

Using National Student Clearinghouse Data to Measure Academic Success: A Case Study

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Institutional Research

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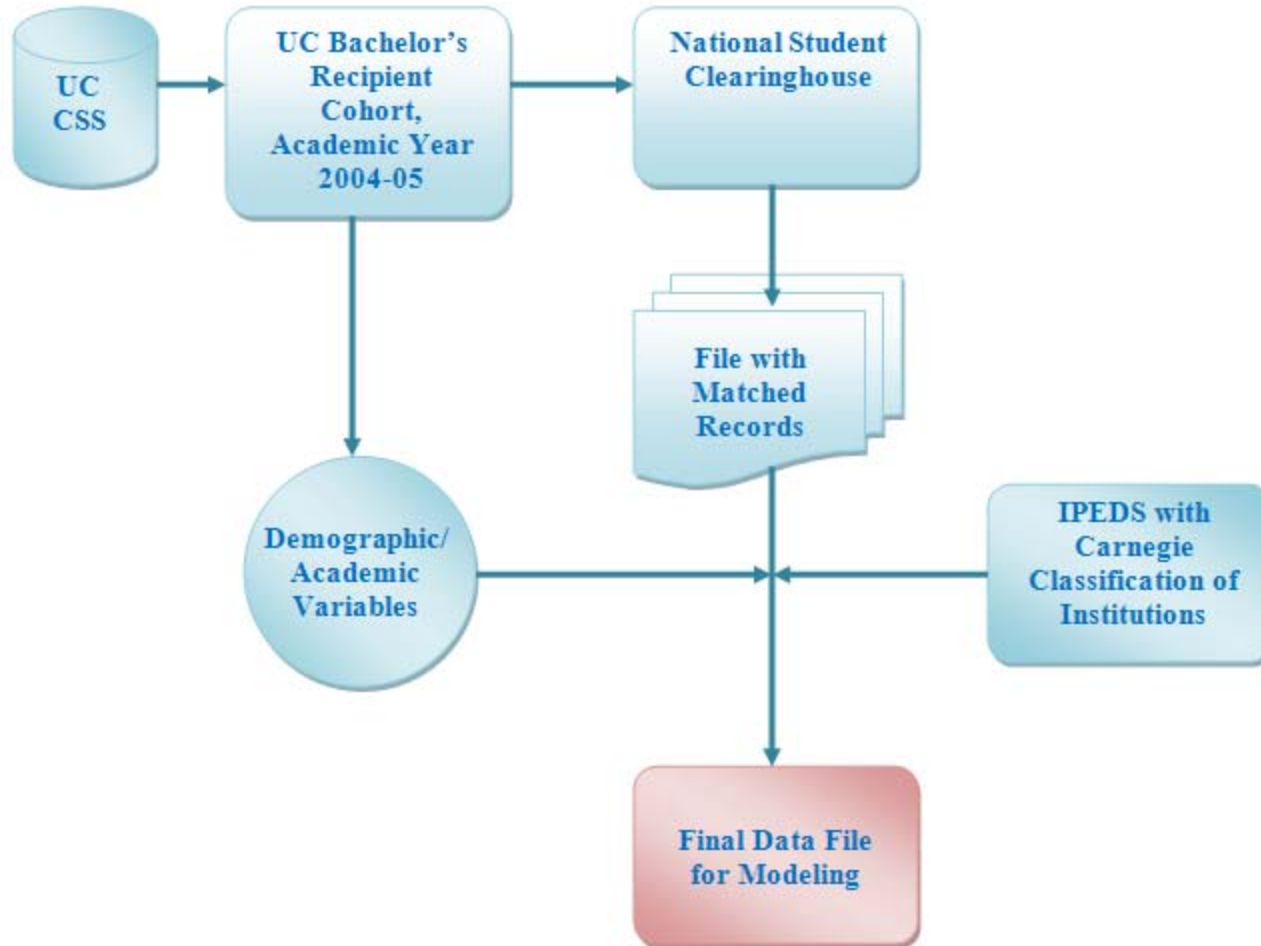
November 19, 2009

Research Questions

- What did UC students do after they earned a bachelor's degree?
- Are there any factors significantly related to their decision?

Methodology

- Data Framework for Modeling



Methodology (Continued)

- UC Data System
 - CSS (Corporate Student System) -- Undergraduate
 - Admissions Data (UADM)
 - Longitudinal Data (ULONG)
 - Registration Data (REG)
 - Degree
 - Student Financial Aid
 - DSS (Decision Support System)-New system under development

Methodology (Continued)

– Data Characteristics

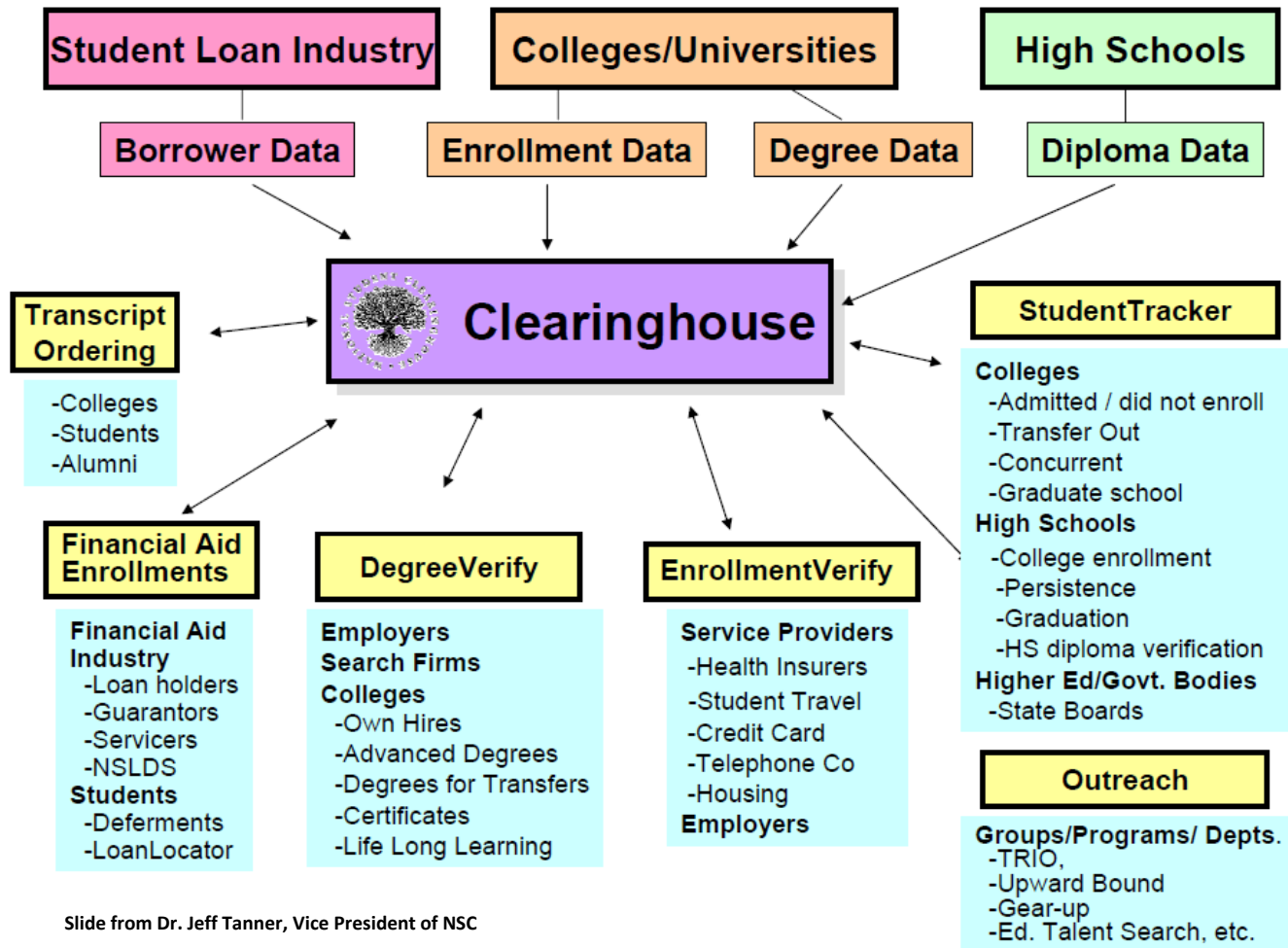
- All campuses
- Demographic variables: ethnicity, gender, age, parental income, parents' highest education...
- Academic variables: pre-college academic performance (HS GPA, SAT/ACT, etc.), UC GPA, ...
- Other information: entry year, applicant level, student debt at graduation time, ...

