

# **Institutional Stratification by Race/Ethnicity and Gender: Have We Made Any Progress?**

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# Stratification as system design

- Institutional stratification is a process of *differentiation* among universities in both student and college quality
- Differentiation functions as an adaptation to growth but also as a solution to fundamental value conflicts between a desire for elite functions and for student equity
- This reduces conflict and leads to desired periods of stability, but these may be temporary; resource scarcity and political mobilization may threaten elite control

# Stratification is highly institutionalized

- Institutional stratification is widely accepted and taken-for-granted among policymakers and the public
- Policy initiatives that support stratification of institutions tend to be strongly supported through policy statements and in the media
- Policy initiatives that attempt to weaken stratification of institutions face pressures toward conformity
- “Destratified” organizational designs face persistent problems of legitimacy

# Implications for access & equity

- If the institutional logic of mission differentiation is so powerful among policymakers, we need to ask:  
*What cost do we pay for this practice in student access and human capital development?*
- Research Questions:  
*Has stratification in United States postsecondary destinations increased or decreased over time?*  
*How does increasing competitiveness in admissions affect various student populations?*

# METHODOLOGY

# Data and Sample

High school senior class of	Data
1972	National Longitudinal Survey (NLS)
1982	High School and Beyond (HS&B)
1992	National Educational Longitudinal Survey (NELS)
2004	Educational Longitudinal Survey (ELS)

Sample is restricted to students completing high school within 1.5 years of graduating class

Weights are applied so findings are nationally representative

# Dependent Variable

- Survey data on first institution attended
- Six and seven-category selectivity variables using 2004 *Barron's* data plus non-enrollment
  - (1) No PSE; (2) 2-year institution;
  - (3) Non-competitive 4-year; (4) Competitive;
  - (5) Very competitive; (6) Highly competitive;
  - (7) Most competitive
- Categories 6 and 7 combined for race/ethnicity analyses

# Independent Variables

Variable	NLS	HSB	NELS	ELS
Demographic & degree expectation controls	X	X	X	X
HS characteristics controls	X	X	X	X
SAT	X	X	X	X
HS GPA		X	X	X
Highest math and science courses taken		X	X	X
Extracurricular involvement	X	X	X	X
Extracurricular leadership	X		X	X
1 <sup>st</sup> and 2 <sup>nd</sup> gen. immigrant status			X	X

	1972	1982	1992	2004
Not enrolled	44.0%	35.7%	28.3%	21.8%
2 year	23.4%	30.0%	27.9%	30.9%
Non-compet. 4 yr.	8.9%	8.7%	10.5%	12.8%
Competitive	12.2%	13.4%	16.6%	18.3%
Very competitive	7.2%	7.3%	9.3%	9.8%
Most competitive	4.3%	5.0%	7.4%	6.4%
White	84.9%	79.3%	72.9%	62.7%
Black	8.3%	11.9%	11.8%	12.9%
Latino	3.5%	6.3%	9.7%	14.8%
Asian American	1.1%	1.3%	4.4%	4.4%
Female	51.0%	51.4%	49.7%	51.3%

# Limitations

- Longitudinal dataset is a strength of our work, but there are costs
  - Heterogeneity within race/ethnicity categories
- Analysis
  - Unable to include 1972 grades and coursetaking in our models (no transcript data in NLS)
  - 18 month threshold and focusing on first institution attended may downwardly bias Black and Latino students' enrollment estimates

# Analysis: Race/ Ethnicity

## Multinomial logistic regression

- Five regression equations for each of the six outcomes minus one reference outcome (non-selective four-year institutions)
- Estimates the odds of a given outcome in relation to odds of enrolling in a non-selective four-year institution
- Run separately for 1982, 1992, and 2004 cohorts to examine trends
- We also re-estimate the model separately for each racial group in 1992 and 2004, adding immigration and extra-curricular leadership

# FINDINGS: RACE/ ETHNICITY

# Findings: Race/ Ethnicity

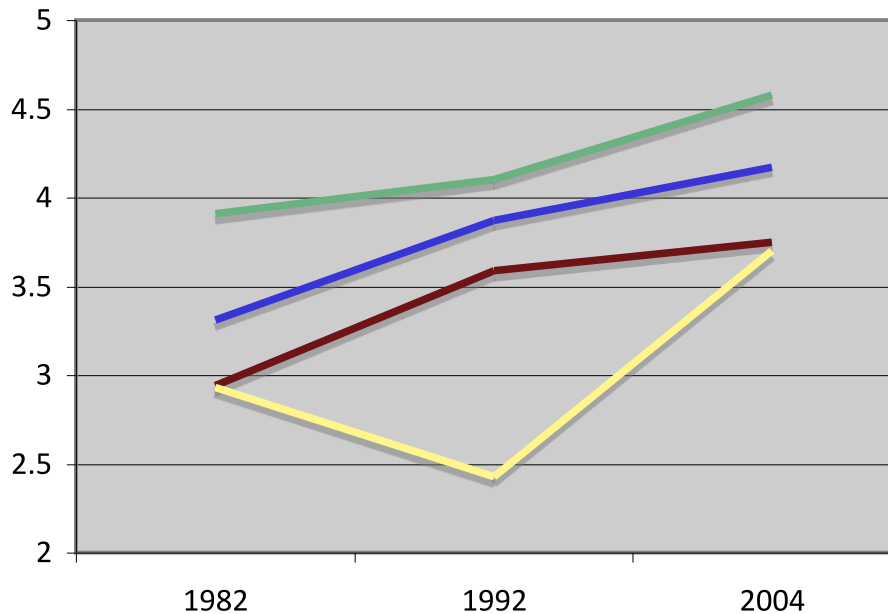
- More Black and Latino students are enrolling in 2004 than 1972, but the racial enrollment gap in highly selective institutions is growing wider.
  - Rising competition for admission perpetuates racial disparities in selective college enrollment.
- Escalating admissions credentials include academic and non-academic factors
  - Increasing power of college entrance exams
  - Increasing role of extra-curriculars and SES

