

Need-Based Aid for the "Not Too Needy"

Evidence from California's Middle Class Scholarship

Katelynn Lewallen

Vanderbilt University

Vanderbilt Economics

Table of Contents

- ① Motivation
- ② Introduction
- ③ Data
- ④ Enrollments
- ⑤ Graduation Rates
- ⑥ Conclusion

Table of Contents

- ① Motivation
- ② Introduction
- ③ Data
- ④ Enrollments
- ⑤ Graduation Rates
- ⑥ Conclusion

Defining the Middle Class

- Middle Class : Households earning between $\frac{2}{3}$ and two times the median household income (Pew Research Center)
- 2021: Median = \$65,000
- 2021: Middle Class Range = \$43,350 - \$130,000

Is the Middle Class Truly Neglected?



Diverse: Issues In Higher Education

<https://www.diverseeducation.com/students/article>

Financial Aid Doesn't Stretch To Help Middle Class

Jun 1, 2011 — Since the state's **need-based grants**—and most other federal and state need-based aid—is distributed based on income, middle-class students are



The Daily Toreador

<https://www.dailytoreador.com/opinion/federal-finan...>

Federal Financial aid system limits middle class students

Nov 11, 2021 — For **students** who come from **middle class** families, however, receiving **financial aid** can be much more difficult as their **financial need** may ...



<https://www.socraticsummeracademy.com/blog/mid...>

Part 1: Middle-Class Families CAN Go to College for Free!

May 29, 2020 — Is there a list of elite/prestigious schools that guarantee full rides/free tuition? · Stanford University · Princeton University · Dartmouth ...



College Board

<https://allaccess.collegeboard.org/affordability-and-to...>

Affordability and Today's Middle-Income Families

Nov 3, 2021 — Many middle-income **families** do not **qualify** for **need-based aid** or **financial grants**, but many are also unable to pay for rising tuition costs ...



College Financing Group

<https://www.collegefinancinggroup.com/middle-class-...>

Yes, middle class students do get financial aid

Feb 3, 2015 — Public **colleges** offer aid to **middle class**. In fact, both public and private **colleges** award **financial aid** to a significant percentage of middle-



College Raptor

<https://www.collegeraptor.com/articles/can-upper-m...>

Can Upper-Middle Class Families Qualify for Financial Aid ...

Dec 22, 2022 — The short answer is: **YES!** It's a common misconception that upper-middle class families simply make too much to qualify for any sort of aid ...

Too Poor For College, Too Rich For Financial Aid

Jun 17, 2014 — Many **middle class** families are finding **need-based financial aid** a student



Slate

<https://slate.com/business/2015/01/do-middle-class...>

The Myth That Middle-Class Students Don't Get Financial Aid

Jan 27, 2015 — Not really. Thanks in part to a shift toward awarding **grants** based on academic **"merit"** instead of **need** (**"merit"** can be a pretty loose term), ...



National Archives | (.gov)

<https://obamawhitehouse.archives.gov/economy/hel...>

Helping Middle-Class Families Pay for College

Federal Financial Aid that Puts Students First ... By shifting the nation's **student aid** system to



Wise Bread

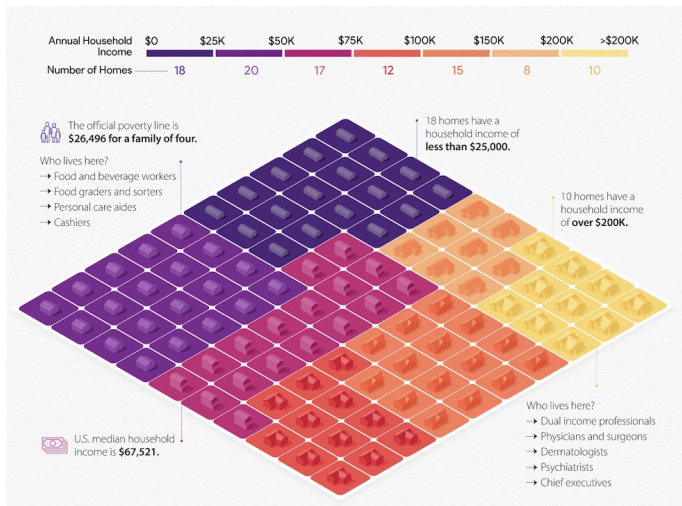
<https://www.wisebread.com/not-rich-enough-and-not-p...>

Not Rich Enough and Not Poor Enough

Fortunately, the situation has changed lately, and private **universities** are offering more **financial aid** to **middle class** and working class families. Publics are ...