Methodology (Continued)

- The National Student Clearinghouse
 - Source for post-secondary student degree and enrollment verification
 - Established in 1993
 - Participating colleges and universities: 3,400 by 11/16/2009
 - Costs: Participation costs are paid by data users not data providers

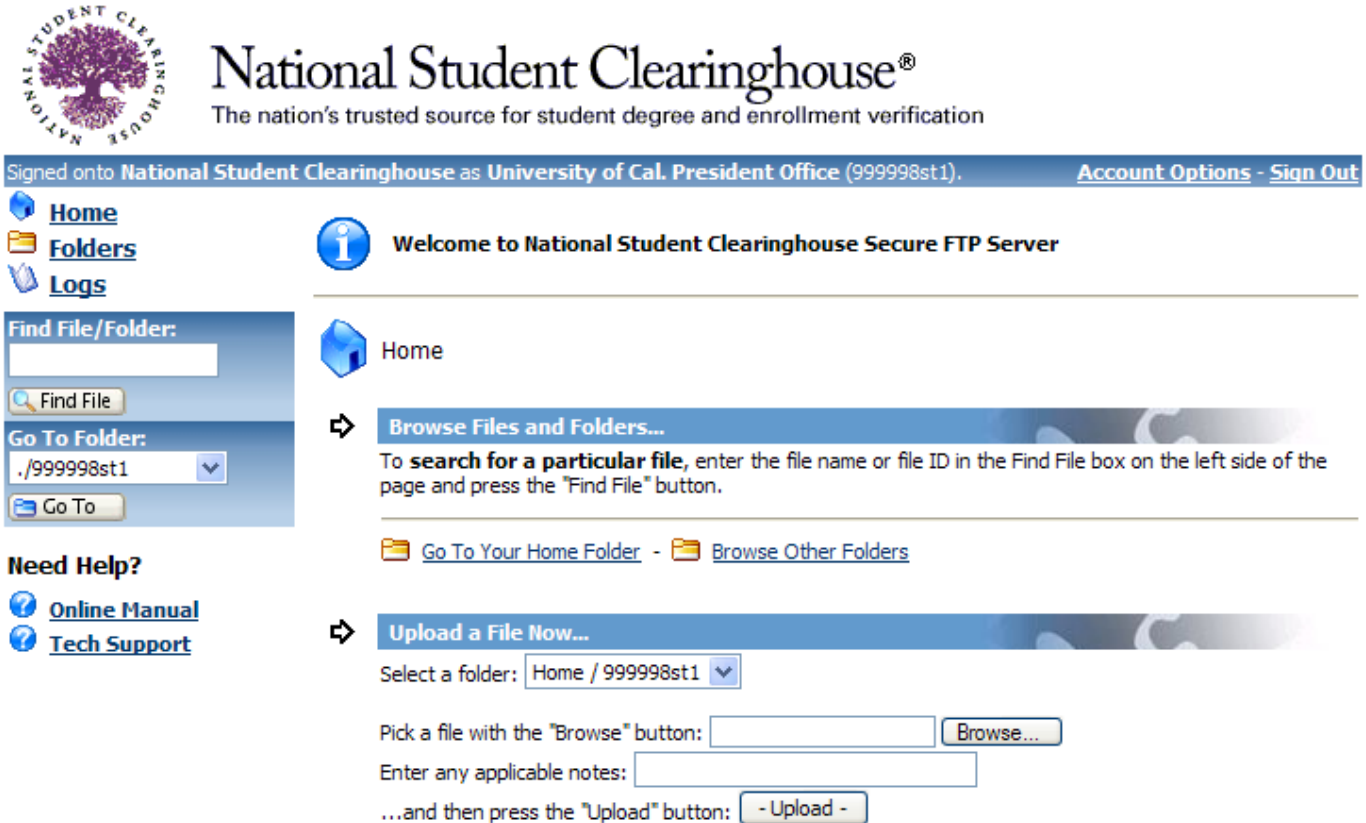
Methodology (Continued)

– What can we do with the NSC?



Methodology (Continued)

– Data Submission



The screenshot shows the National Student Clearinghouse Secure FTP Server interface. At the top left is the National Student Clearinghouse logo, a purple tree with the text "NATIONAL STUDENT CLEARINGHOUSE" around it. To the right of the logo is the text "National Student Clearinghouse®" and "The nation's trusted source for student degree and enrollment verification". Below this is a blue navigation bar with the text "Signed onto National Student Clearinghouse as University of Cal. President Office (999998st1)." and "Account Options - Sign Out".

On the left side, there is a navigation menu with links for "Home", "Folders", and "Logs". Below this is a "Find File/Folder:" section with a search box and a "Find File" button. Underneath is a "Go To Folder:" section with a dropdown menu showing ". / 999998st1" and a "Go To" button. At the bottom left is a "Need Help?" section with links for "Online Manual" and "Tech Support".

The main content area has a header "Welcome to National Student Clearinghouse Secure FTP Server" with an information icon. Below this is a "Home" section with a house icon. The "Browse Files and Folders..." section contains instructions: "To search for a particular file, enter the file name or file ID in the Find File box on the left side of the page and press the 'Find File' button." Below this are links for "Go To Your Home Folder" and "Browse Other Folders".

The "Upload a File Now..." section includes a "Select a folder:" dropdown menu showing "Home / 999998st1", a "Pick a file with the 'Browse' button:" section with a text box and a "Browse..." button, an "Enter any applicable notes:" section with a text box, and "...and then press the 'Upload' button:" section with a "- Upload -" button.

Methodology (Continued)

– Request File Template

	A	B	C	D	E	F	G	H	I	J	K	L
	Record Type 2 characters	SSN	First Name	Middle Initial 1 character	Last Name	Suffix 5 characters	DOB	Search Begin Date ¹	Leave Blank 1 character	School Code	Branch Code 2 characters	Identifier Information (use period as separator)
2	D1		John	A	Doe	Sr	19861003	20080501		001234	00	Student ID 1
3	D1		Paul	B	Smith		19860801	20080501		001234	00	Student ID 2
4	D1		Mary	C	Gray-Roberts		19870801	20080501		001234	00	Student ID 3
5	D1		Hector	D	Ricardo	III	19870702	20080501		001234	00	Student ID 4
6	D1		Tina	E	Wong		19860302	20080501		001234	00	Student ID 5
			20 characters		20 characters		8 characters	8 characters		6 characters		50 characters (including separator)

Max. column width:
PENDING ADMISSIONS ONLY
9 characters

```

500113_UCSDCREATE2009ALL_20091026.tfr - Notepad
File Edit Format View Help
H150011300UC President AR                20091026SES
D1      CANDACE                O'NEAL-THOMPSON    1988010120060701    00010188156
D1      THUY                    LY                  1990010120080701    00010190967
D1      JOSUE                    DORIA               1986010220040701    00010286638
D1      BRANDI                   MEZA                1987010220050701    00010287201
D1      REYES                     GARCIA              1989010320070701    00010389241
D1      STEPHANIE                 ZAPIEN              1990010320080701    00010390591
D1      DWIGHT                     NWAIGWE             1987010420050701    00010487579
D1      ERIC                       RAMIREZ             1988010520060701    00010588120
D1      OMAR                       MORA                1988010520060701    00010588251
D1      STEPHEN                    MCKINNEY            1988010520050701    00010588472
D1      TANYSHIA                   RIDLEY              1988010620060701    00010688400
D1      ALEX                       INTHAVONG           1989010620070701    00010689180
  
```

Methodology (Continued)

– Response File—Student Detail Report

A	B	C	D	E	F	G	H	I	J	K
Your Unique Identifier	First Name	Middle Initial	Last Name	Name Suffix	Requester Return Field	Record Found Y/N	Search Date	College Code/Branch	College Name	College State
	JANE	T	DOE		881-97037_	Y	20000703	000134-00	NORTH POLE UNIVERSITY	CO
	JANE	T	DOE		881-97037_	Y	20000703	000134-00	NORTH POLE UNIVERSITY	CO
	JANE	T	DOE		881-97037_	Y	20000703	000134-00	NORTH POLE UNIVERSITY	CO
	JANE	T	DOE		881-97037_	Y	20000703	001360-00	COSMOPOLITAN COLLEGE	CO
	JANE	T	DOE		881-97037_	Y	20000703	001360-00	COSMOPOLITAN COLLEGE	CO
	JANE	T	DOE		881-97037_	Y	20000703	001360-00	COSMOPOLITAN COLLEGE	CO
	JOHN	S	DOE	JR	881-92282_	Y	20000703	000156-00	DALE COMMUNITY COLLEGE	MT
	JOHN	S	DOE	JR	881-92282_	Y	20000703	000156-00	DALE COMMUNITY COLLEGE	MT
	JOHN	S	DOE	JR	881-92282_	Y	20000703	000156-00	DALE COMMUNITY COLLEGE	MT
	JOHN	S	DOE	JR	881-92282_	Y	20000703	000156-00	DALE COMMUNITY COLLEGE	MT
	JOHN	S	DOE	JR	881-92282_	Y	20000703	000156-00	DALE COMMUNITY COLLEGE	MT
	JOHN	S	DOE	JR	881-92282_	Y	20000703	000156-00	DALE COMMUNITY COLLEGE	MT
	JOHN	S	DOE	JR	881-92282_	Y	20000703	000156-00	DALE COMMUNITY COLLEGE	MT
	JOHN	S	DOE	JR	881-92282_	Y	20000703	000156-00	DALE COMMUNITY COLLEGE	MT
	JOHN	S	DOE	JR	881-92282_	Y	20000703	000156-00	DALE COMMUNITY COLLEGE	MT
	CARMEN	A	JONES		002-61778_	Y	20020129	001234-00	HOMETOWN UNIVERSITY	ID
	CARMEN	A	JONES		002-61778_	Y	20020129	001261-00	TASADENA CITY COLLEGE	CA
	CARMEN	A	JONES		002-61778_	Y	20020129	001261-00	TASADENA CITY COLLEGE	CA
	CARMEN	A	JONES		002-61778_	Y	20020129	001208-00	BROSSMONT COLLEGE	CA
	CARMEN	A	JONES		002-61778_	Y	20020129	001286-00	SANTA LISA COLLEGE	CA
	REBECCA	R	WILSON		881-99178_	Y	20010910	001234-00	HOMETOWN UNIVERSITY	ID
	LANCE	C	SMITH		881-92631_	Y	20000703	000178-00	ASTER UNIVERSITY	NV
	LANCE	C	SMITH		881-92631_	Y	20000703	000178-00	ASTER UNIVERSITY	NV
	LANCE	C	SMITH		881-92631_	Y	20000703	001196-00	SUNSET UNIVERSITY	CA
	LANCE	C	SMITH		881-92631_	Y	20000703	001196-00	SUNSET UNIVERSITY	CA
	LANCE	C	SMITH		881-92631_	Y	20000703	001196-00	SUNSET UNIVERSITY	CA
	LANCE	C	SMITH		881-92631_	Y	20000703	001196-00	SUNSET UNIVERSITY	CA
	LANCE	C	SMITH		881-92631_	Y	20000703	001196-00	SUNSET UNIVERSITY	CA

The 1st column contains the student's SSN. It is used only for the Pending Admissions (PA) inquiry.

