher Education, May 2,*  
2008, p. B4

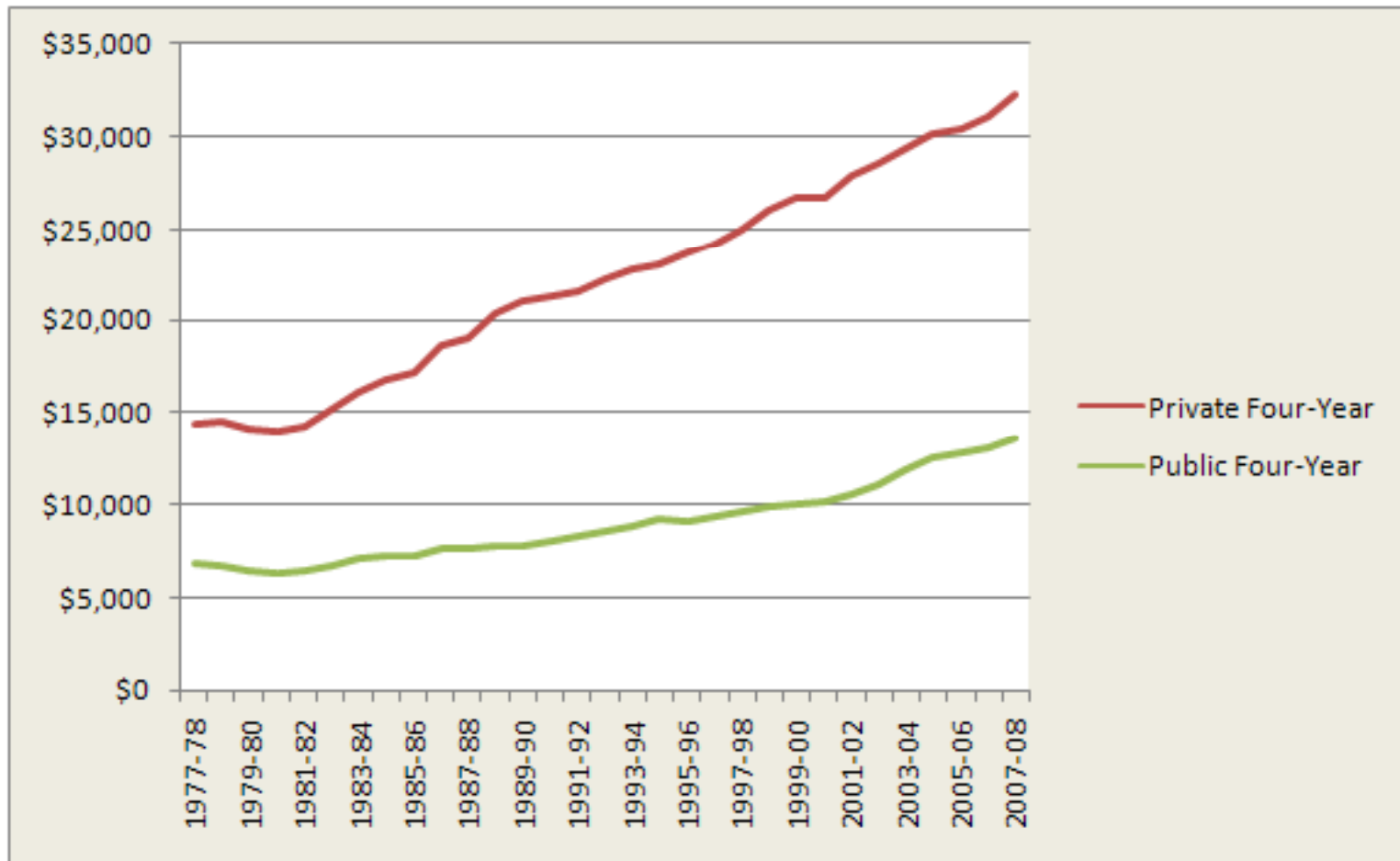
# Illustration of Demographic Changes



Source: Pew Hispanic Center calculations of ACS, 2005

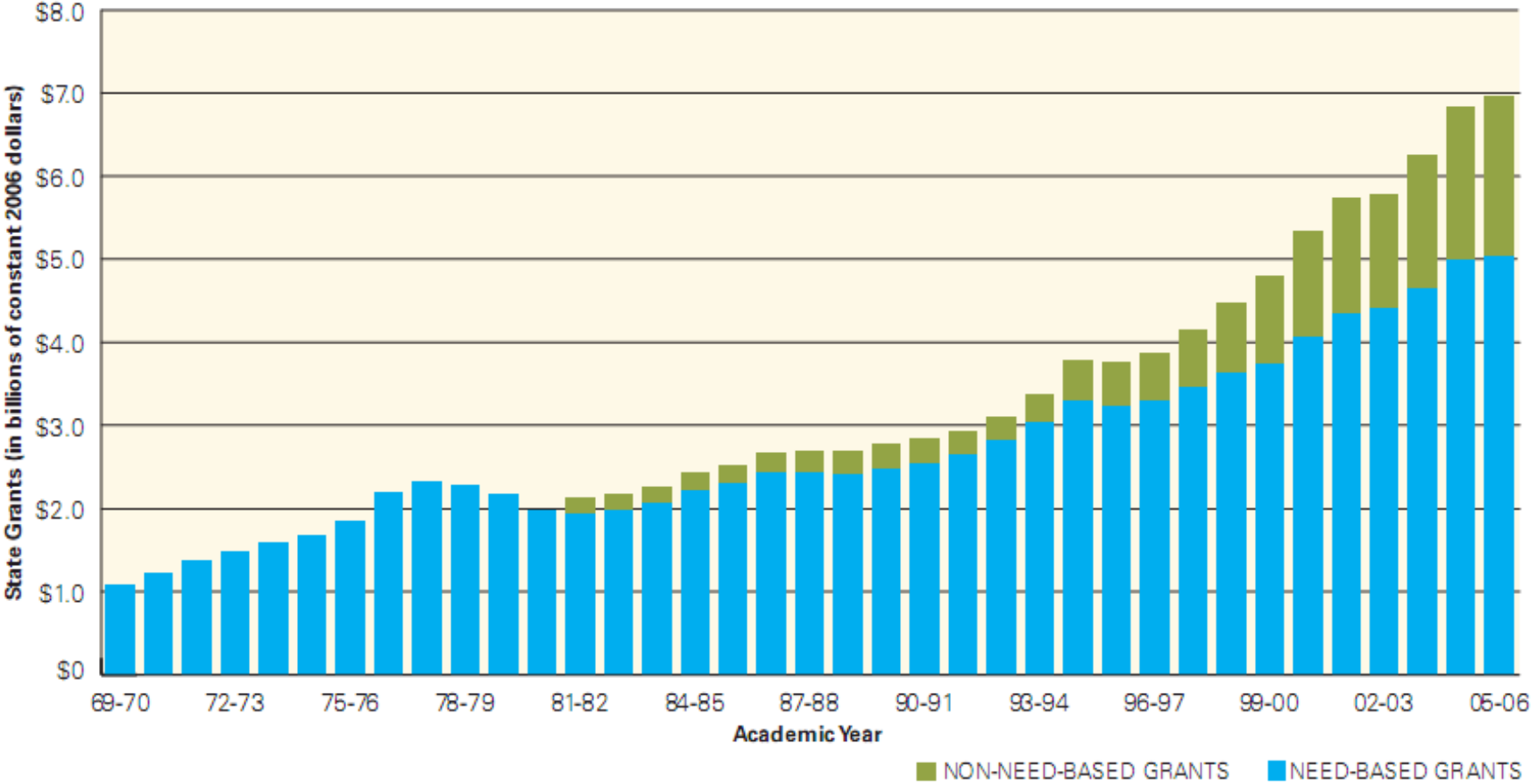
# Total Charges in Constant (2007) Dollars