# H1: Rising academic preparation

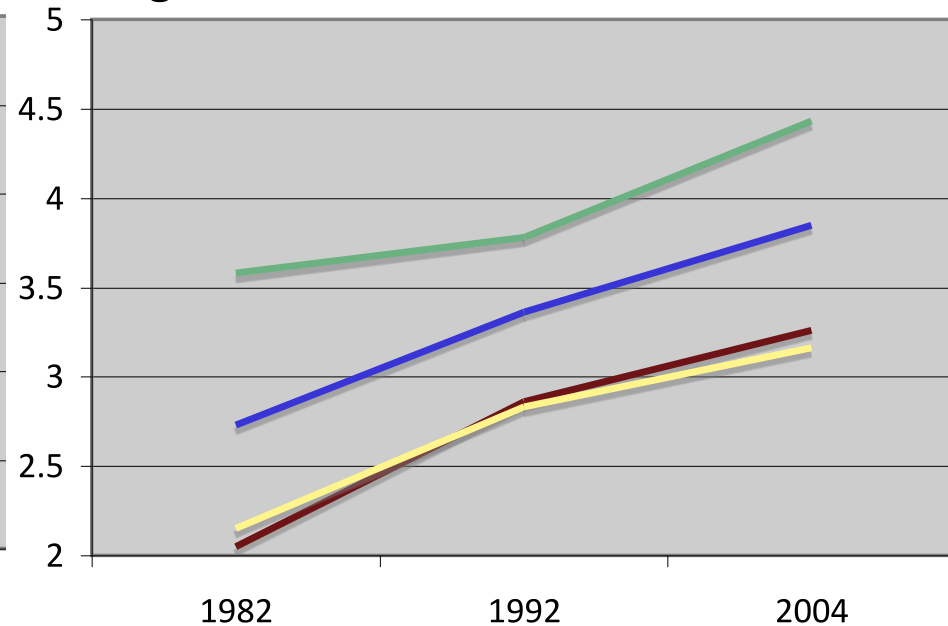
H<sub>1a</sub>: The academic preparation of high school graduates from each racial/ ethnic group has increased over time.