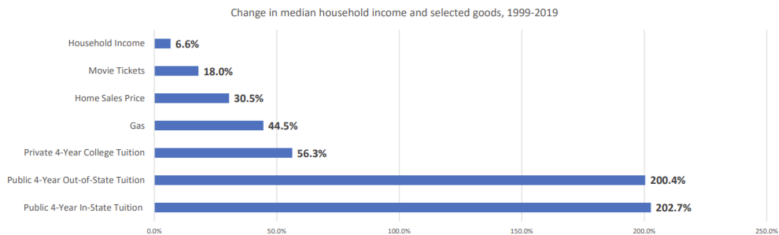
- It is widely shown that merit-based scholarships are awarded disproportionately to those in the middle and higher socioeconomic classes (Glater, 2017; Heller and Marin, 2002; Taylor and Cantwell, 2019)
- Does this directly translate into the middle-class being disproportionately aided?

Income Distribution



Uneven Acceleration of Prices

The Middle Class Squeeze





- Removal of the "sibling discount"
- New treatment of small businesses and farms

Table of Contents

- ① Motivation
- ② Introduction
- ③ Data
- ④ Enrollments
- ⑤ Graduation Rates
- ⑥ Conclusion

- Need Based Aid for the Lower Class
 - consistent findings that need-based aid increases likelihood of college attendance, persistence, and graduation (Feenery and Herooff 2013, Dynarski 2003)
- The "forgotten middle"
 - 54% of middle class senior citizens are financially unable to obtain necessary care. (Pearson and Quinn 2007)
 - The middle class is the most widely uninsured (Swartz 2006)
 - Emerging perception among students that higher education opportunities are restricted for the middle class (Baum 1994)

This Paper:

- **Research Question:** How does need-based aid for the middle class affect college enrollments and graduation rates?
- **Approach:** Synthetic Difference-in-Differences Estimation using the implementation of the Middle Class Scholarship in California as the "treatment".
- **The Middle Class Scholarship:** a scholarship implemented in 2015 in CA that is solely need based and specifically intended for the middle class.

The Middle Class Scholarship

- provides all California residents of the middle class a scholarship to attend any University of California or California State institution (income \leq \$217,000)
- awards match the student's need (calculated by cost of attendance - other gift aid - parent contribution if income greater than 100k - \$7,898 self help contribution)

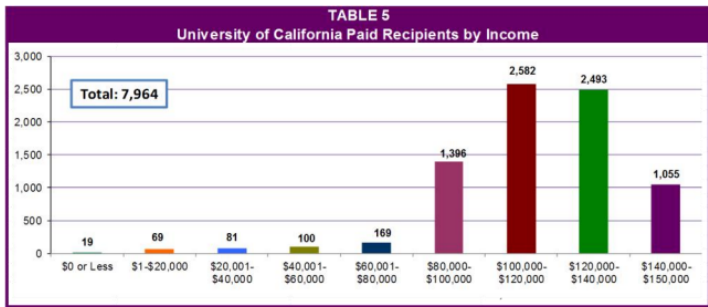


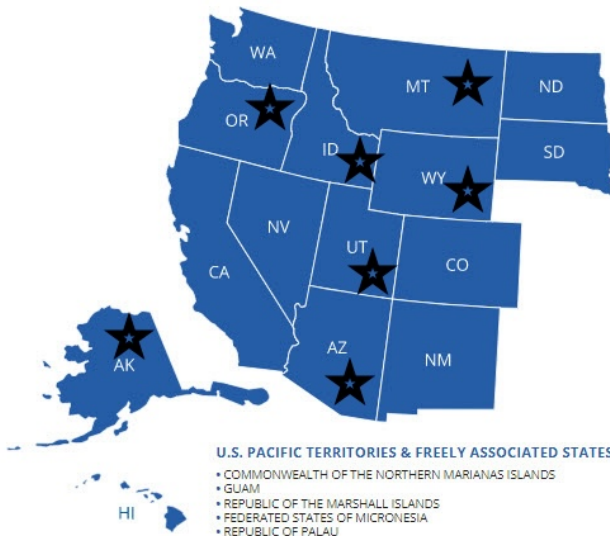
Table of Contents

- ① Motivation
- ② Introduction
- ③ Data**
- ④ Enrollments
- ⑤ Graduation Rates
- ⑥ Conclusion

Integrated Postsecondary Education Data System (2010-2019)

- 3 samples
 - Limit to UCs, CSUs, and public institutions in all 50 states (n=734)
 - Limit to UCs, CSUs, and eligible WICHE public institutions (n=69)
 - Limit to UCs, CSUs, and eligible bordering state public institutions (n=40)
- While difference-in-differences regressions are run first in all analyses, the parallel trend assumption is never sufficiently satisfied to produce accurate estimates and therefore my primary analysis uses the third sample and a synthetic difference-in-differences design.