Methodology (Continued)

– Response File—Student Detail Report

L	M	N	O	P	Q	R	S	T	U
2-year/ 4-year	Public/ Private	Enrollment Begin	Enrollment End	Enrollment Status	Graduated?	Graduation Date	Degree Title	Major	College Sequence
4	Public	20000828	20001215	F	N				1
4	Public	20010116	20010511	F	N				
4	Public	20010514	20010810	H	N				
4	Public	20010820	20011215		N				2
4	Public	20020122	20020518		N				
4	Public	20020819	20021214		N				
4	Private	20000828	20001214	F	N				1
4	Private	20010108	20010503	F	N				
4	Private	20010827	20011213	F	N				
4	Private	20020107	20020502	F	N				
4	Private	20020826	20021212	F	N				
4	Private	20030106	20030501	F	N				
4	Private	20030825	20031211	F	N				
4	Private	20040112	20040506	F	N				
4	Private				Y	20040506			
4	Public	20020114	20020305	W	N				1
2	Public	20020114	20020525		N				2
2	Public	20020528	20020817		N				
2	Public	20040126	20040422		N				3
2	Public	20040830	20041201		N				4
4	Public	20010827	20011017	W	N				1
4	Public	20010827	20011219	F	N				1
4	Public	20020122	20020514	W	N				
4	Private	20030825	20031206	F	N				2
4	Private	20040120	20040512	F	N				
4	Private	20040823	20041205	F	N				
4	Private	20050118	20050503	F	N				
4	Private				Y	20051203			

The Detail Report
The detail report provides specific enrollment information and a graduation indicator for each student that you submitted for whom data was available in the Clearinghouse database.

This column shows the sequential order of each school that the student attended. In this example highlighted in blue, the student attended Aster University first (shown as 1) and later attended Sunset University (shown as 2). The sequence number is only shown on the row displaying the student's initial attendance at each school.

Methodology (Continued)

- Population (Graduation Cohort, 2004-05)

Degree Type	#	%
Bachelor of Arts	26,275	66.27%
Bachelor of Science	13,252	33.43%
Other	119	0.30%
Total	39,646	100.00%
Gender	#	%
Male	17,589	43.71%
Female	22,057	54.81%
Total	39,646	100.00%
Applicant Level	#	%
Freshman	25,862	64.27%
Transfer	13,111	32.58%
Other	673	1.67%
Total	39,646	100.00%
Ethnicity	#	%
Asian	14,664	36.44%
African American	1,054	2.62%
Hispanic	4,936	12.27%
White	14,990	37.25%
Other	4,002	9.95%
Total	39,646	98.52%

Methodology (Continued)

- Population

Discipline	#	%
Engineering	4,414	10.97%
Science	7,253	18.02%
Social Science	11,639	28.92%
Humanity	6,200	15.41%
Other	10,140	25.20%
Total	39,646	98.52%

Entering Year	#	%
Before 1997	1,152	2.86%
1997	318	0.79%
1998	618	1.54%
1999	2,038	5.06%
2000	9,216	22.90%
2001	15,165	37.69%
2002	6,182	15.36%
2003	4,934	12.26%
2004	20	0.05%
Unknown	3	0.01%
Total	39,646	98.52%

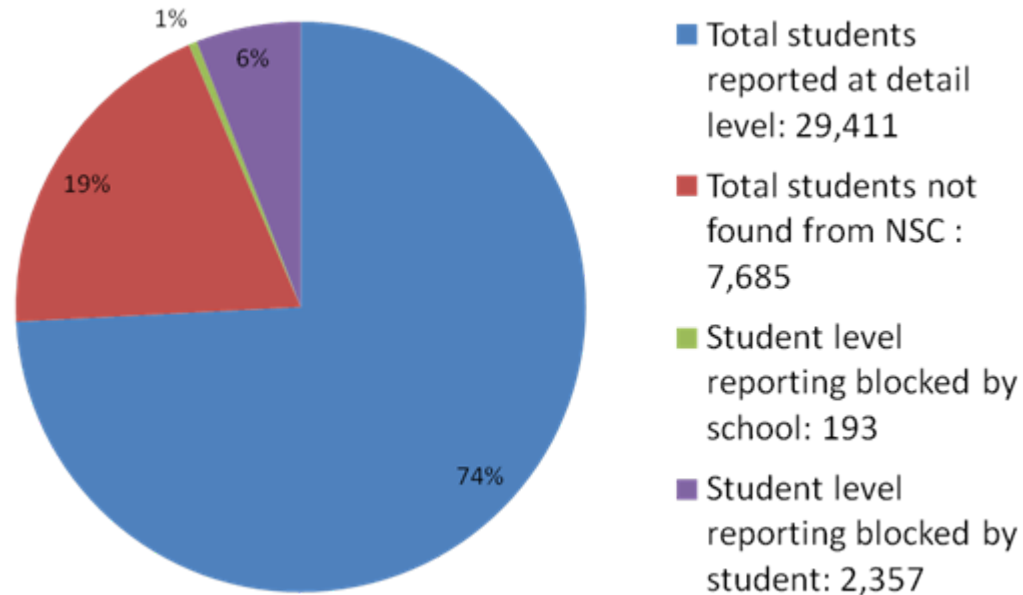
Methodology (Continued)

- Population

Campus	#	%
Berkeley	6,413	15.94%
San Francisco	11	0.03%
Davis	5,505	13.68%
Los Angeles	7,211	17.92%
Riverside	3,003	7.46%
San Diego	4,998	12.42%
Santa Cruz	2,908	7.23%
Santa Barbara	4,576	11.37%
Irvine	5,021	12.48%
Total	39,646	98.52%

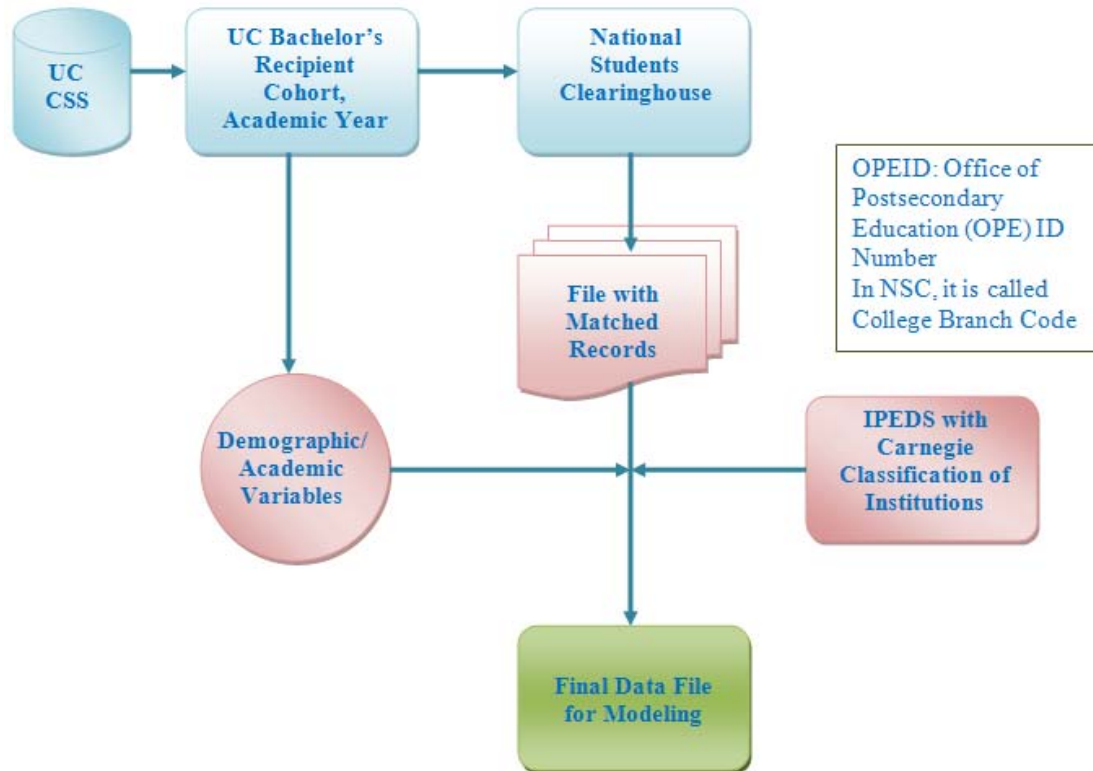
Methodology (Continued)