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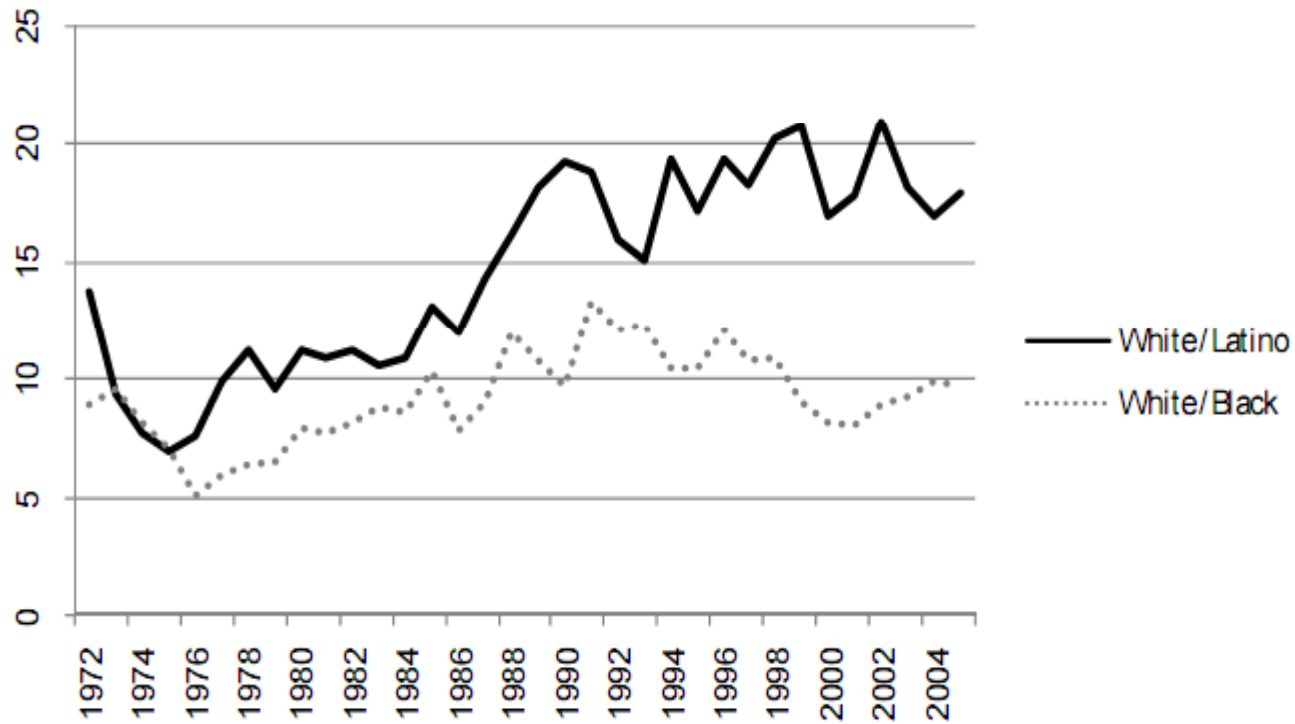
Source: College Board Trends in Student Aid, 2007

# Total State Need and Non-Need-Based Grants to Students



Source: College Board Trends in Student Aid, 2007

Figure 3. Postsecondary enrollment gap between Latinos and Whites and Blacks and Whites, ages 18-24, 1972-2006



Source: NCES, Digest of Education Statistics, Table 189, Author's calculations

# EHA Methods in Educational Research

- EHAs include a variety of methodological approaches to studying occurrence and timing of events
- Singer and Willett (1991, 1993, 2003), DesJardins (1994, 1999, 2002, 2003), Chen (2007), Calcagno et al. (2007), and others have begun to pave the way for more widespread use of EHA in IR and educational research

# Research Questions & Context

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- To what extent do different forms of aid affect educational attainment among Latinos? How do the effects of aid on attainment change over time?
  - ▣ Loans
  - ▣ Grants
  - ▣ Work-study
  
- Indiana
  - ▣ Newcomer state
  - ▣ Indianapolis has 5<sup>th</sup> highest growth rate of any metro area
  - ▣ Predominantly Mexican, Mexican-Americans

# Sample Selection Criteria

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- All first-time baccalaureate-degree-program-enrolled Latinos in Indiana public institutions
- Earned at least six credits during first academic year

# Study Design

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- Observation Period: 1999-2006
  - ▣ Combined years 6 and 7 because of small numbers
- Origin: Risk period begins first year of enrollment
- Exit: Risk period ends at point of first departure
- Event of Interest: First departure
  - ▣ First year in which student did not earn any credit

# Study Design (continued)

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- Analysis Time (or clock)
  - ▣ Years enrolled, starting with first period of enrollment
  - ▣ Students who began in 2005-2006 were not included because it was not possible to observe the event of interest

# Data Sources

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- Enrollment data (student level) from IN statewide SUR system representing the universe of public enrollments
- FAFSA data (student level) from state financial aid coordinating body
- IPEDS postsecondary institutional data (institution level)

# Discrete-Time Model

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- Dependent variable is the rate of occurrence of first departure at a given moment in time
- Discrete hazard (similar to incidence rate) is the focus
  - ▣ Always between 1 and 0
  - ▣ The higher the hazard, the greater the risk

$$h(t_j) = \frac{n \text{ event}_j}{n \text{ at risk}_j}$$

$$\text{logit } h(t_j) = \frac{[\alpha_1 D_1 + \alpha_2 D_2 + \dots + \alpha_7 D_7] + [\beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5]}{}$$

# Model Specification

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Time	Financial Aid	Background	Preparation	College Enrollment
<ul style="list-style-type: none"><li>• Dummy variable for each year</li></ul>	<ul style="list-style-type: none"><li>• Total cost*</li><li>• Loans*</li><li>• Grants*</li><li>• Work-study*</li><li>• Received aid?*</li></ul>	<ul style="list-style-type: none"><li>• Gender</li><li>• Income*</li><li>• Age*</li></ul>	<ul style="list-style-type: none"><li>• HS rank</li><li>• HS diploma</li><li>• SAT combined</li></ul>	<ul style="list-style-type: none"><li>• Institution type</li><li>• Residency</li><li>• Major</li><li>• Credits taken</li><li>• Year one 20 credits?</li><li>• Dev. education credits</li><li>• Housing</li><li>• 21<sup>st</sup> Century Scholar</li><li>• Cumulative GPA</li></ul>

\*Time-varying explanatory variables

# Limitations & Considerations

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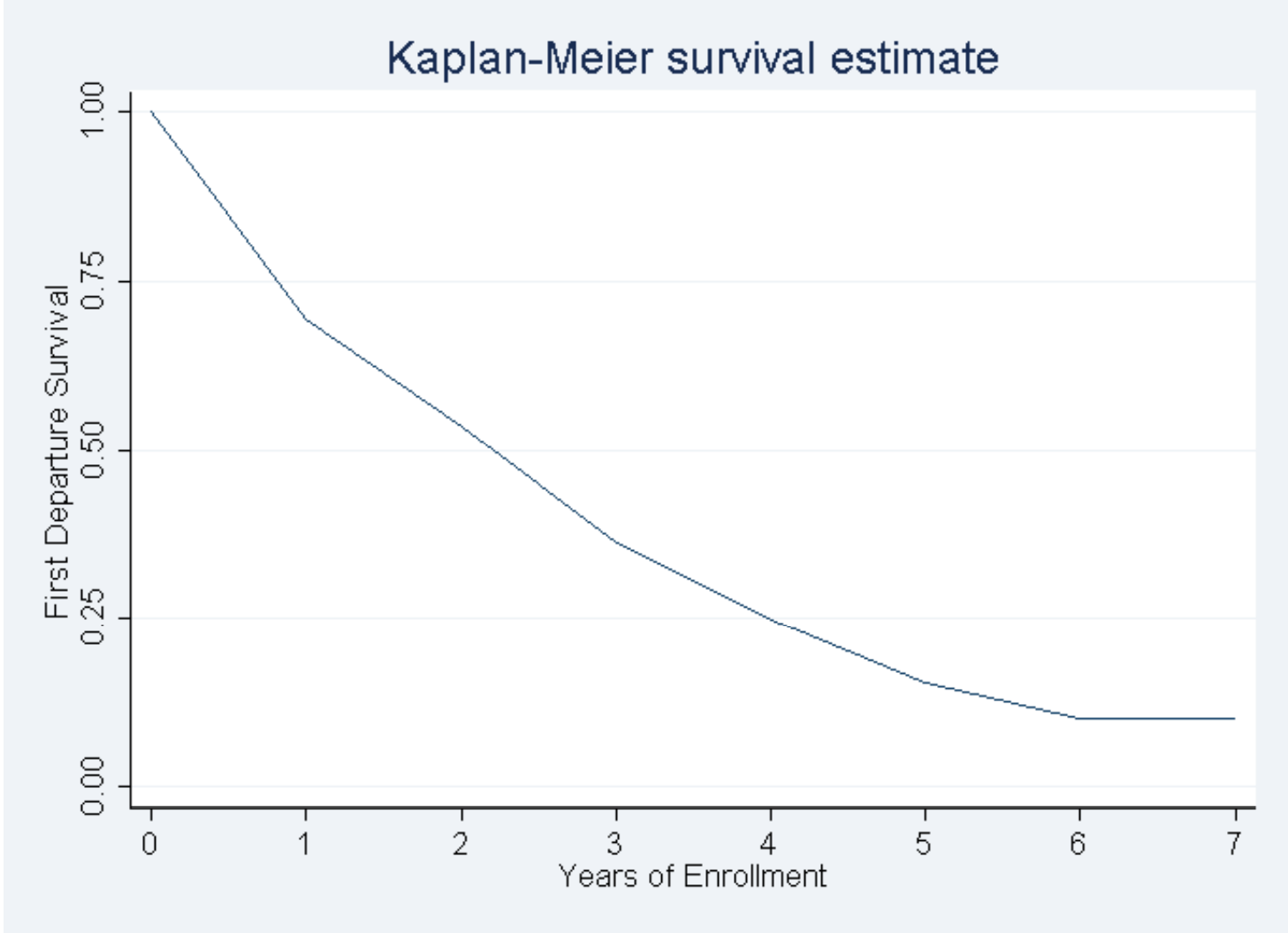
- ❑ Aid is a necessary but insufficient condition to promote academic success
- ❑ Factors like familial encouragement, mentoring, and campus climate can have a profound effect on Latino students' success
- ❑ Aid may play a larger role in promoting college enrollment than persistence
- ❑ Self-selection biases may be at play