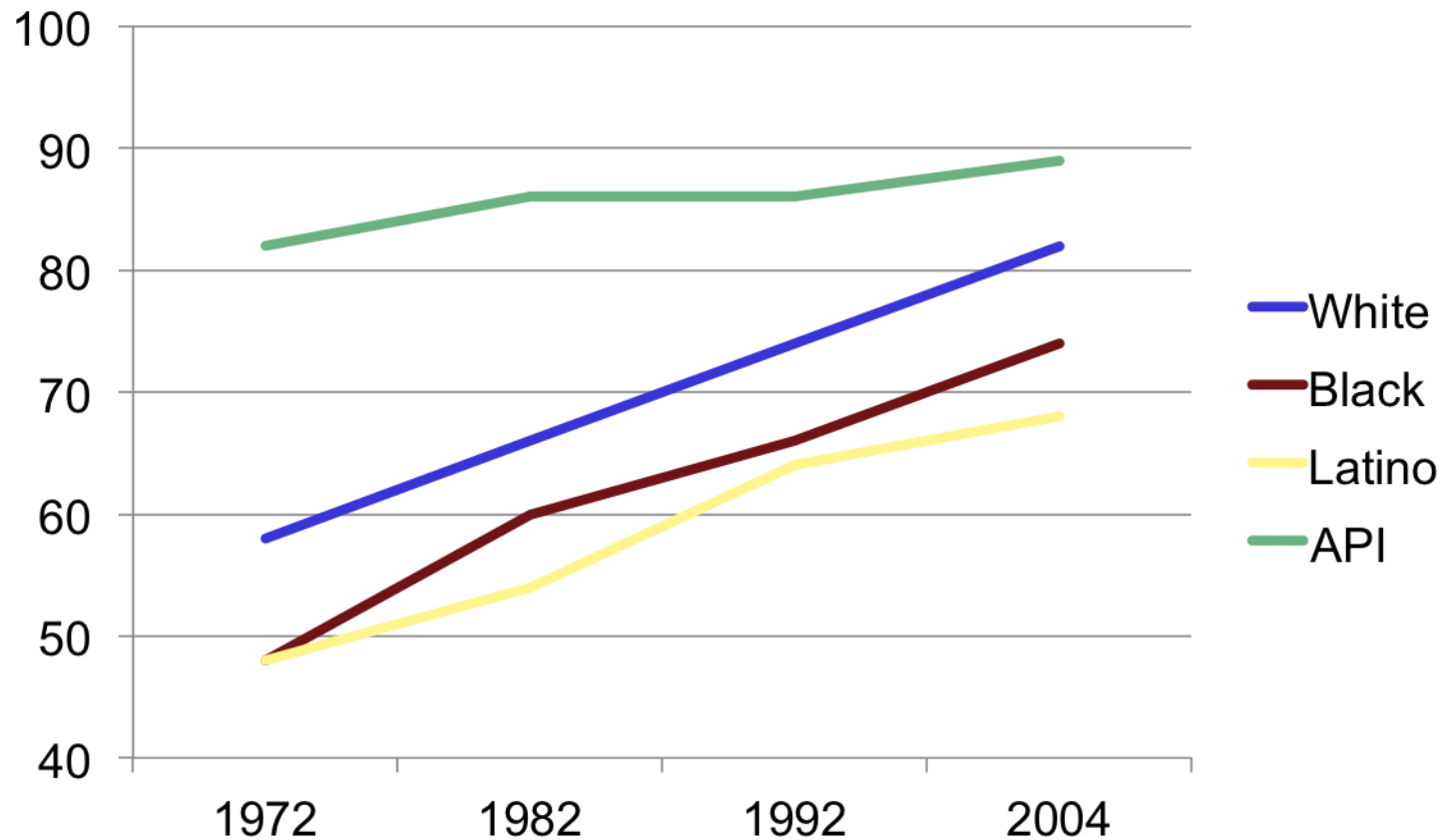
Highest HS science course taken



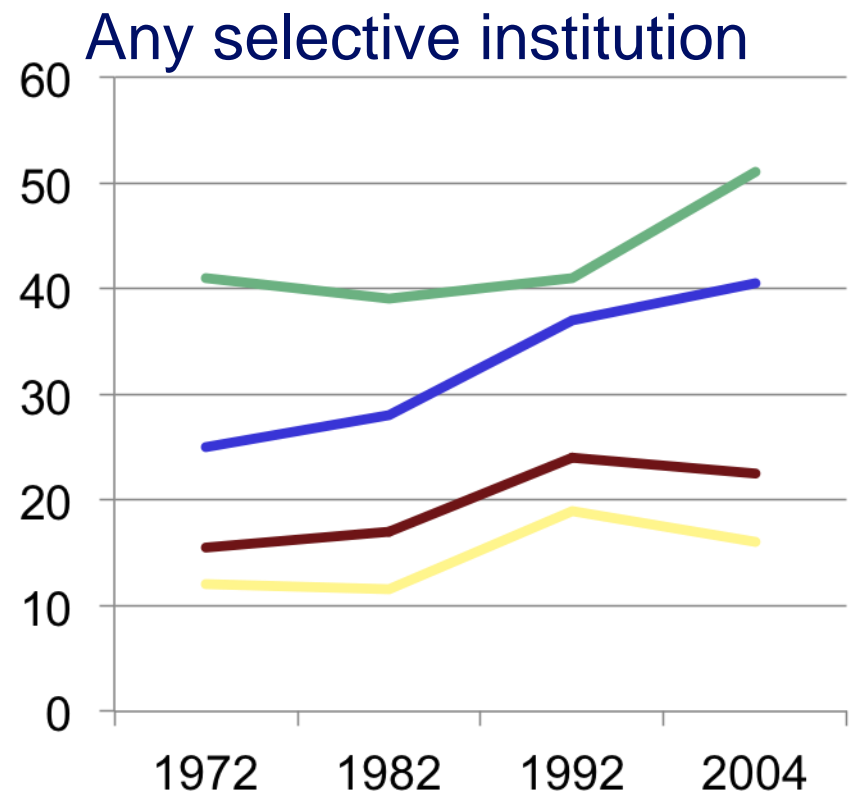
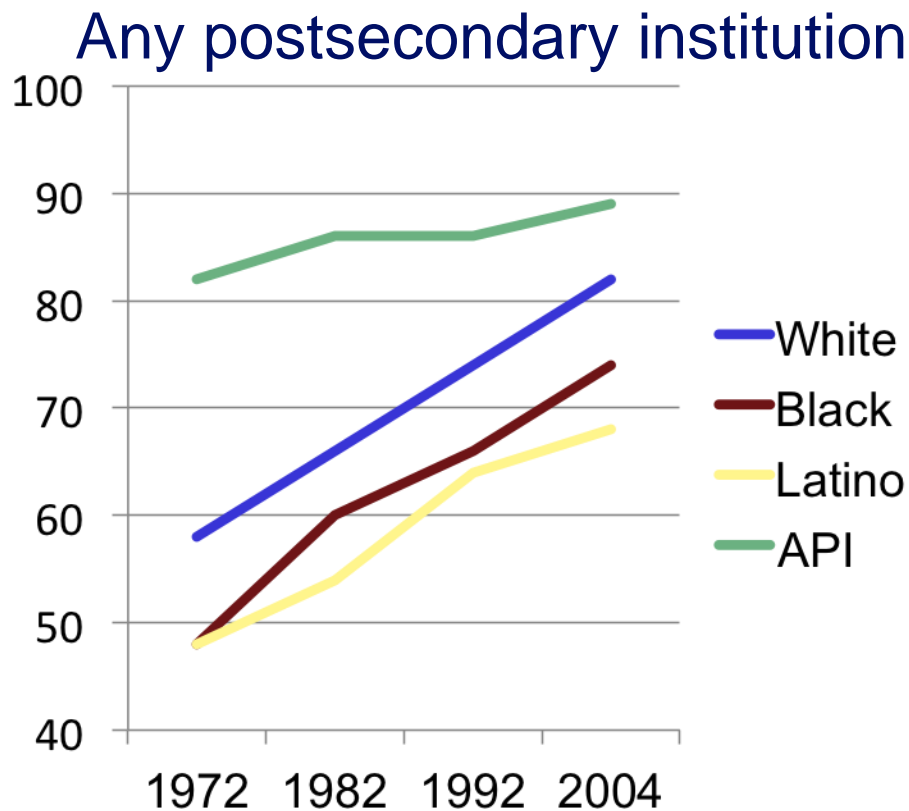
Highest HS math course taken