- Response Data from NSC



Methodology (Continued)

- Add UC Variables and Carnegie Classification



Methodology (Continued)

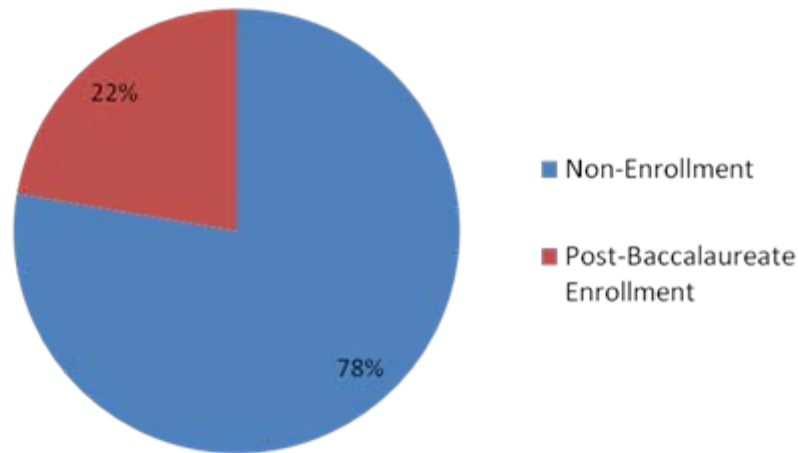
- Analysis
 - Enrollment Period
 - Immediate enrollment after they graduated or between August 1st and December 1st, 2005
 - Full/half time, at least two consecutive terms from August 1st, 2005 to June 2009
 - Post-baccalaureate enrollment choice (Dependent Variables)
 - Non-post-baccalaureate enrollment (either stay at home or work somewhere)
 - Two-year college
 - Four-year non-research university
 - Research university
 - Methods
 - Descriptive statistics—What did they do?
 - Polynomial Logistic Regression—Any significant factors?

Methodology (Continued)

- Analysis
 - Independent Variables
 - Gender
 - Ethnicity (Asian, African American, Hispanic, White, Other)
 - Age
 - Debt
 - Graduation GPA
 - Applicant level (freshman vs. transfer)
 - Discipline (Engineering, Science, Social Science, Humanity, Other)

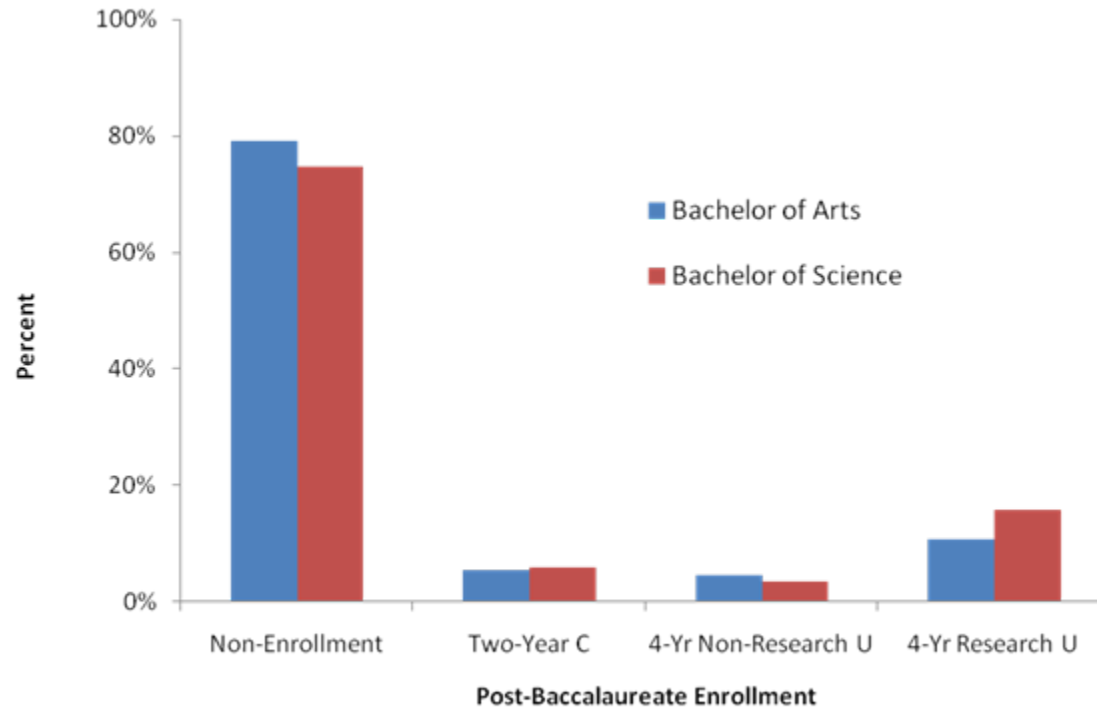
Results

- Immediate post-baccalaureate enrollment
 - They must enroll between August 1, 2005 and Dec. 1
 - No matter whether they enrolled full time or part time.
 - If they enrolled at multiple colleges/universities, they were excluded from this analysis (about 500 students)



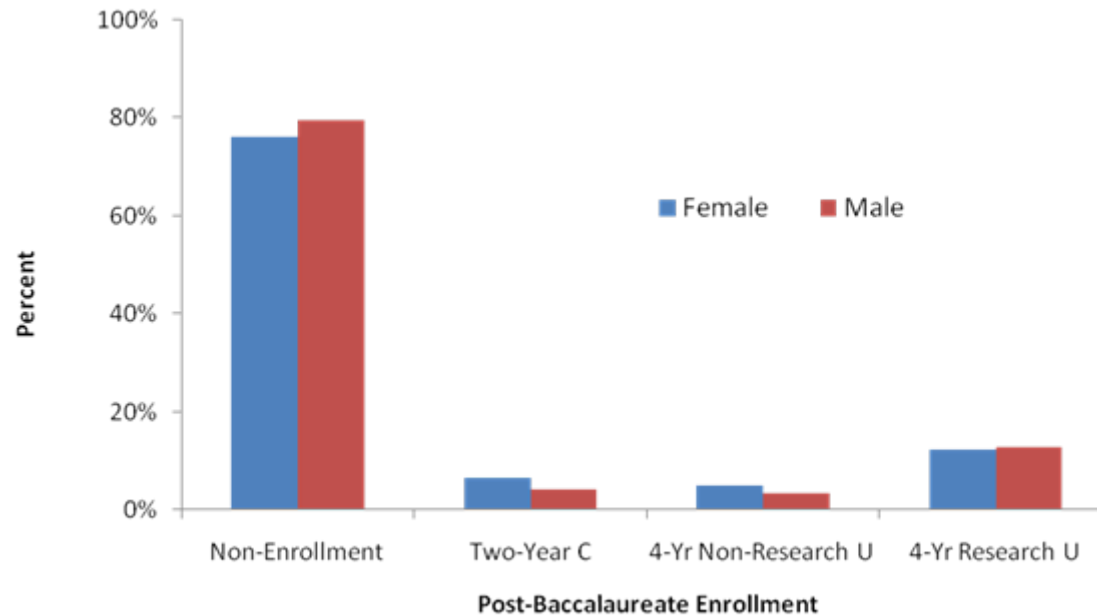
Results (Continued)

- Immediate post-baccalaureate enrollment
 - By UC Bachelor's Degree Type



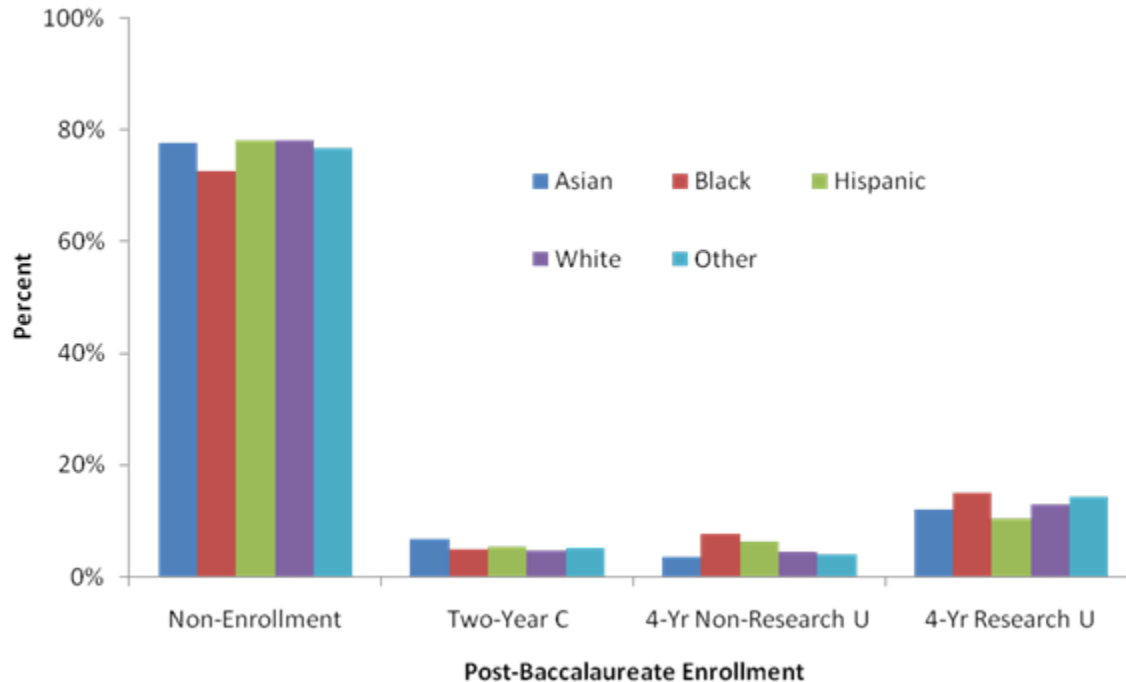
Results (Continued)