# Descriptive Findings

## Descriptive Snapshot at Origin

		Count	Col %
<b>Institution type</b>	Community college	40	0.8
	State universities	530	10.0
	Regional campuses	2616	49.3
	Urban university	403	7.6
	Research universities	1714	32.3
<b>Received Financial Aid</b>		3739	70.5
<b>Received Grants</b>		2385	45.0
<b>Received Loans</b>		2283	43.1
<b>Work-study</b>		327	6.2
<b>Ajusted Gross Income</b>	Below \$19,000	925	17.4
	\$19,000 to \$41,999	1393	26.3
	\$42,000 to \$78,999	1509	28.5
	\$79,000 and more	1475	27.8
<b>Gender</b>	Female	2380	44.9
	Male	2923	55.1
<b>Combined SAT Score</b>	Low SAT (<=910)	2342	44.2
	Mid SAT (920-1020)	1298	24.5
	High SAT (>=1030)	1656	31.3
<b>College GPA</b>	A	673	13.5
	B	2083	41.6
	C or Less	2247	44.9
<b>Student housing</b>	On-campus housing	1884	35.5
	Off-campus housing	3183	60.0
	Lived with parents	194	3.7
	Housing unknown or live	42	0.8
<b>Major Declared</b>	No	1079	20.3
	Yes	4224	79.7
<b>Twenty-first Century Scholar</b>	Yes	686	12.9
	No	4617	87.1
<b>Total</b>		5303	100.0

# Prevalence of First Departure

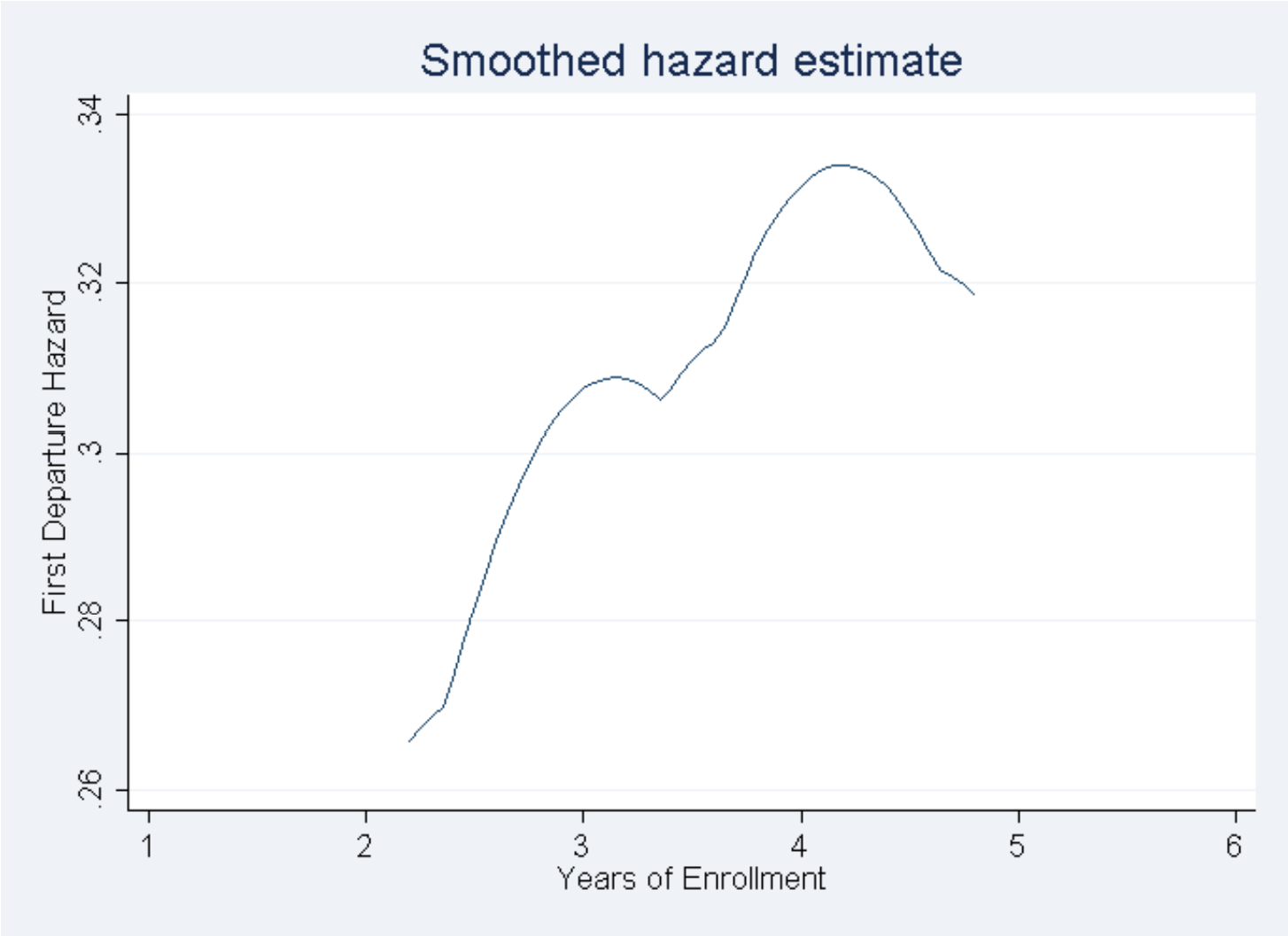


# Incidence of First Departure

Average incidence rate=29.8 percent

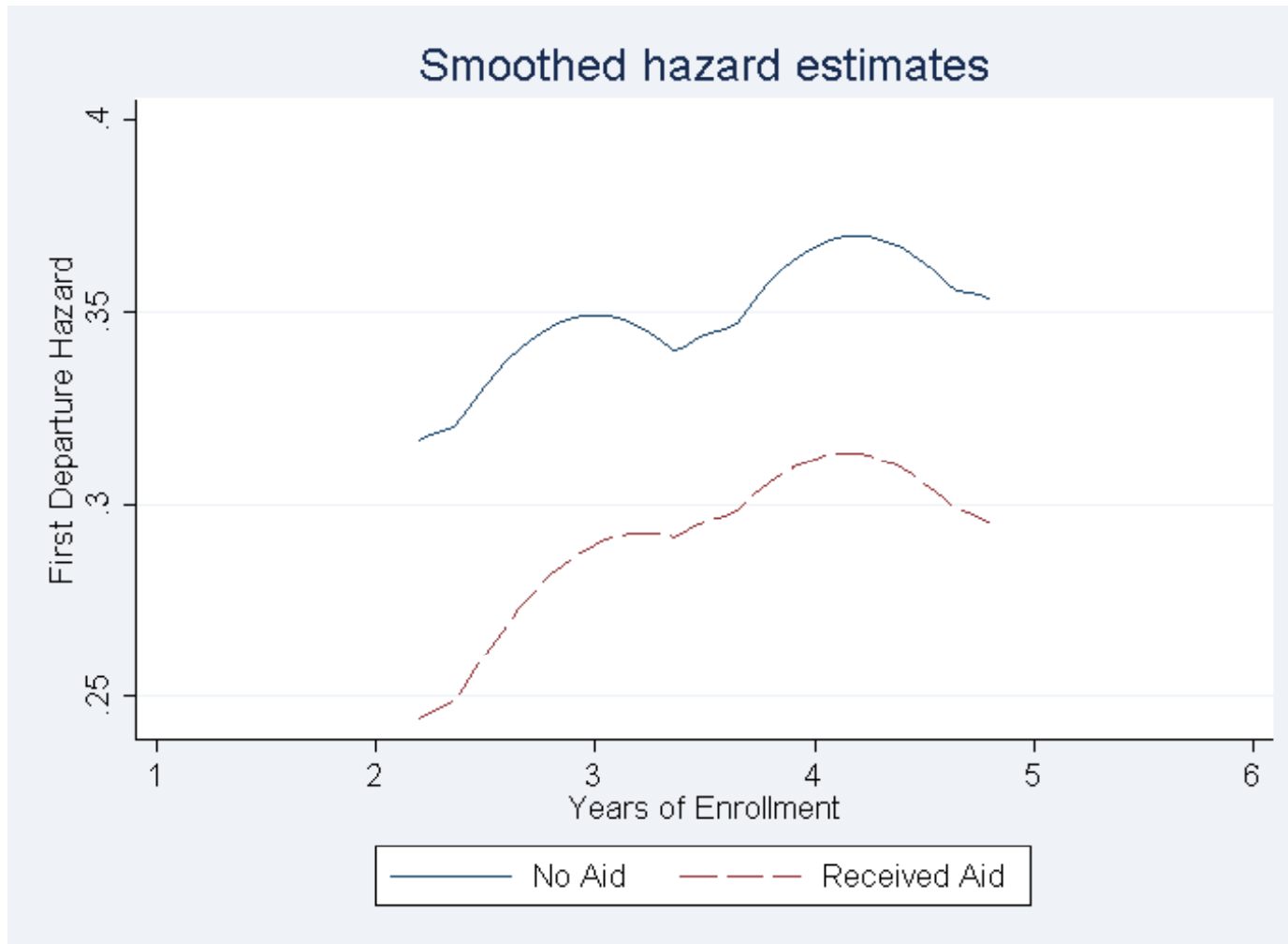
Time	% Experiencing Departure
1	25
3	50
4	75