# Percent of each racial/ ethnic group enrolling in some post-secondary education (Barron's cats 2-7)

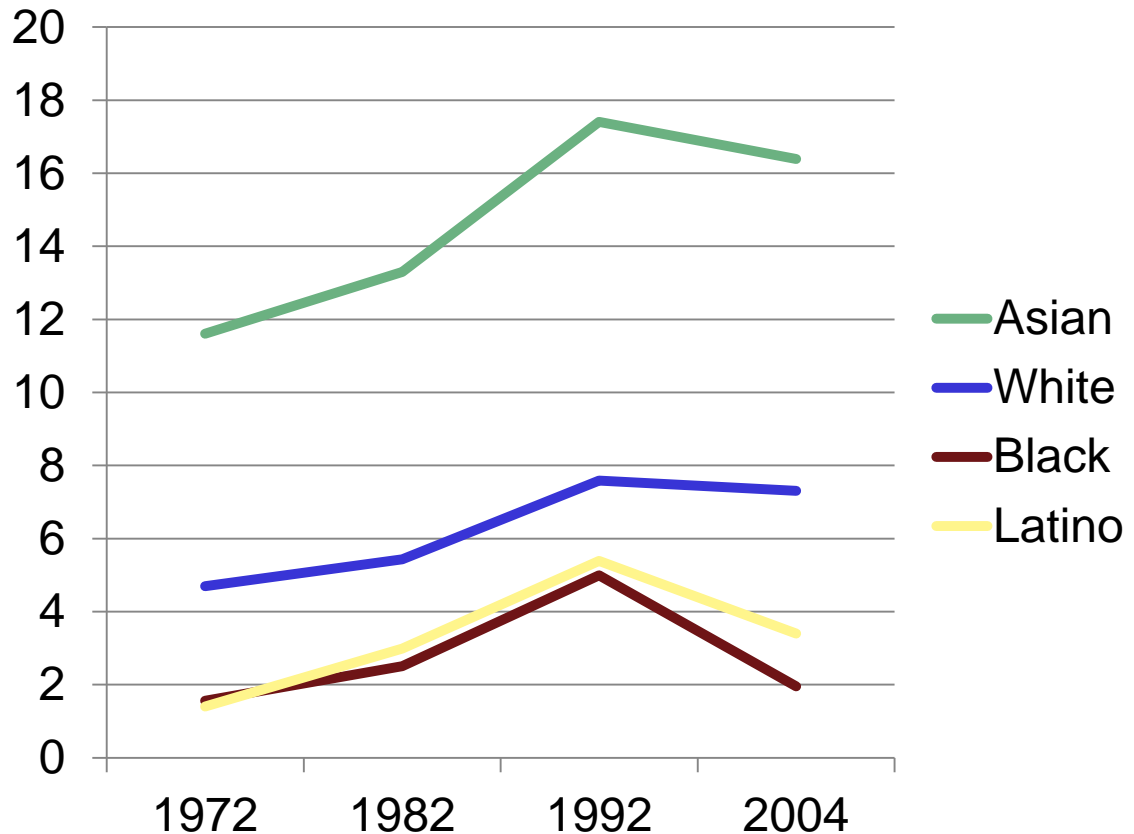


# H<sub>1b</sub>: Average increases in Black and Latino/a academic preparation have not eliminated disparities in selective college enrollment because White and Asian American students' preparation has increased at a similar rate.



**H<sub>1c</sub>: Over time, the proportions of White and Asian American high school graduates enrolling in highly selective institutions will remain higher than the proportion of Latino/a and Black students.**

**Percent of each race/  
ethnic group  
enrolling in the most  
selective institutions  
(Cats 6-7)**



## H2a: Strengthening effect of academic preparation

- High school GPA, SAT score, and highest math course all increasingly predict enrollment
  - For national population and by race/ethnicity
- SAT scores are the strongest single predictor of enrollment in selective institutions
- A one standard deviation increase in SAT is associated with:
  - 2.7 times higher odds of enrolling in most selective institutions in 1982
  - 5.4 times higher odds in 2004

## H2b: Holding academic preparation constant, disparities between Whites and other groups' odds of enrolling in selective institutions will decline over time.

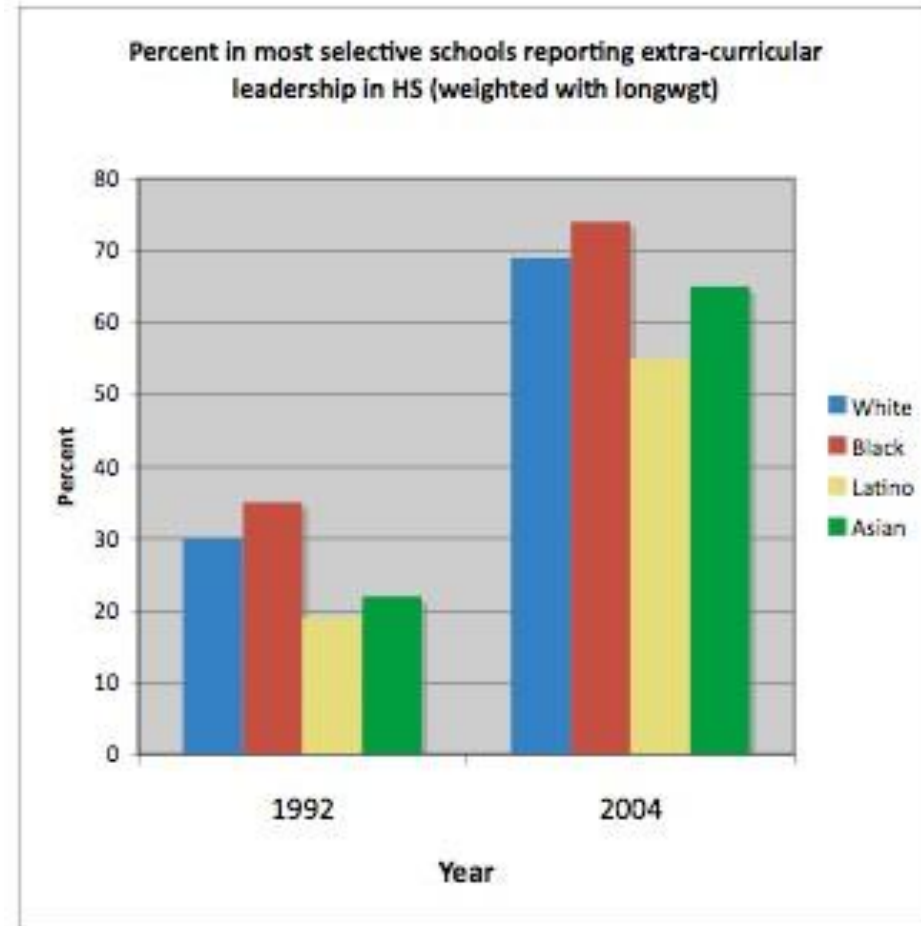
*Factor difference in odds of attending selective institution relative to Whites*

	1982			2004		
	Compet. vs. open 4yr	Very compet. vs. open 4yr	Most compet. vs. open 4yr	Compet vs. open 4yr	Very compet. vs. open 4yr	Most compet. vs. open 4yr
<i>Baseline Model</i>						
Black	.39***	.31***	.27***	.51***	.20***	.17***
Latino	.35***	.44***	.50***	.42***	.38***	.49***
Asian	0.58†	1.14	1.70†	1.18	2.17***	3.33***
<i>Full Model</i>						
Black	0.57*	0.89	1.4	.72*	0.75	1.41
Latino	0.67	1.17	1.4	.71*	0.99	2.56***
Asian	0.58	1.09	1.25	1.32	2.36***	3.09***