- Immediate post-baccalaureate enrollment
– By Gender



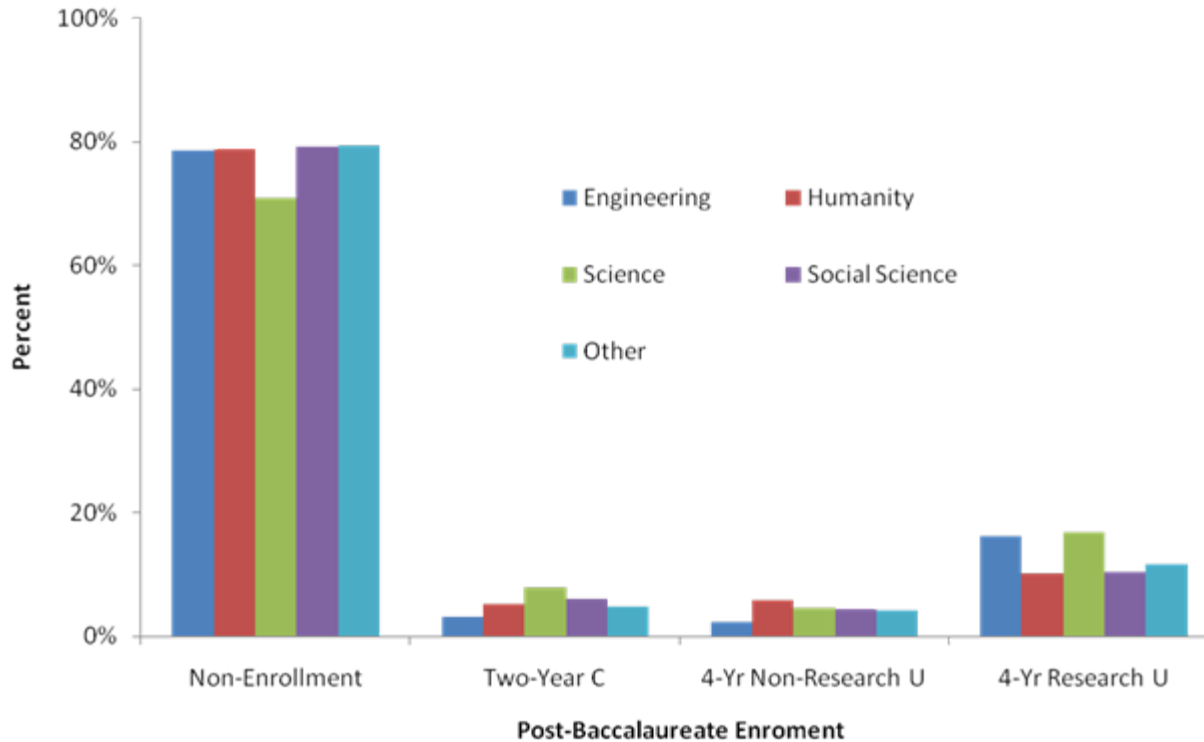
Results (Continued)

- Immediate post-baccalaureate enrollment
– By Ethnicity



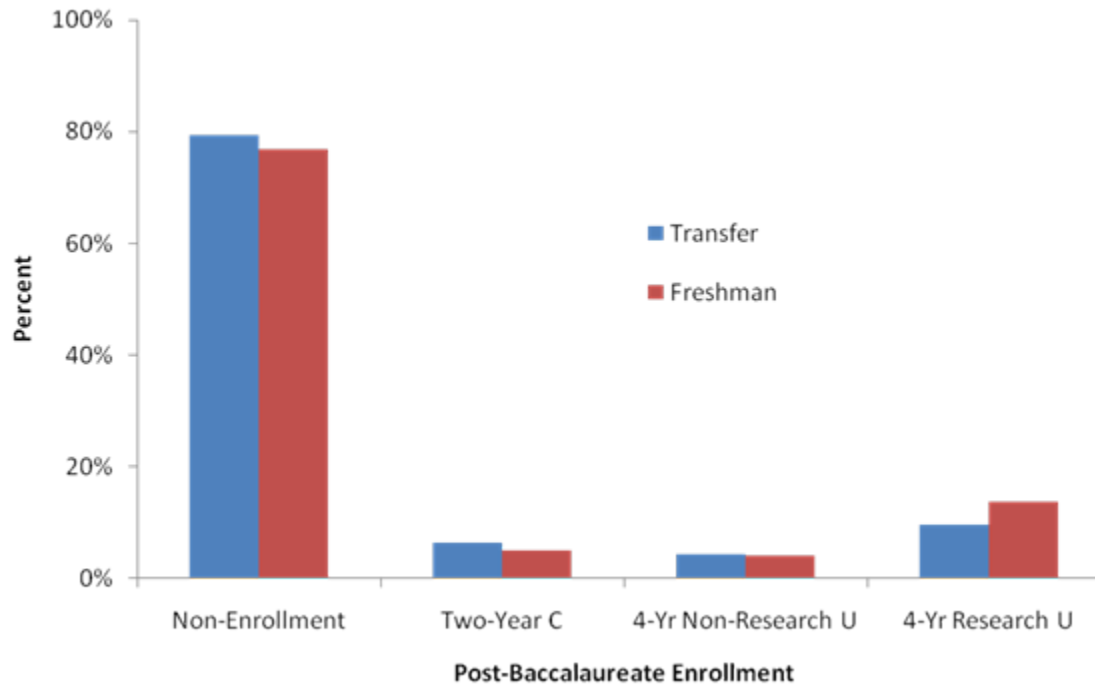
Results (Continued)

- Immediate post-baccalaureate enrollment
– By Discipline



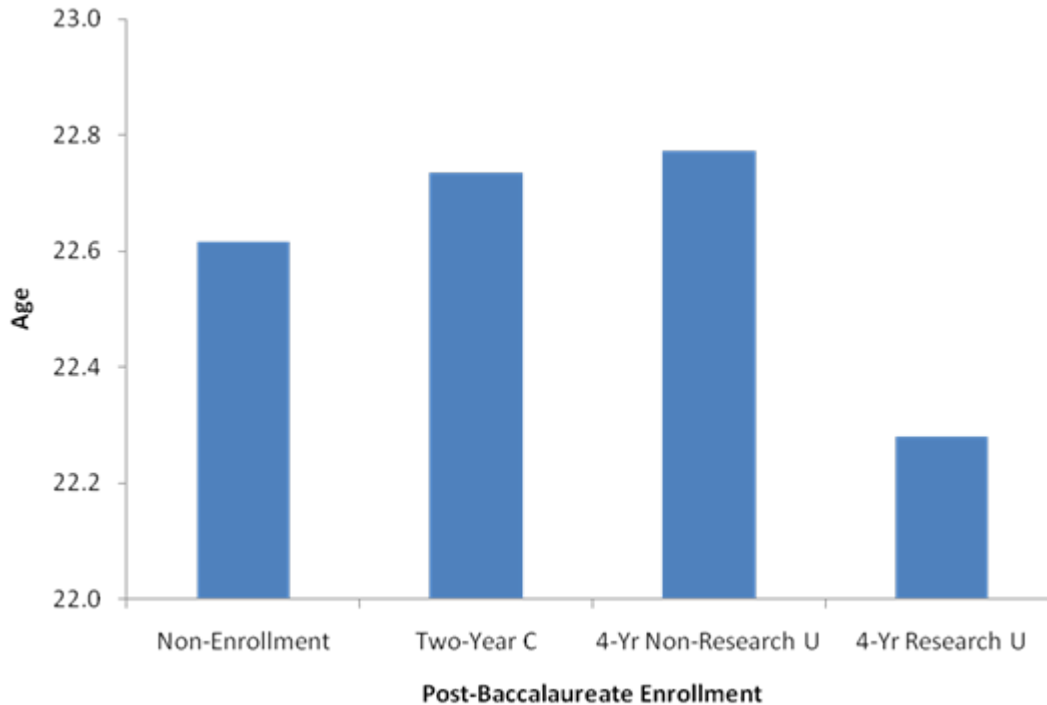
Results (Continued)