# Incidence of First Departure



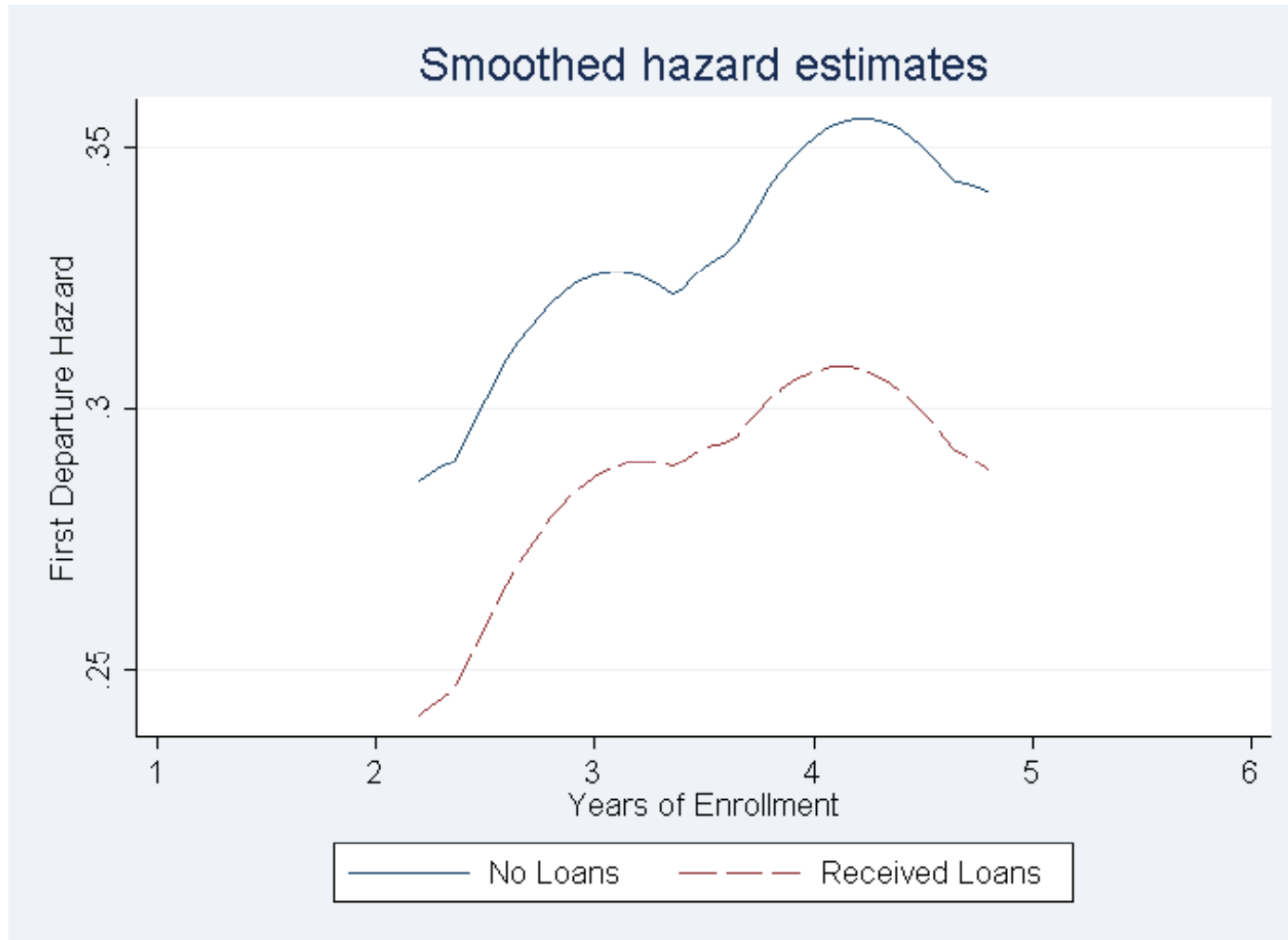
# Incidence of First Departure by Aid Receipt

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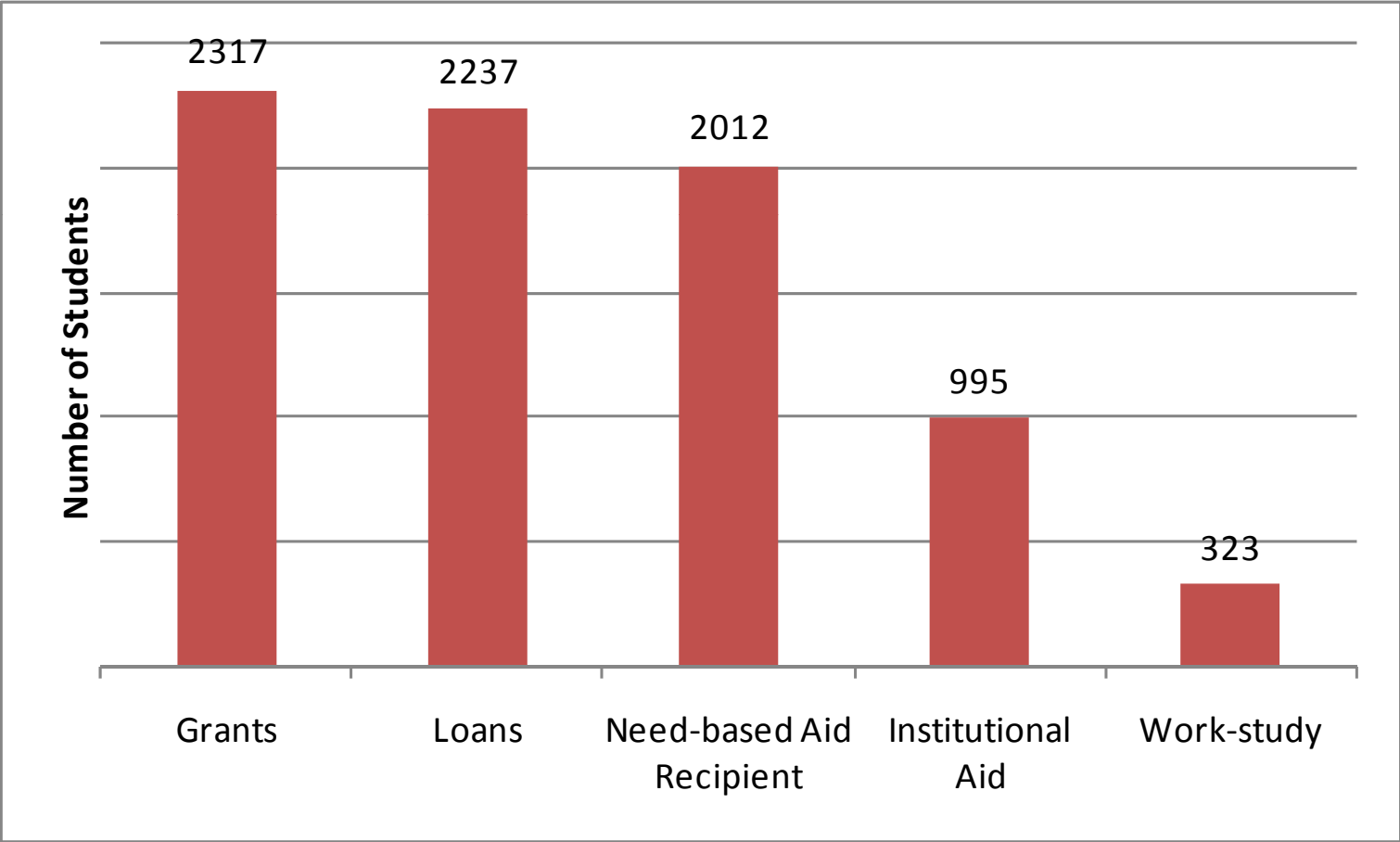