Note: †=p<.1; \*=p<.05; \*\*=p<.01; \*\*\*=p<.001; Numbers less than 1 correspond to lower odds than Whites; Numbers greater than 1 correspond to higher odds than Whites

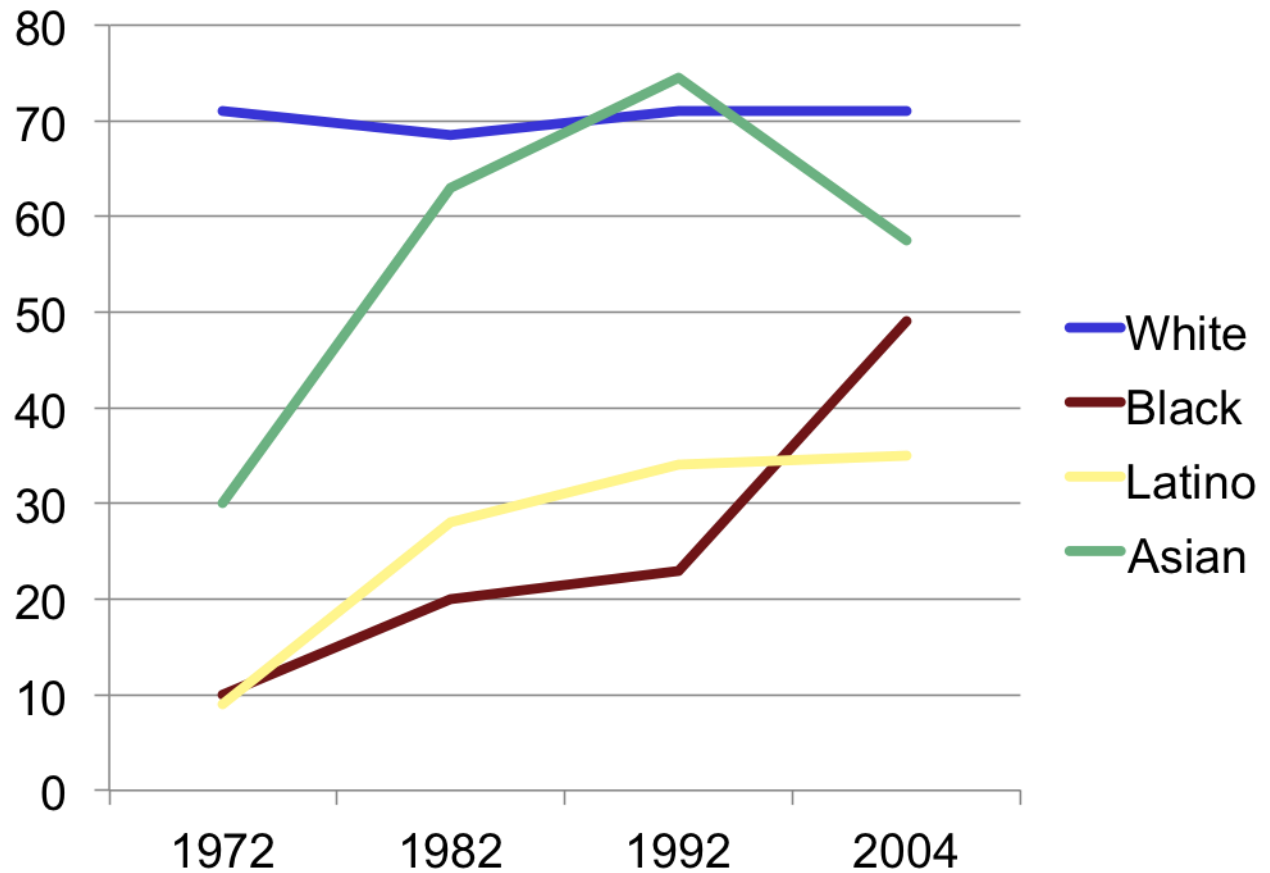
# H3: Strengthening effect of extra-curricular leadership

- Non-significant in 1992; Significant at .001 level in 2004
- In 2004, leaders have a 75% higher odds than non-leaders of enrolling in highly selective institutions
- Trend holds for each ethnic group except Latino/as



# H4a: Increasing concentration of wealthy students of all races/ethnicities in the most selective institutions (Cats 6-7)