- Immediate post-baccalaureate enrollment
 - By Applicant Level



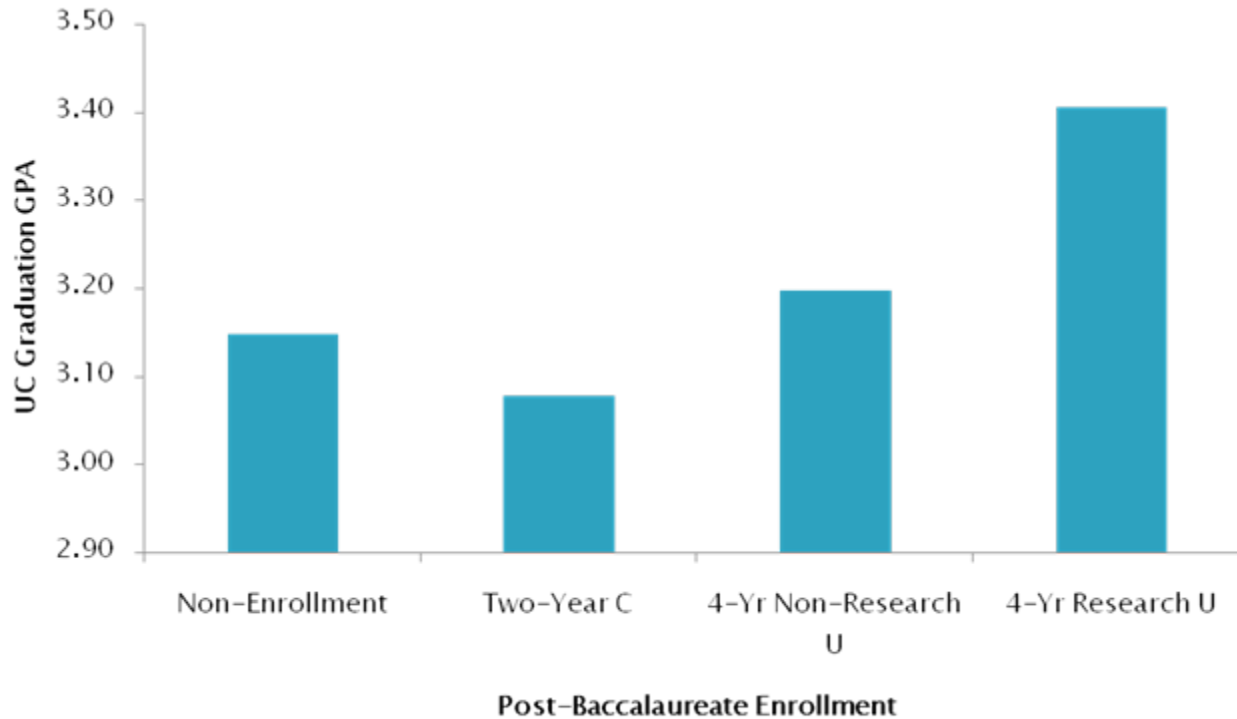
Results (Continued)

- Immediate post-baccalaureate enrollment
 - Mean Age by Enrollment Choice



Results (Continued)

- Immediate post-baccalaureate enrollment
 - Mean GPA by Enrollment Choice



Results (Continued)

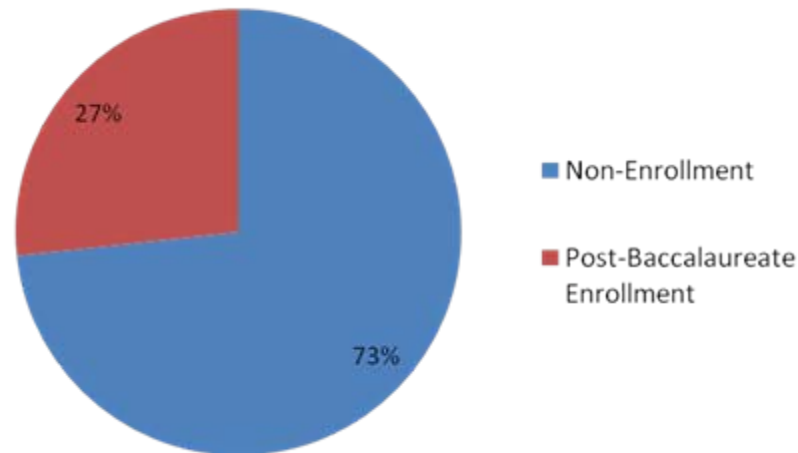
- Immediate post-baccalaureate enrollment
 - Polynomial Logistic Regression

	Non-Enrollment vs. Research University		2-Yr College vs. Research University		4-Yr Non-Research University vs. Research University	
	Estimate	Odds Ratio	Estimate	Odds Ratio	Estimate	Odds Ratio
Intercept	7.2331		6.1545		4.0011	
Loan Debt	0.0000	1.00	0.0000	1.00	0.0000	1.00
Graduation GPA	-1.6544***	0.19	-1.9449***	0.14	-1.3279***	0.27
Science	0.082**	1.09	-0.4253***	0.65	-0.2616***	0.77
Social Science	-0.2634***	0.77	-0.69***	0.50	-0.4326***	0.65
Humanity	-0.3117***	0.73	-0.6799***	0.51	-0.6097***	0.54
Other Discipline	-0.2544***	0.78	-0.5295***	0.59	-0.3929***	0.68
Female	-0.0448*	0.96	-0.287***	0.75	-0.1558***	0.86
Freshman	0.2113***	1.24	0.3432***	1.41	0.1537***	1.17
Bachelor of Arts	-0.0332	0.97	0.1108*	1.12	-0.1529	0.86
Age	-0.0034	1.00	0.0004	1.00	0.0122	1.01
Asian	-0.0528**	0.95	-0.2293***	0.80	0.0125	1.01
African American	0.3308***	1.39	0.3698***	1.45	-0.0059	0.99
Hispanic	0.0682*	1.07	0.0309	1.03	-0.1532**	0.86
Unknown/Other/American Indian	0.0652*	1.07	0.0222	1.02	0.0627	1.06

* $p < .05$; ** $p < .01$; *** $p < .001$

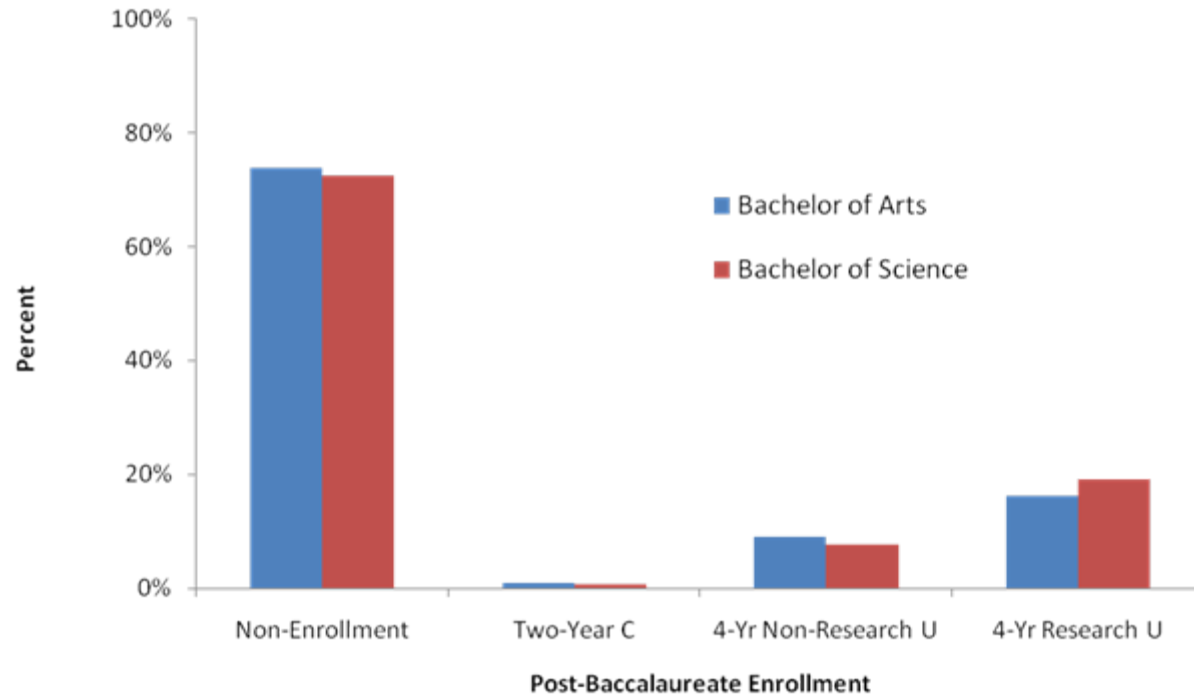
Results (Continued)

- Post-baccalaureate enrollment from August 1, 2005 to June, 2009
 - Must enroll at least half time. Full time has high priority over half time
 - Must enroll at least two consecutive terms.
 - Four year research university has priority over four year non-research university, while four year non-research university has priority over two-year college