# Incidence of First Departure by Loan Receipt

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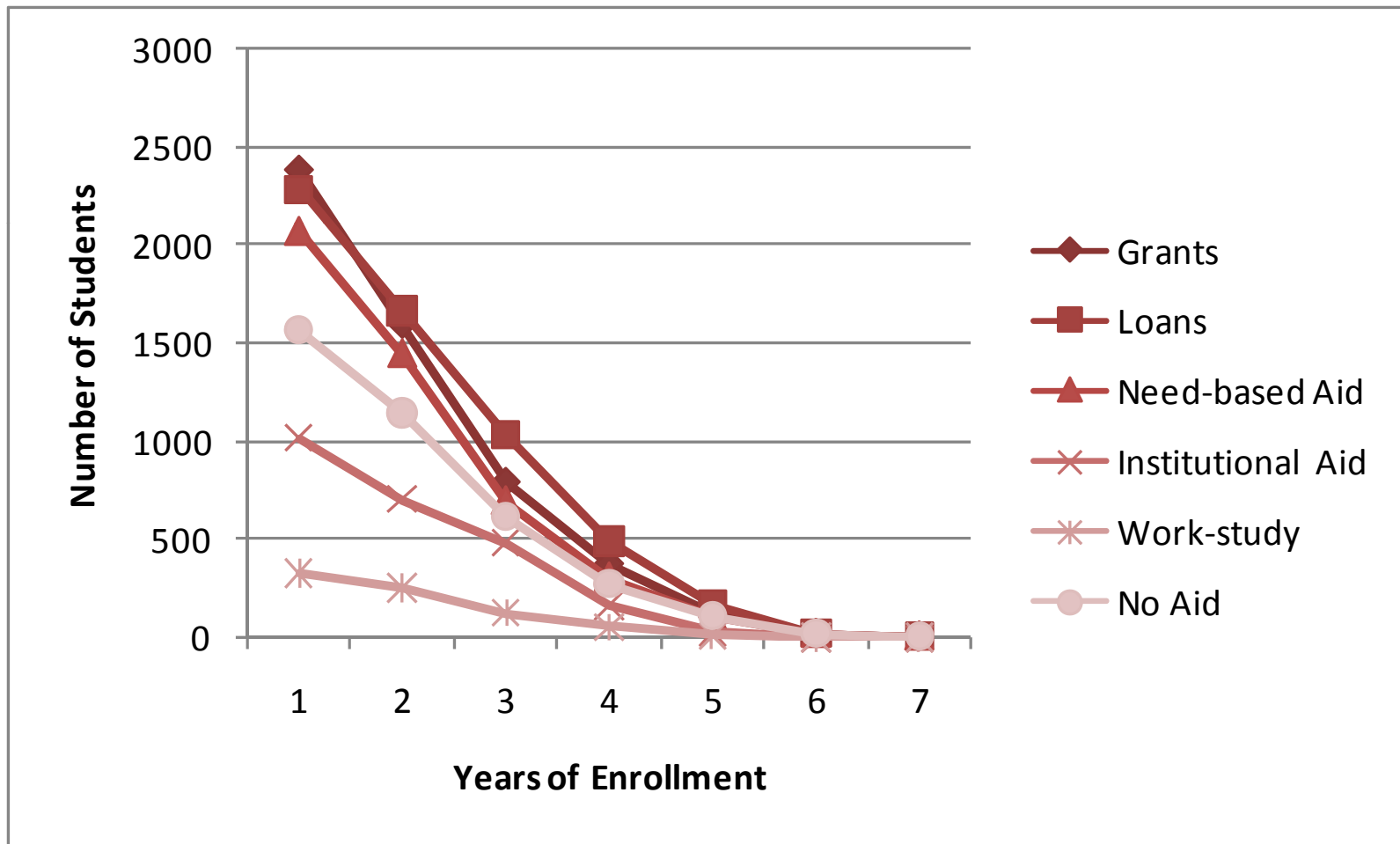


# Distribution of Aid by Type in First Year

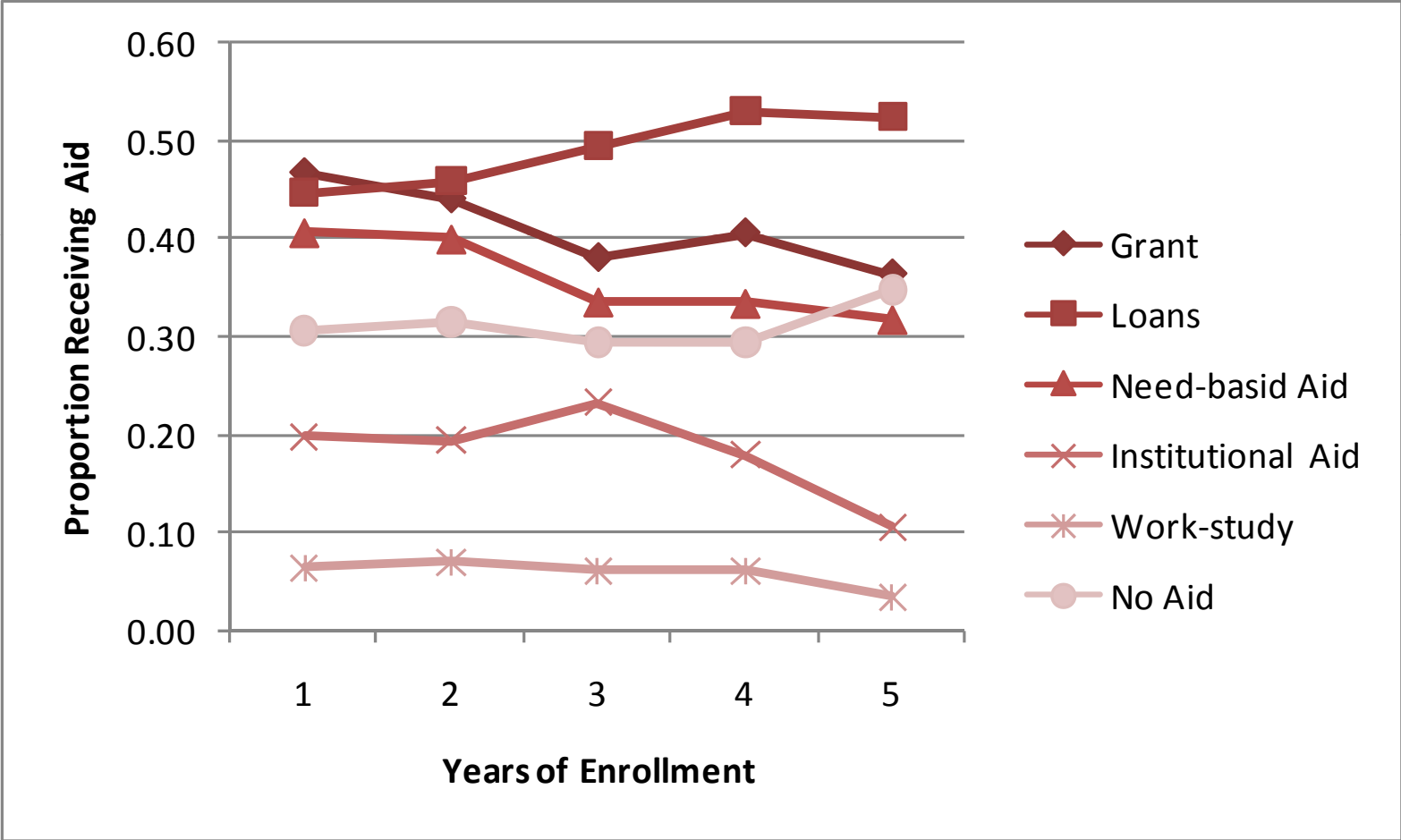


# Temporal Distribution of Aid By Type

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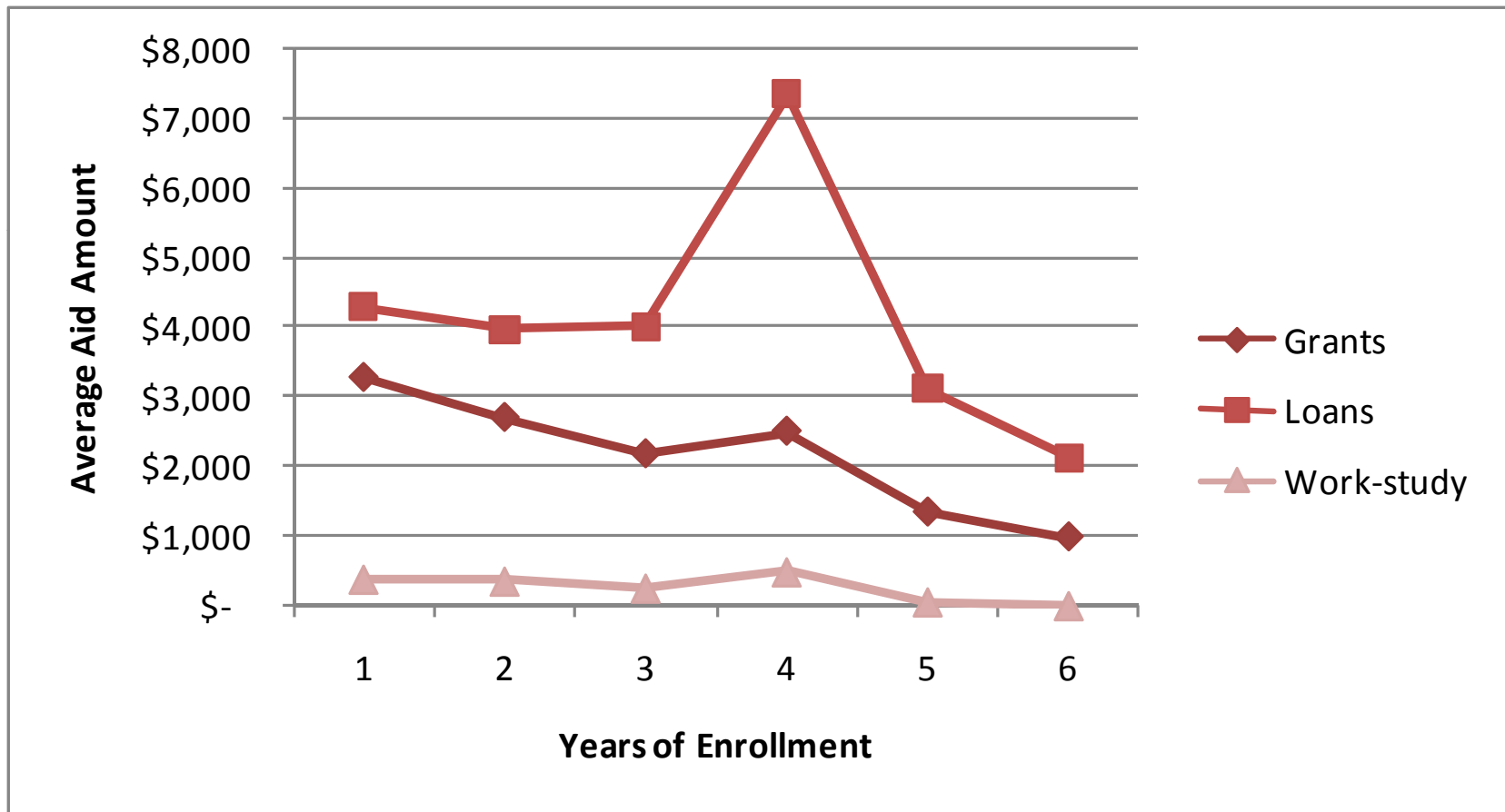