Eligible WICHE and Bordering States



Outcomes of Interest:

- Enrollments
 - Total undergraduate enrollments (undergraduate population)
- Graduation Rates
 - the rate of graduation for first-time full-time students
 - $$\frac{\text{total number of graduates within 6 years of enrollment}}{\text{size of cohort}}$$

Model Description

- Arkhangelsky et al. 2021

$$\left(\hat{\tau}^{sdid}, \hat{\mu}, \hat{\alpha}, \hat{\beta}\right) = \arg \min_{\tau, \mu, \alpha, \beta} \left\{ \sum_{i=1}^N \sum_{t=1}^T (Y_{it} - \mu - \alpha_i - \beta_t - W_{it}\tau)^2 \hat{\omega}_i^{sdid} \hat{\lambda}_t^{sdid} \right\} \quad (1)$$

- Y_{it} = outcome for each unit i in time period t
 - $i = 1, \dots, 796$, $t = 2011, \dots, 2019$
- μ = *error*
- α_i = unit fixed effects

Model Description II

- Arkhangelsky et al. 2021

$$\left(\hat{\tau}^{sdid}, \hat{\mu}, \hat{\alpha}, \hat{\beta}\right) = \arg \min_{\tau, \mu, \alpha, \beta} \left\{ \sum_{i=1}^N \sum_{t=1}^T (Y_{it} - \mu - \alpha_i - \beta_t - W_{it}\tau)^2 \hat{\omega}_i^{sdid} \hat{\lambda}_t^{sdid} \right\} \quad (1)$$

- β_t = time fixed effects
- W_{it} = binary variable of interest equal to 1 if i is treated in time period t

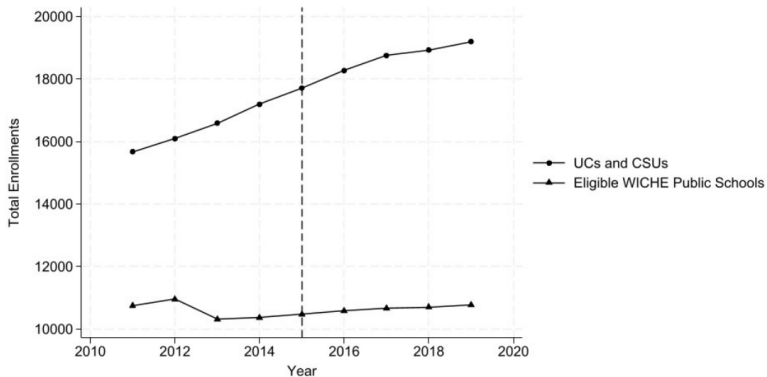
Unit and Time Weights

- Unit Weights
 - penalized least squares to find weighted average of control units that has a pre-treatment parallel trend to the treated unit average
 - similar to synthetic control construction of unit weights but with ridge regression instead of regularization and with the allowing of a constant
- Time Weights
 - same as unit weights but weights are not regularized
 - we want to allow the method to load up on more recent time periods and zero out on further away time periods

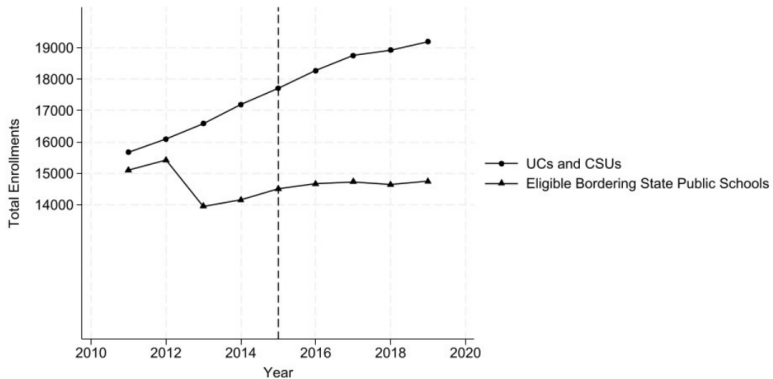
Table of Contents

- ① Motivation
- ② Introduction
- ③ Data
- ④ Enrollments
- ⑤ Graduation Rates
- ⑥ Conclusion