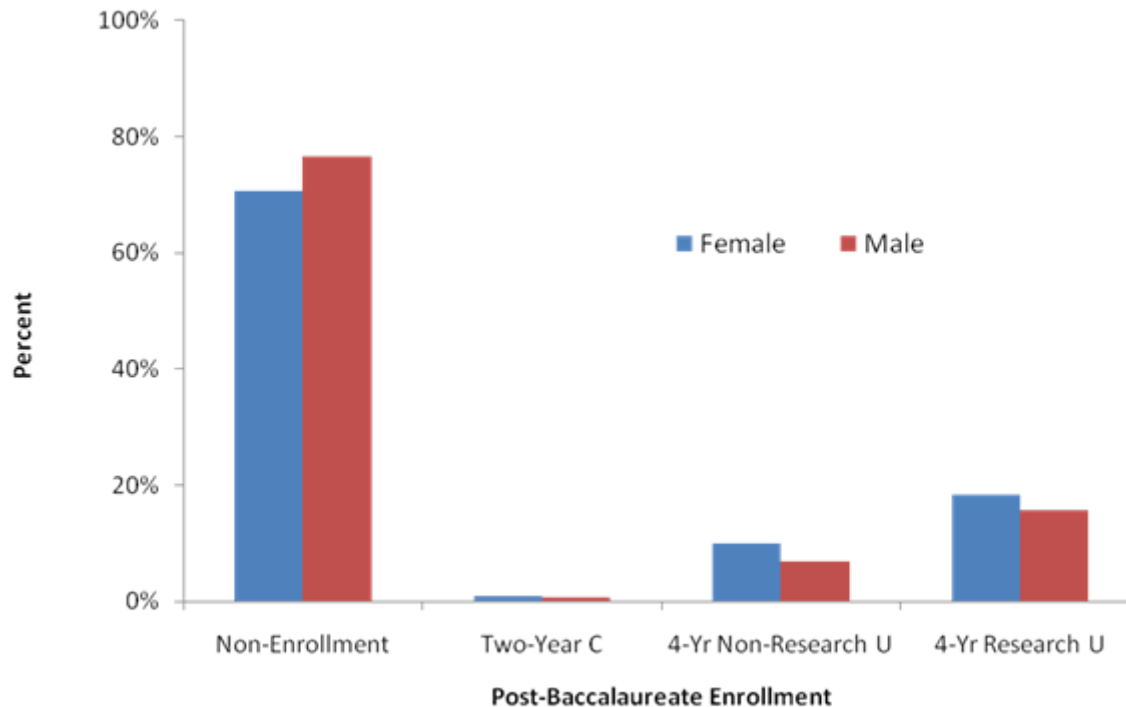
Results (Continued)

- Post-baccalaureate enrollment after August 1, 2005
 - By UC Bachelor's Degree Type



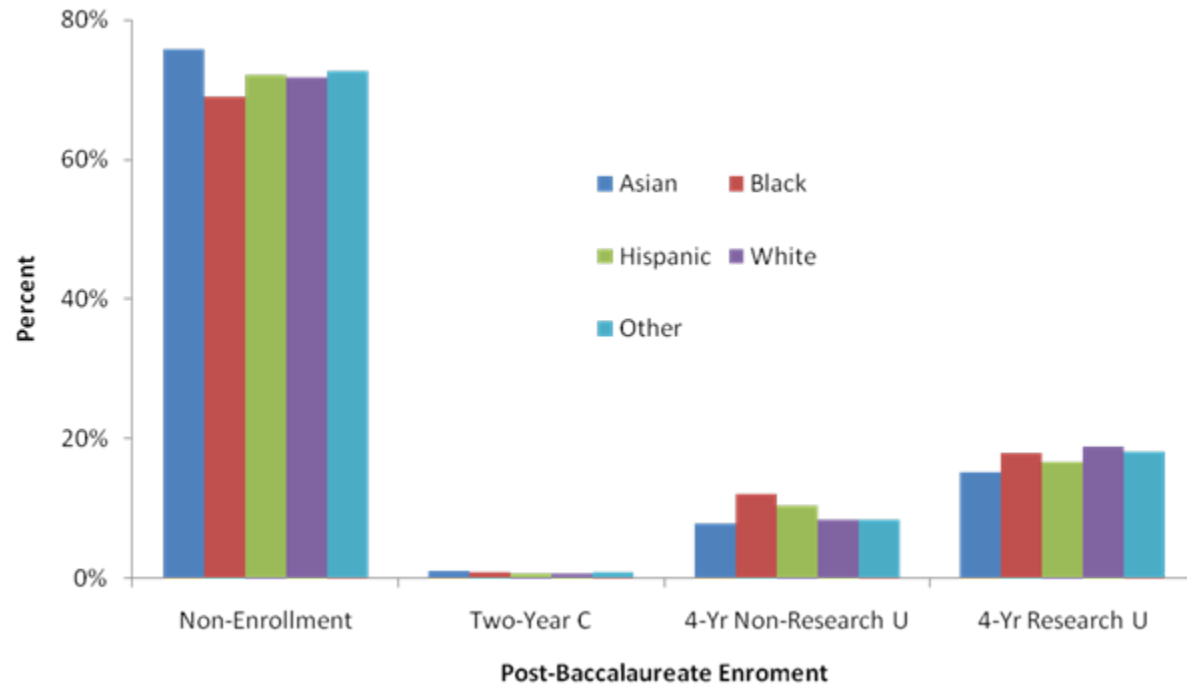
Results (Continued)

- Post-baccalaureate enrollment after August 1, 2005
 - By Gender



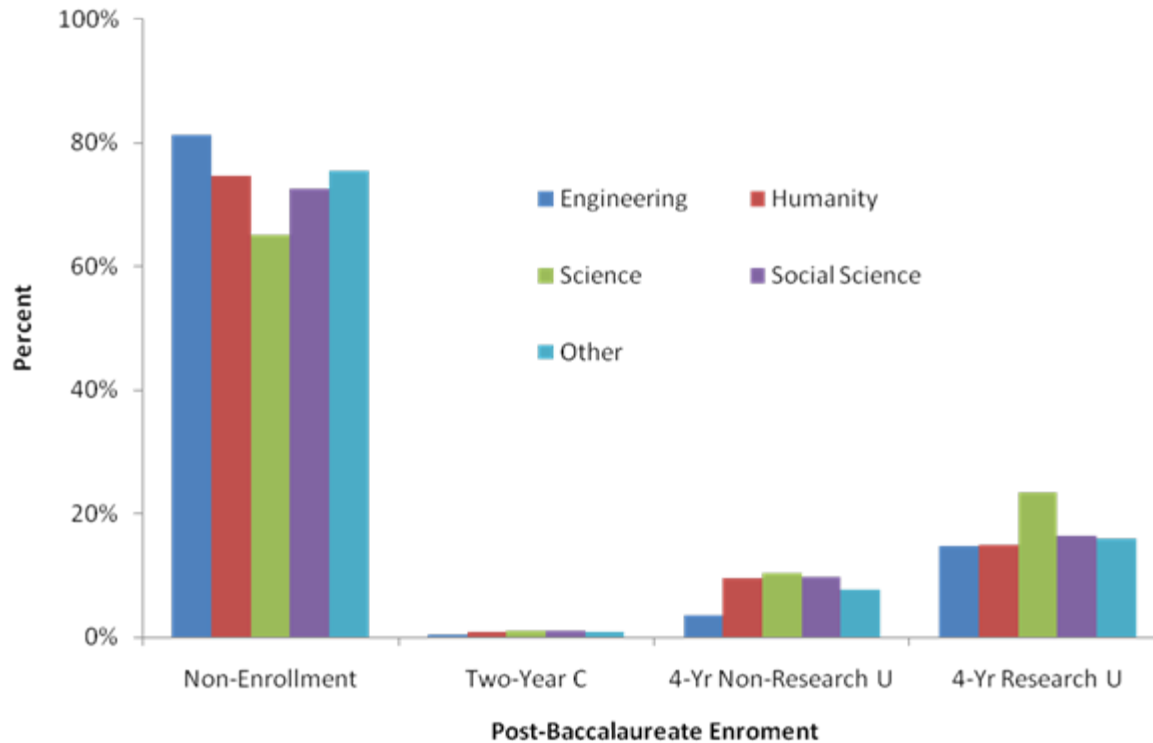
Results (Continued)

- Post-baccalaureate enrollment after August 1, 2005
 - By Ethnicity



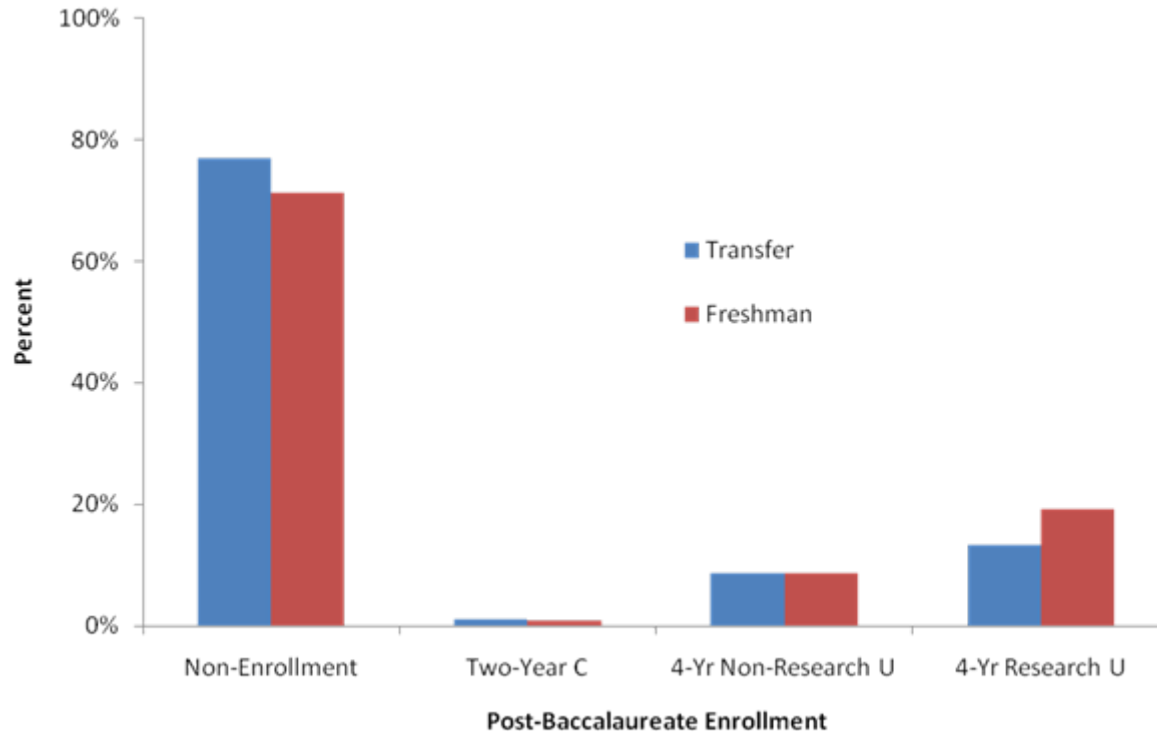
Results (Continued)