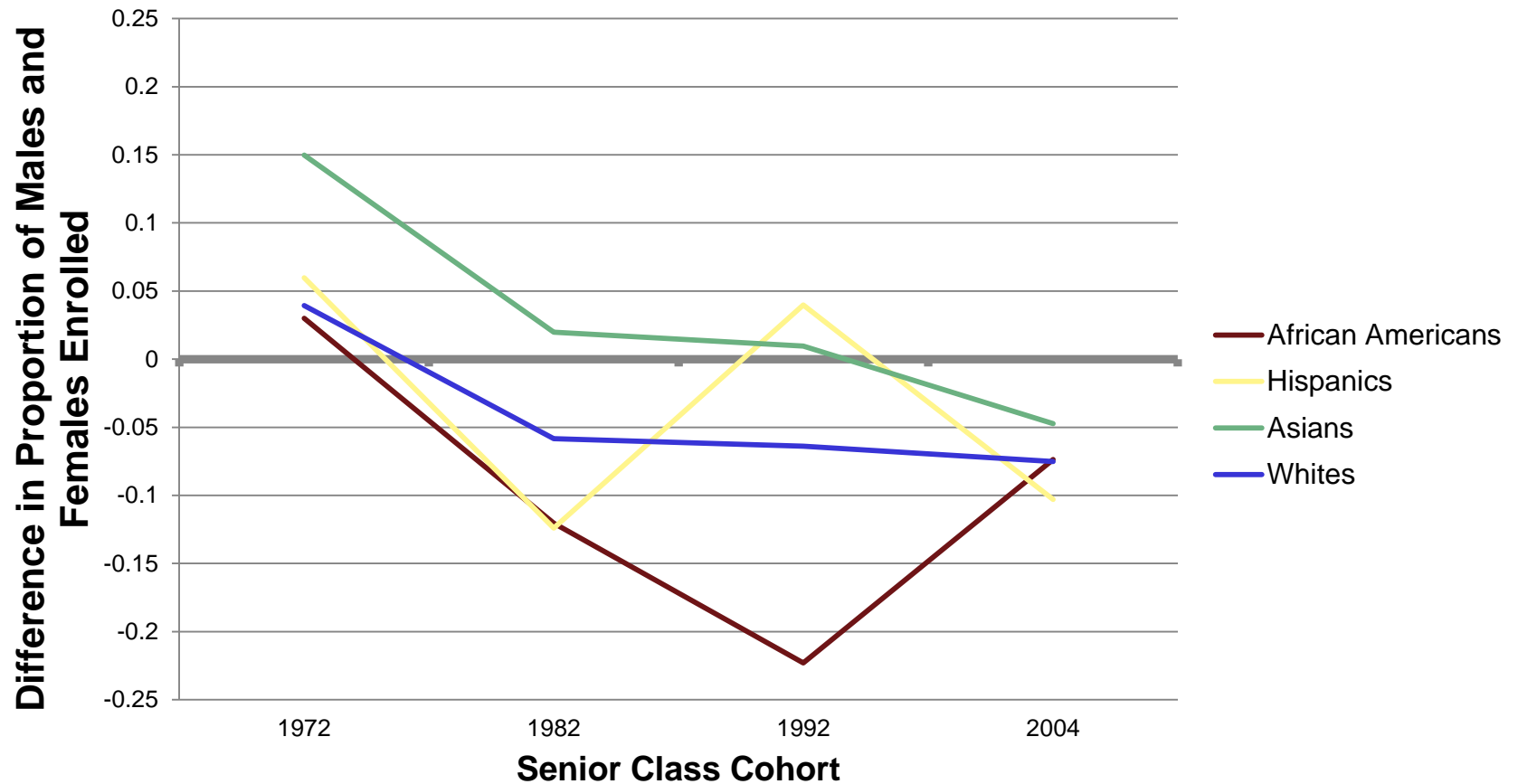
Percent in the most selective institutions from the highest SES quartile