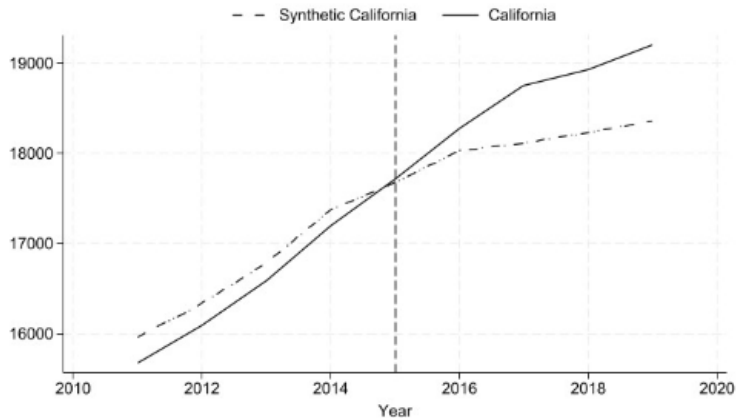
DiD Design Raw Trends



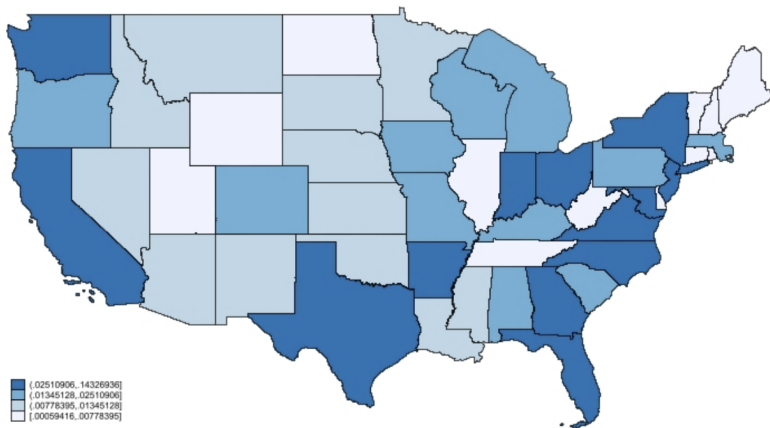
DiD Design Raw Trends II



SDID Design Trends



SDID Design Weights



SDID Design Estimates

	(1)	(2)	(3)
	Total	Male Students	Female Students
ATT	672.59	190.59	517.057
Percent Effect of MCS	3.23%	2.45%	5.49%
P Value	0.003	0.018	0.000
95% Confidence Interval	[235.96, 1110.23]	[32.76251, 348.45569]	[267.6542, 766.45948]
Std. Error	222.78	80.544	127.24850

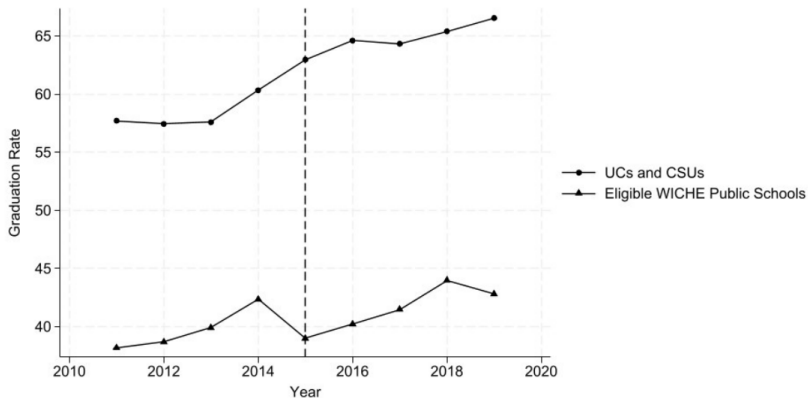
Enrollment Analysis Results

- An average 623 (3.23%) more enrollments per UC or CSU institution relative to its synthetic self.
- Accounts for 29% of MCS recipients.
- An average 191 (2.45%) more male enrollments and 517 (5.49%) more female enrollments

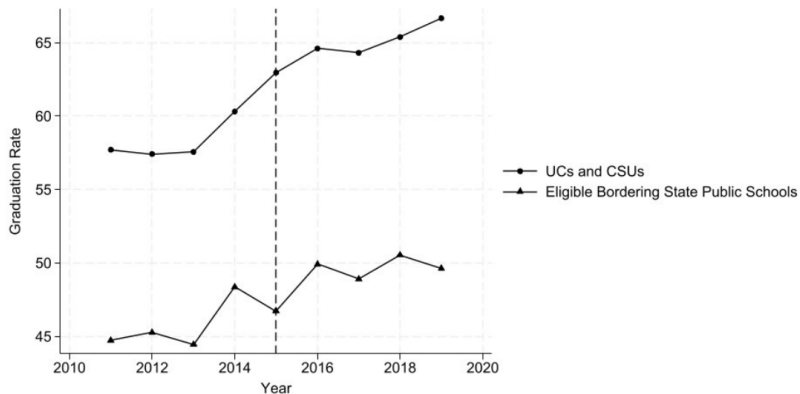
Table of Contents

- ① Motivation
- ② Introduction
- ③ Data
- ④ Enrollments
- ⑤ Graduation Rates**
- ⑥ Conclusion