- Post-baccalaureate enrollment after August 1, 2005
 - By Discipline



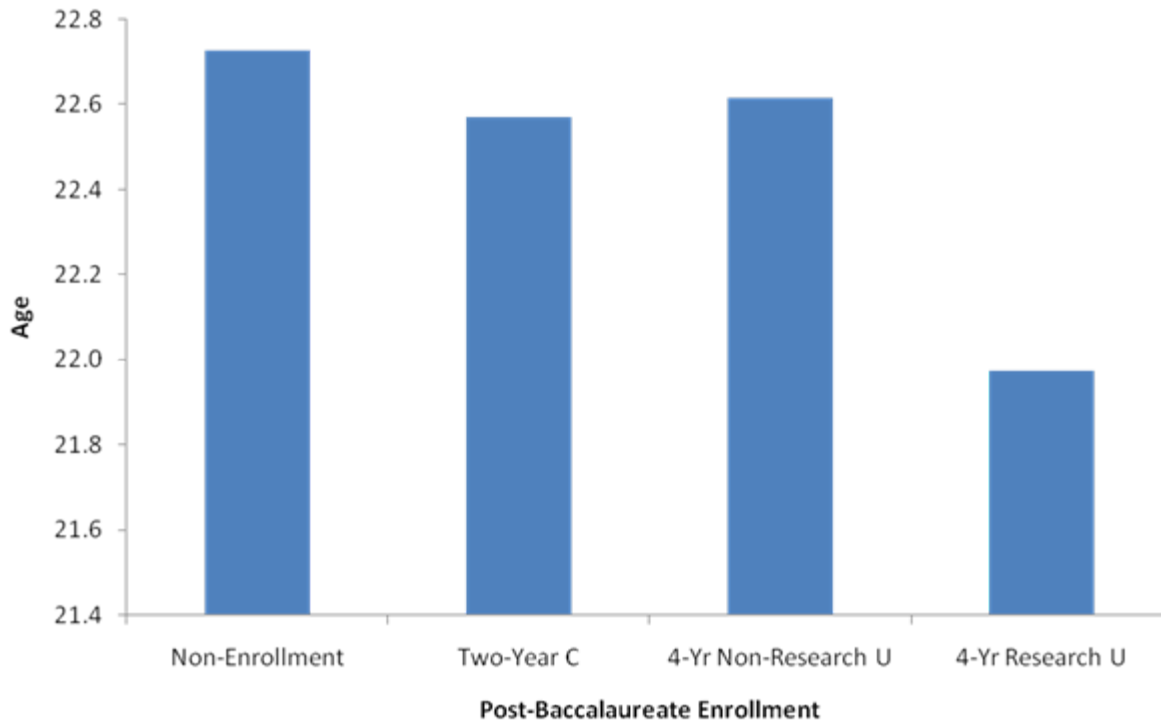
Results (Continued)

- Post-baccalaureate enrollment after August 1, 2005
 - By Applicant Level



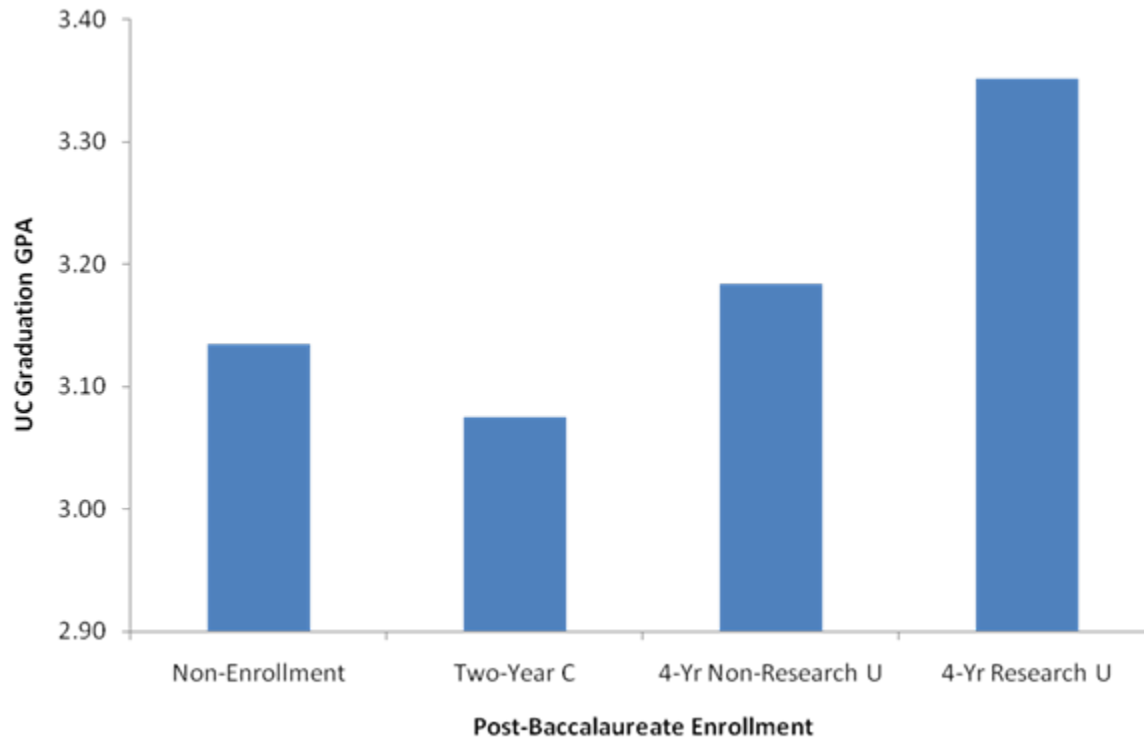
Results (Continued)

- Post-baccalaureate enrollment after August 1, 2005
 - Mean Age by Enrollment Choice



Results (Continued)

- Post-baccalaureate enrollment after August 1, 2005
 - Mean GPA by Enrollment Choice



Results (Continued)

- Post-baccalaureate enrollment after August 1, 2005 (at least half time, two consecutive terms)
 - Polynomial Logistic Regression

	Non-Enrollment vs. Research University		2-Yr College vs. Research University		4-Yr Non-Research University vs. Research University	
	Estimate	Odds Ratio	Estimate	Odds Ratio	Estimate	Odds Ratio
Intersept	3.795***		2.5193**		2.2359***	
	-				-	
Loan Debt	0.00000459**	1.00	0.000002799	1.00	0.00000686*	1.00
Graduation GPA	-1.2951***	0.27	-1.5406***	0.21	-0.9832***	0.37
Science	0.3072***	1.36	-0.2481	0.78	-0.284**	0.75
Social Science	0.0495	1.05	-0.4287*	0.65	-0.4307***	0.65
Humanity	-0.0677	0.93	-0.4757**	0.62	-0.5151***	0.60
Other Discipline	-0.046	0.96	-0.4516**	0.64	-0.3814**	0.68
Female	0.0354*	1.04	-0.0359	0.96	-0.1316***	0.88
Freshman	0.1596***	1.17	0.349***	1.42	0.0791**	1.08
Bachelor of Arts	0.00402	1.00	0.0068	1.01	0.0252	1.03
Age	0.0628***	1.06	0.00625	1.01	0.0637***	1.07
Asian	-0.1087***	0.90	-0.2926***	0.75	-0.0775**	0.93
African American	0.1512**	1.16	0.0839	1.09	-0.0656	0.94
Hispanic	0.0727**	1.08	0.0773	1.08	-0.0657	0.94
Uknown/Other/American Indian	-0.00251	1.00	0.0221	1.02	-0.0273	0.97

Findings

- About 77% stayed at home or worked somewhere immediately after they graduated from undergraduate programs.
- About 5% of bachelor's degree recipients went back to 2-year colleges immediately. About 1% enrolled at 2-year colleges at least half-time in at least two consecutive terms.
- About 13% enrolled at research universities immediately, while about 17% enrolled full-time or part-time and at least two consecutive terms within three years after they graduated.

Findings (Continued)

- Graduation GPA, degree major, applicant level, gender, ethnicity, and Graduation are significantly related to post-baccalaureate enrollment.

Conclusions

- **NSC:** The NSC Student Tracker is an excellent tool we can use to get information for student success evaluation.
- **Academic Success:** one thing worth considering is the relationship of degree and work-related skills and also the balance of curriculum between liberal education and professional training.

Challenges of Using the NSC Data to Measure Academic Success

- No enrollment level (undergraduate vs. graduate)
- No job information
- Multiple records for many students (maximum records for a single student is 31 for this project)
- The match algorithm problem—name, birthdate , etc. must be accurate.
- Missing values, e.g., degree type, major, etc.



Questions!

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