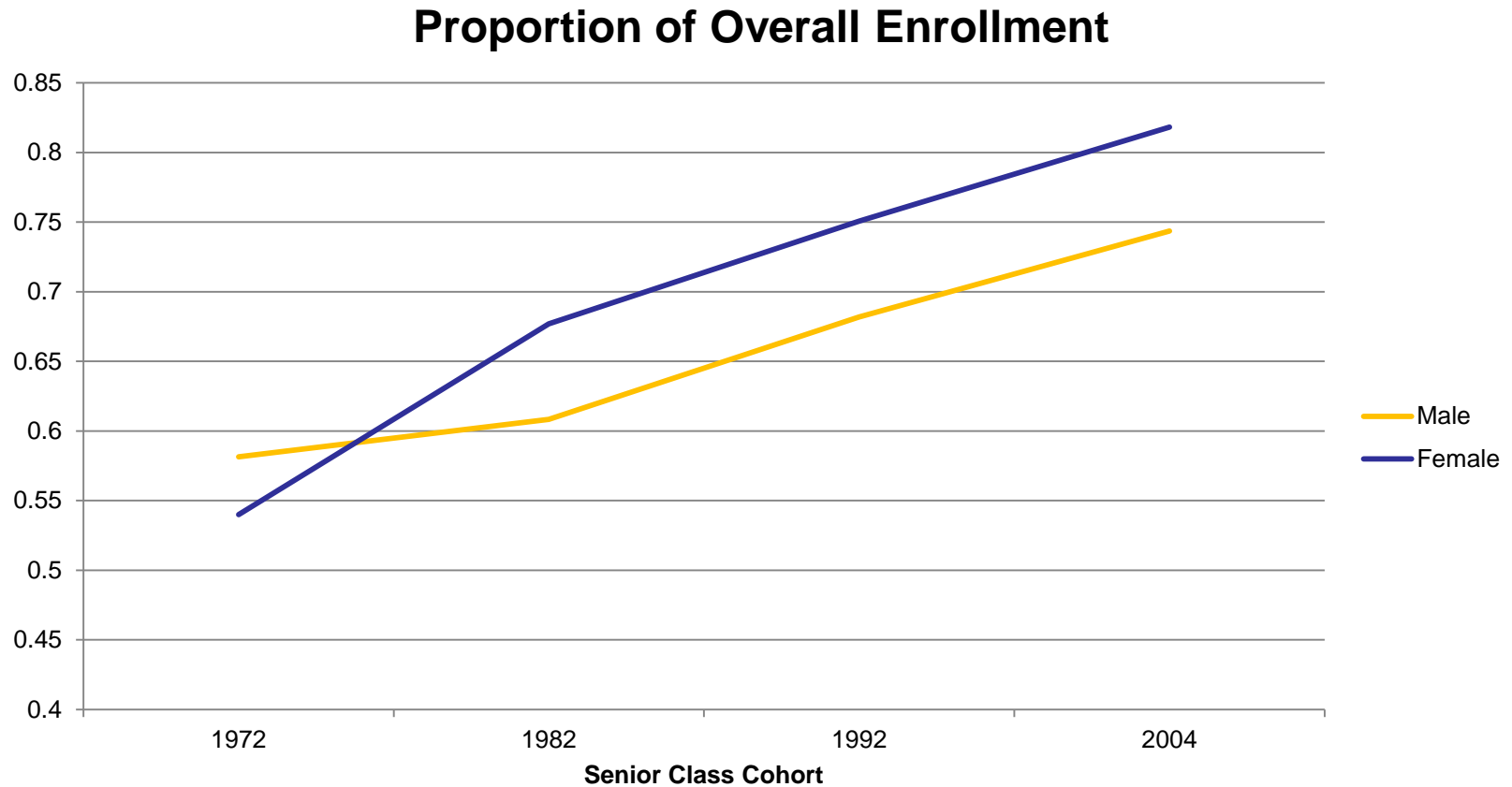
# FINDINGS: GENDER

# Race and Gender

## Race and the Gender Gap



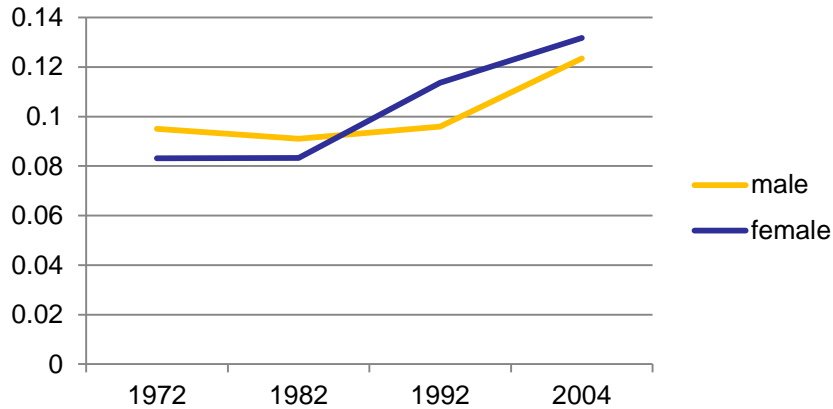
# The Gender Gap in Enrollment



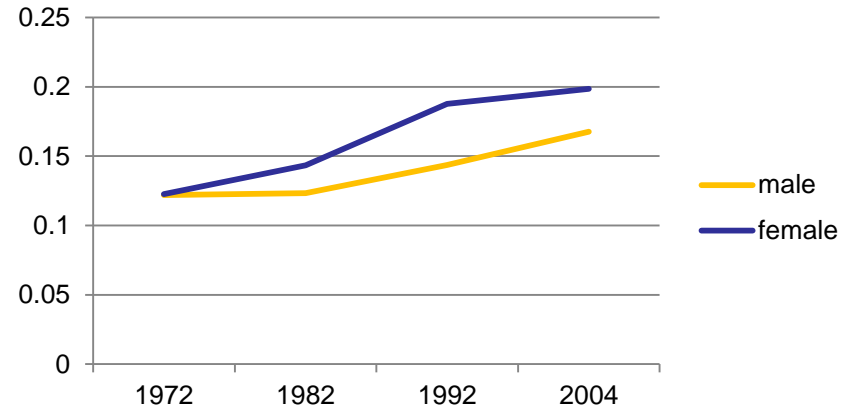
# HOW DO THE CHANGES IN THE ENROLLMENT GENDER GAP DIFFER ACROSS VARYING LEVELS OF INSTITUTIONAL SELECTIVITY?