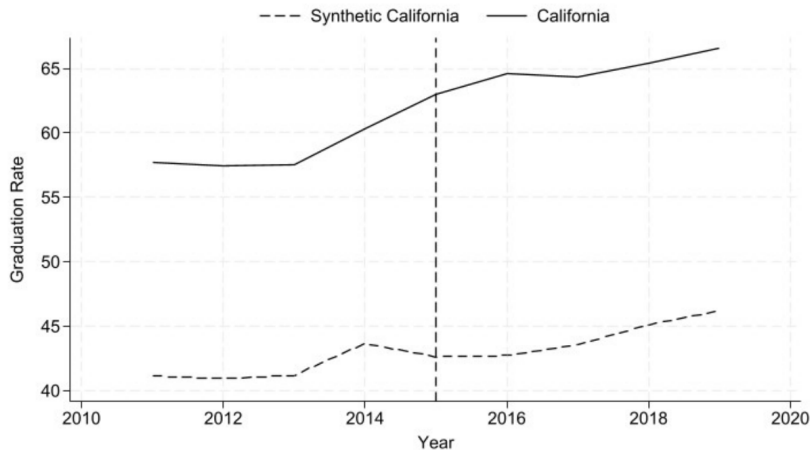
DiD Design Raw Trends



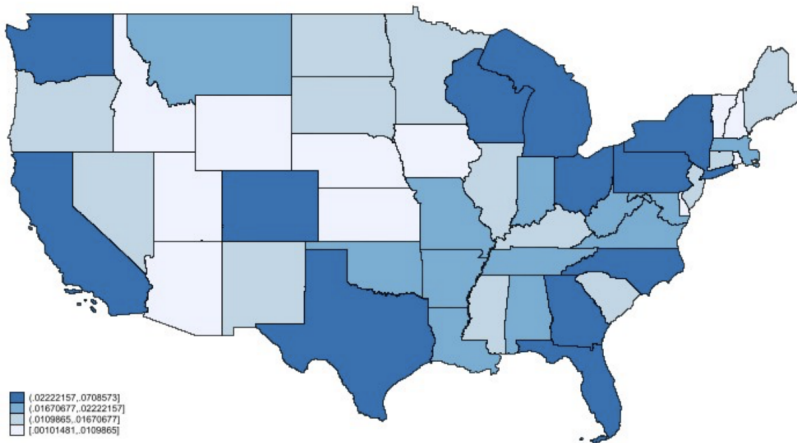
DiD Design Raw Trends II



SDID Design Trends



SDID Design Weights



SDID Design Estimates

	(1)	(2)	(3)
	Total	Male Students	Female Students
ATT	1.95860	2.29352	1.96673
Percent Effect of MCS	3.02%	3.76%	2.90%
P Value	0.002	0.006	0.017
95% Confidence Interval	[0.74940, 3.16780]	[0.64700, 3.94004]	[0.34516, 3.58831]
Std. Error	0.61695	0.84008	0.82735

Graduation Rate Analysis Results

- An average 4.18 percentage point higher graduation rate per UC or CSU institution relative to its synthetic self. (6.44% increase)
- An average 4.13 (6.77%) percentage point higher male graduation rate and 4.10 (6.04%) percentage point higher female graduation rate.

Table of Contents

- ① Motivation
- ② Introduction
- ③ Data
- ④ Enrollments
- ⑤ Graduation Rates
- ⑥ Conclusion

Conclusion

- Findings:
 - ① Need based aid for the middle class increases college enrollments and graduation rates
 - ② Need based aid for the middle class affects male and female students in the same manner
- Takeaways:
 - ① Need based aid programs for the middle class are producing significant effects - not all of the middle class' financial need is being covered by merit programs or family income.
 - ② Almost half of the students receiving MCS awards would not attend college in California at all otherwise - this aid is making more than a small difference.
 - ③ With existing literature that shows college graduation is a significant indicator of later life wealth and happiness, there are long term implications to these programs.