# Proportional Distribution of Aid Over Time by Type

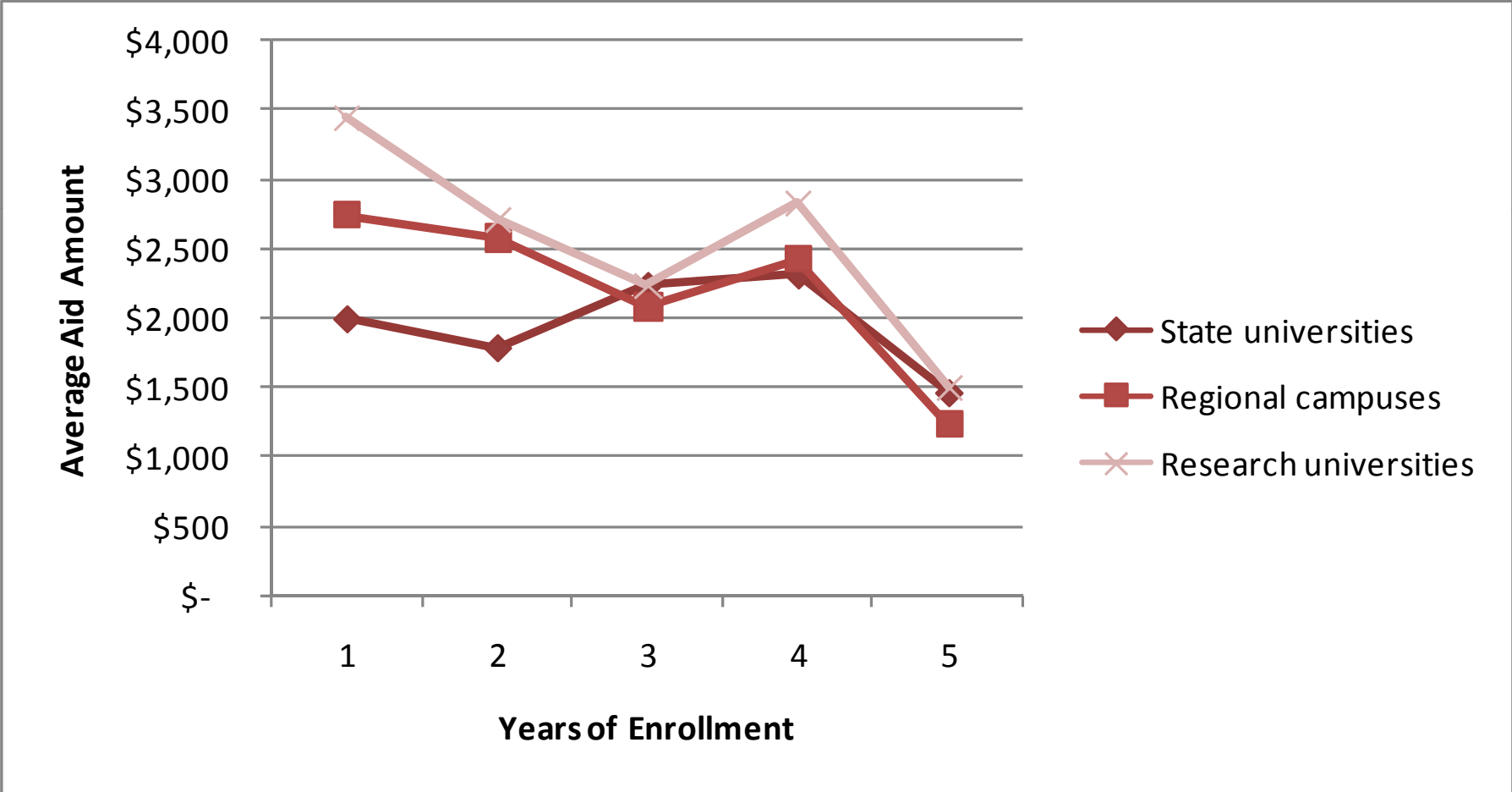


# Average Aid Amounts Over Time

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# Average Grant Amounts Over Time by Institution Type



# Inferential Results

# Discrete-Time Model Results

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	B	S.E.	Sig.	Exp(B)
<b>Year Two</b>	-0.21	0.06	0.00	0.81
<b>Year Three</b>	0.40	0.07	0.00	1.50
<b>Year Four</b>	0.39	0.09	0.00	1.47
<b>Year Five</b>	0.55	0.13	0.00	1.74
<b>Years 6 &amp; 7</b>	0.00	0.34	ns	1.00
<b>Total Cost</b>	0.03	0.01	0.00	1.03
<b>Grants</b>	0.00	0.00	ns	1.00
<b>Loans</b>	-0.01	0.00	0.00	0.99
<b>Work-study</b>	-0.01	0.01	ns	0.99
<b>Received Aid</b>	-0.10	0.05	0.06	0.91
Correct Predicted	66%			
-2 Log likelihood	12797.49			
Cox & Snell R Square	0.11			
Nagelkerke R Square	0.15			

ns=not statistically significant

# Discrete-Time Model Results (continued)

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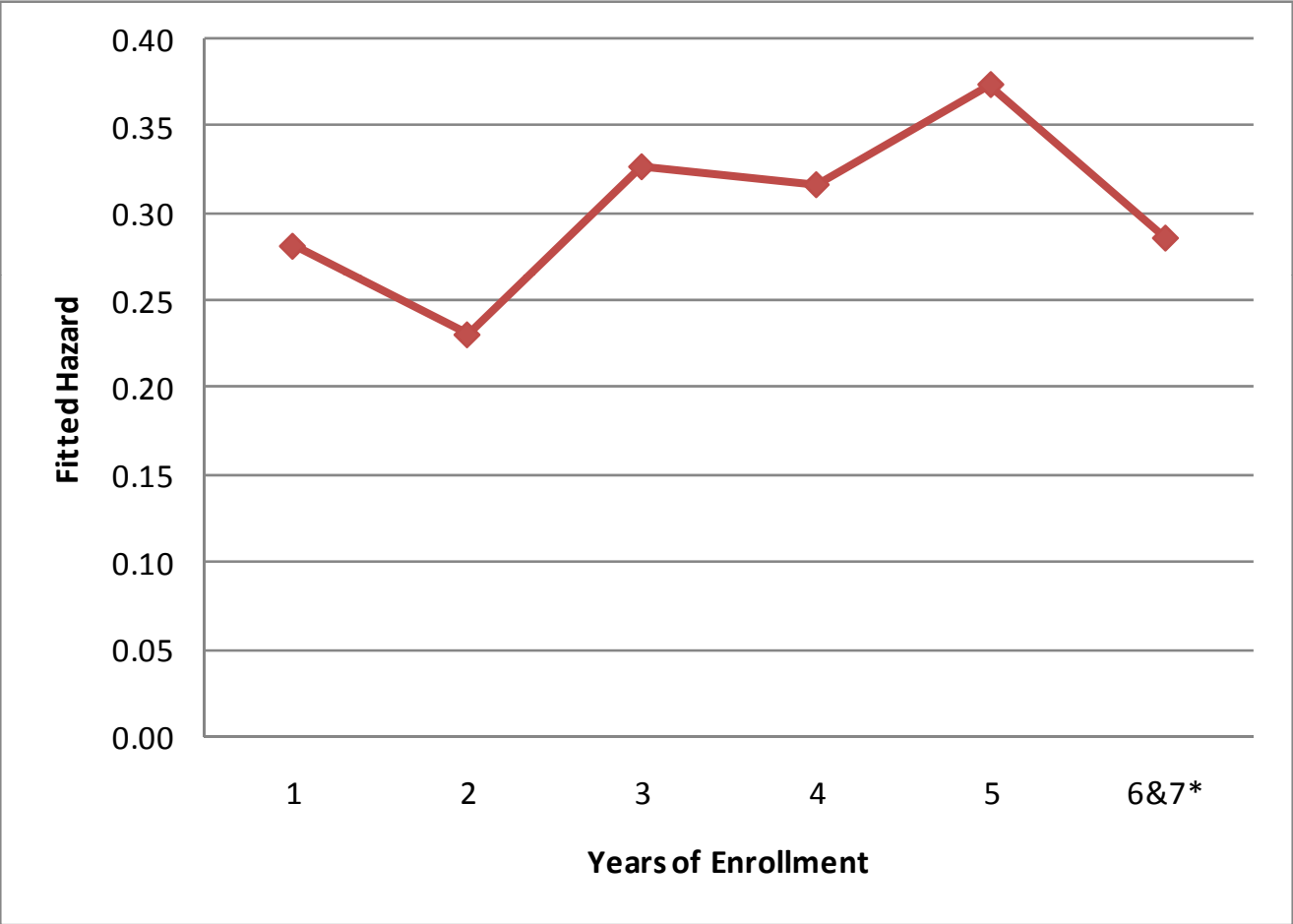
	B	S.E.	Sig.	Exp(B)
<b>Age</b>	0.02	0.01	0.00	1.02
<b>Men compared to women</b>	-0.07	0.05	ns	0.93
<b>Income</b>	0.00	0.00	ns	1.00
<b>High school rank</b>	0.00	0.00	0.07	1.00
<b>Compared to Regular High School Diploma</b>				
Honors	-0.02	0.11	ns	0.98
Core 40	0.19	0.08	0.02	1.20
Missing	0.50	0.07	0.00	1.65
Other (e.g., GED)	0.68	0.24	0.01	1.96
<b>SAT Composite</b>	0.00	0.00	ns	1.00
<b>College Cumulative GPA</b>	-0.63	0.03	0.00	0.53
<b>Compared to Research University</b>				
Regional	-0.16	0.07	0.03	0.85
Branch	0.41	0.09	0.00	1.50
Urban	-0.11	0.11	ns	0.90
Community College	-0.52	0.32	0.10	0.59