# Enrollment in 4yr. Institutions of Varying Selectivity

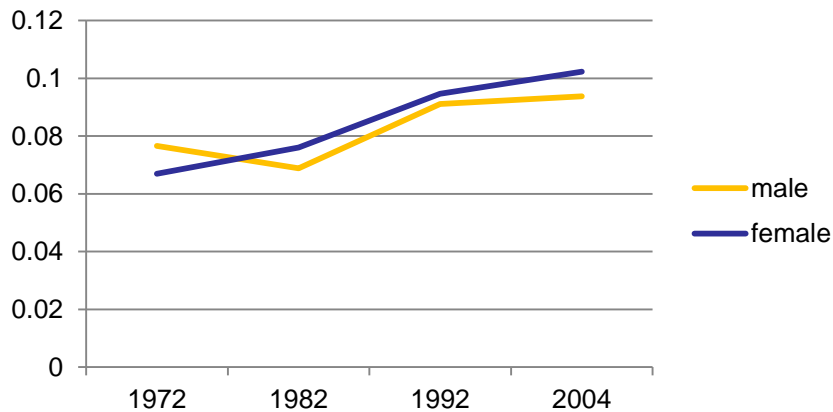
## Non-Selective



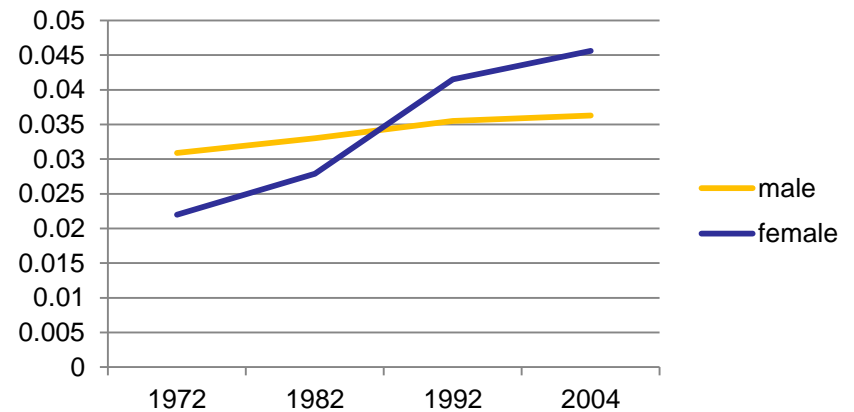
## Competitive



## Very Competitive

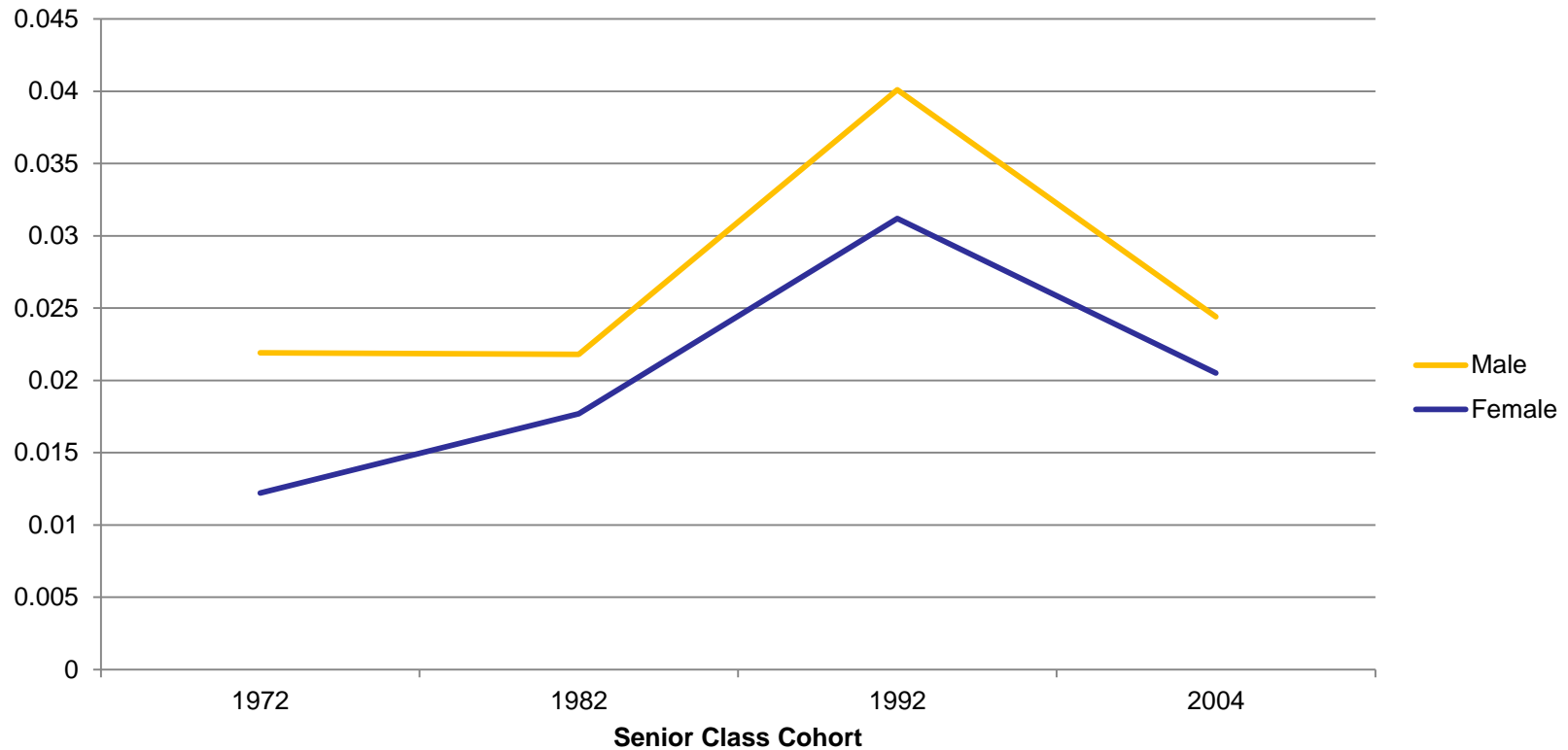


## Highly Competitive



# Stratification in the Gender Gap

Proportion of Enrollment at "Most Selective" Institutions



**WHAT MECHANISMS ARE  
DRIVING GENDER GAPS IN  
POSTSECONDARY ENROLLMENT  
AND HOW DO THEY DIFFER BY  
INSTITUTIONAL SELECTIVITY?**

# Method: Oaxaca-Blinder Decomposition

- Decomposes average probabilities of enrollment between males and females into:
  - Explained:
    - Proportion of the enrollment gap explained by differences in variable values between groups (e.g. SAT score differences)
  - Unexplained:
    - Proportion of the gap simply related to differences on coefficients

# Results: Gender

- Males higher average SAT scores consistently drive higher enrollment in Most Selective institutions across all cohorts
- Athletics participation also increases the male advantage in Most Selective institutions
- Women's participation in academic oriented extracurricular activities, specifically journalism, honor organizations, and academic clubs, contributed to higher enrollment over time in multiple selectivity levels

# FINDINGS: SES

# Rising academic preparation for all SES quartiles

	Mean High Math			Mean High Science			Mean HS GPA		
	1982	1992	2004	1982	1992	2004	1982	1992	2004
SES Q1	2.00	2.54	3.12	2.77	3.26	3.69	2.41	2.37	2.60
SES Q2	2.45	3.05	3.42	3.08	3.65	3.93	2.57	2.58	2.74
SES Q3	2.78	3.47	3.88	3.40	3.94	4.16	2.68	2.68	2.92
SES Q4	3.33	4.18	4.45	3.82	4.46	4.57	2.81	2.98	3.12
Overall	2.66	3.33	3.75	3.28	3.85	4.11	2.62	2.66	2.86

# Rising competition for enrollment at selective institutions

	Mean High Math			Mean HS GPA			Mean SAT Score		
	1982	1992	2004	1982	1992	2004	1982	1992	2004
No PSE	1.87	2.36	2.60	2.29	2.23	2.35	904	894	860
2yr	2.53	2.80	3.28	2.58	2.48	2.68	929	910	899
Non-Comp	3.05	3.66	3.88	2.80	2.76	2.92	967	976	965
Comp	3.30	4.01	4.37	2.91	2.92	3.13	1008	1026	1035
Very Comp	3.80	4.54	4.96	3.08	3.16	3.36	1091	1107	1145
Highly Comp	4.29	4.87	5.22	3.18	3.25	3.43	1163	1173	1205
Most Comp	4.63	5.28	5.66	3.36	3.41	3.59	1241	1281	1330

# Tighter matching between academic preparation and institutional destination

	Std. Dev. High Math			Std. Dev HS GPA			Std. Dev SAT Score		
	1982	1992	2004	1982	1992	2004	1982	1992	2004
No PSE	1.03	1.21	1.19	0.60	0.60	0.61	161	183	185
2yr	1.27	1.22	1.25	0.60	0.60	0.61	170	158	175
Non-Comp	1.32	1.36	1.29	0.64	0.60	0.61	179	155	164
Comp	1.33	1.24	1.14	0.59	0.58	0.51	171	157	155
Very Comp	1.41	1.16	1.06	0.55	0.52	0.43	154	154	150
Highly Comp	1.32	1.05	0.95	0.55	0.48	0.42	141	135	155
Most Comp	1.46	1.14	0.66	0.46	0.42	0.36	167	140	131

# Conclusions

Despite significant increases in academic preparation, low-SES students are less likely to gain admission to highly selective colleges

Even if low-SES students were ideally matched to institutions, stratification is unlikely to be improved due to the credentials of high-SES students

Thus attempts to improve matching, while improving placement for some students, is highly unlikely to address overall stratification in the system.