# Discrete-Time Model Results (continued)

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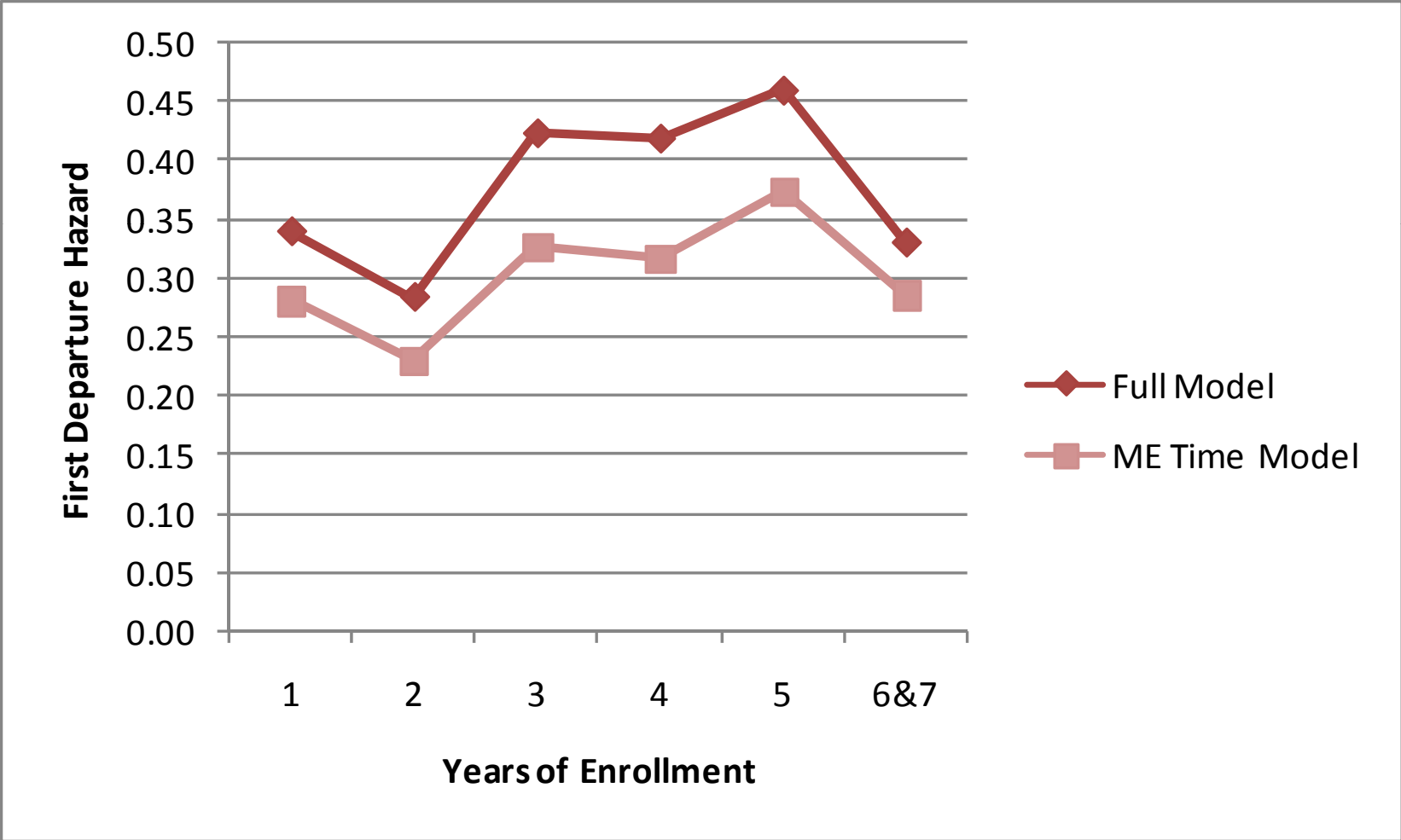
	B	S.E.	Sig.	Exp(B)
<b>Compared to On-Campus</b>				
Not Reported	0.50	0.16	0.00	1.65
Off Campus	0.62	0.09	0.00	1.86
With Parents	0.72	0.15	0.00	2.06
<b>Declared Major</b>	-0.25	0.06	0.00	0.78
<b>Development Ed Credits</b>	0.03	0.02	0.06	1.03
<b>21st Century Scholar</b>	-0.03	0.07	ns	0.97
<b>Resident</b>	-0.17	0.10	ns	0.85
<b>Total Credits</b>	-0.02	0.01	0.00	0.98
<b>Earned 20 Credits in YR1</b>	-0.29	0.11	0.01	0.75

# Baseline First Departure Hazard (Main Effects of Time)

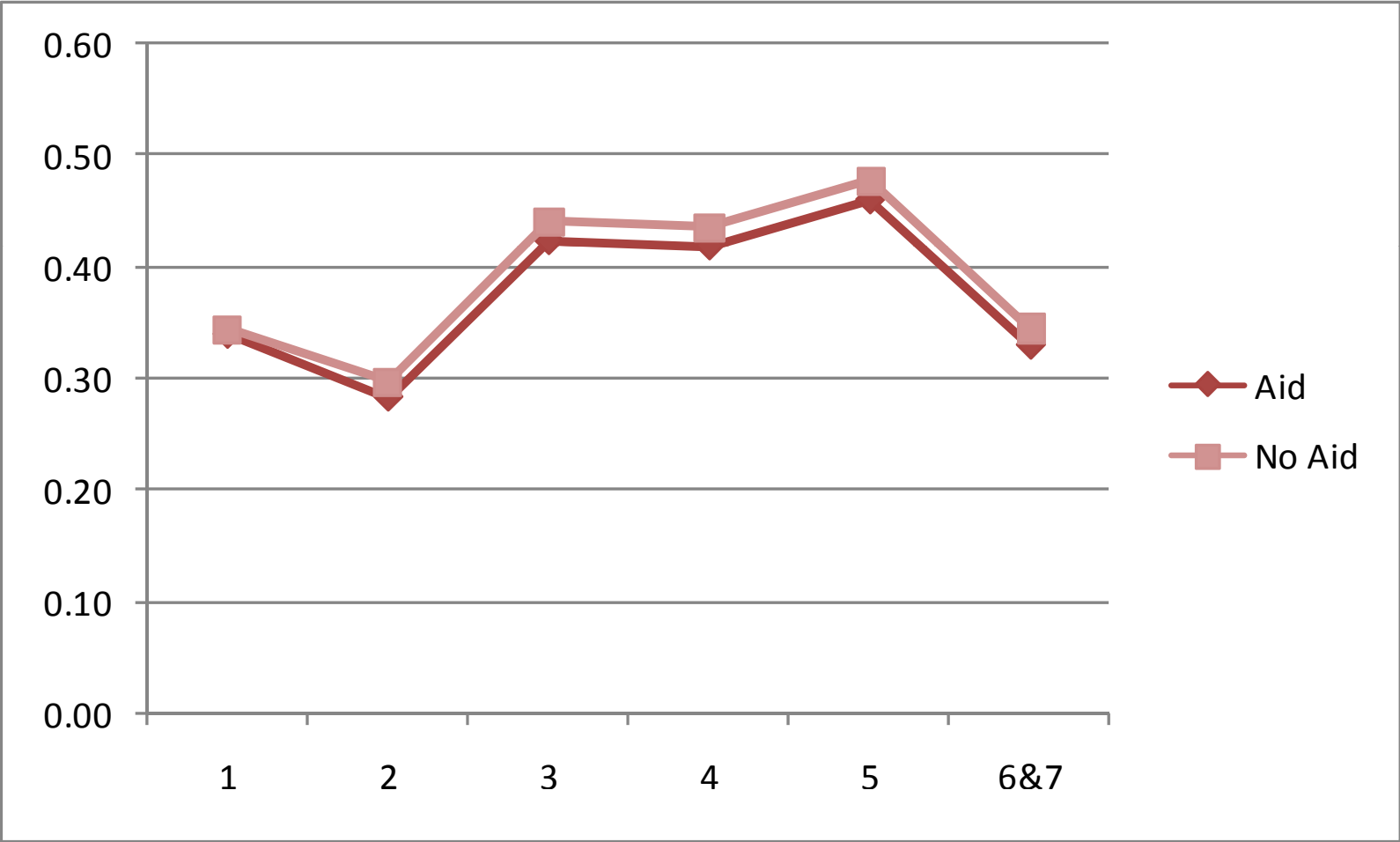


\*not statistically significant

# Full & Main Effects of Time Models

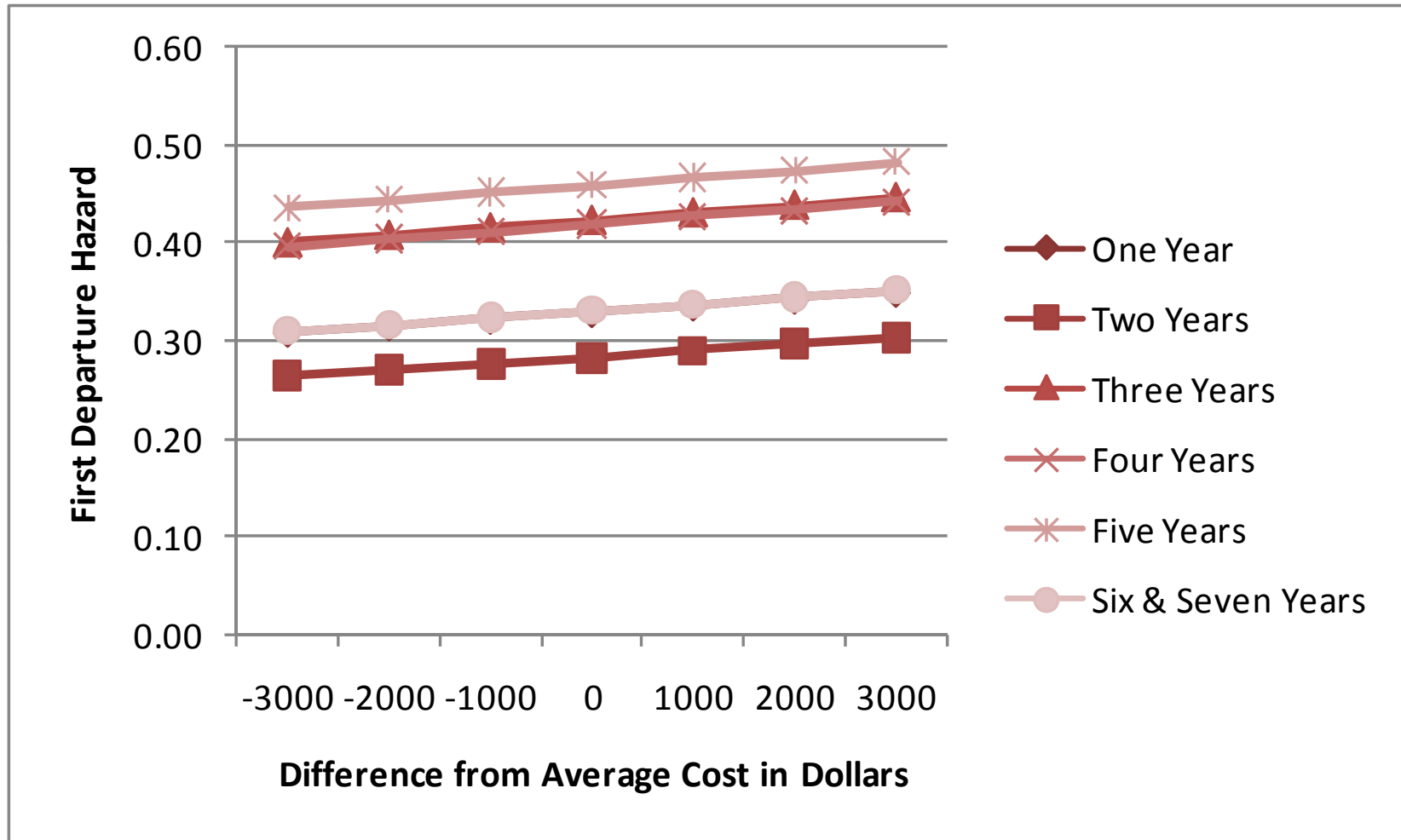


# First Departure by Aid Receipt



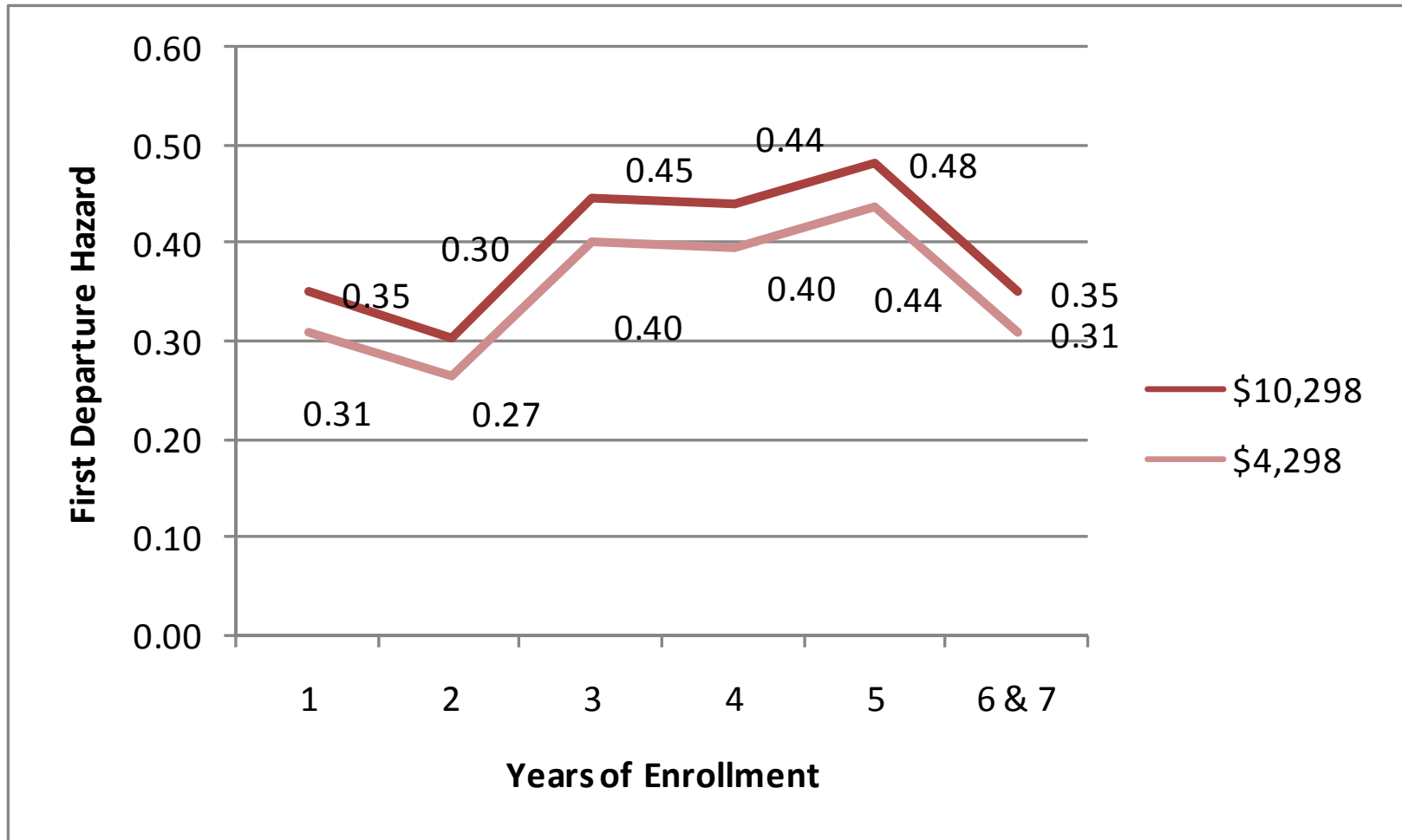
# Differential Effects of Cost on First Departure

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# Hazard Profiles for Simulated Costs

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# Conclusions & Implications

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- Sufficiency of aid?
  - ▣ Proportionally the use of grants decreased over time while loans increased
  - ▣ An increase in loans was associated with decreased incidence of departure, *ceteris paribus*
  - ▣ Grants were not statistically related to departure
  - ▣ However, total costs were associated with increased incidence of departure, *ceteris paribus*
- Receipt of aid was associated with decreased incidence of departure

# Conclusions & Implications (continued)

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- ❑ Most dramatic increase in first departure incidence occurred at the end of the first year, *ceteris paribus*
- ❑ A higher GPA, having a declared major, earning more credits, attending a regional campus, and earning 20 credits in the first year were all associated with decreased likelihood of departing
- ❑ An increase in developmental education credits and living off-campus were associated with increased likelihood of departing
- ❑ Continuous enrollment may be less common

# Future Research

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- What costs are not included in this picture, yet may affect departure?
  - ▣ Familial obligations
  - ▣ Debt load (school and otherwise)
- First departure may or may not be a competing event with graduation
- Time-varying effects versus time-constant effects of aid and other variables

# Suggestions or Additional Information

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Slides will be available at <http://pas.indiana.edu>