

# Need-Based Aid for the "Not Too Needy"

## Evidence from California's Middle Class Scholarship

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# 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 grants**—are 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 **financial-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

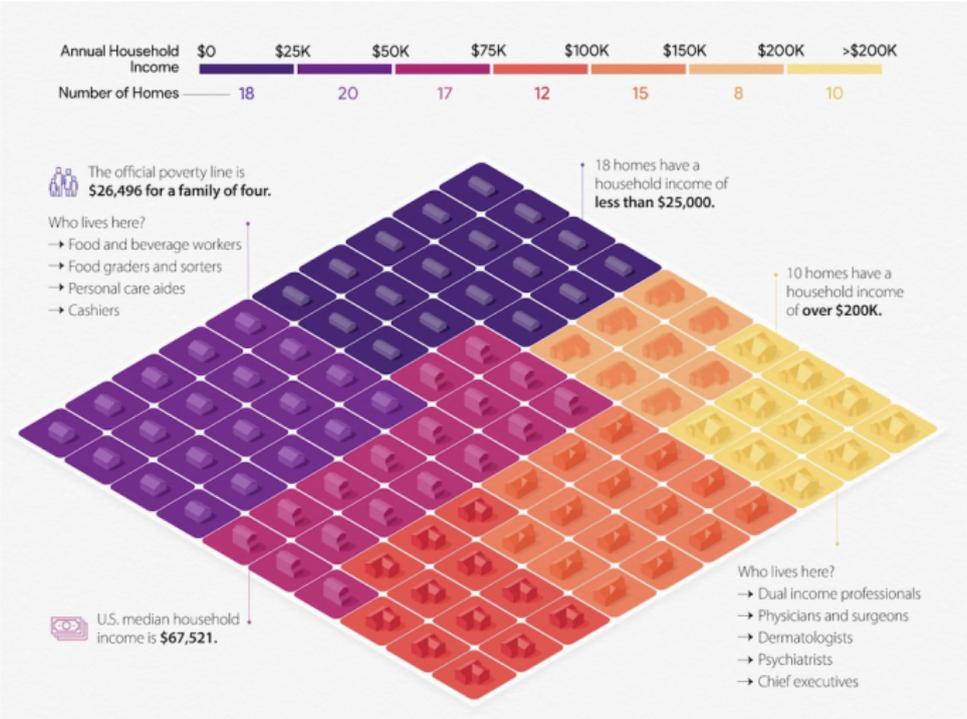
<https://www.wisebread.com/not-rich-enough-and-not-p...>

## 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 ...

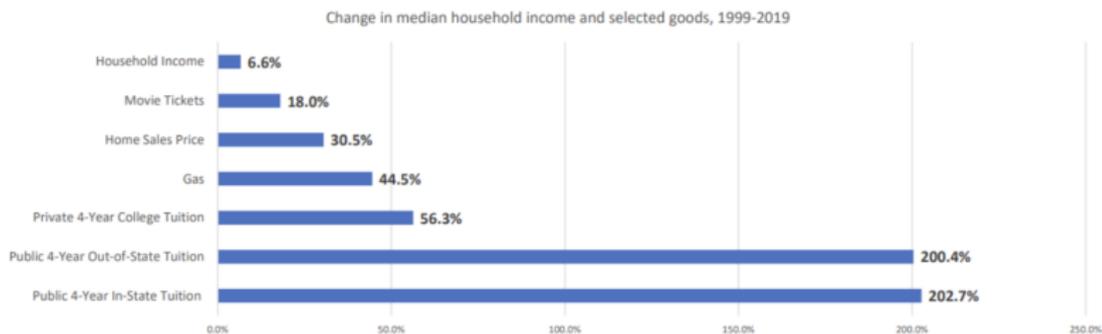
- It is widely shown that merit-based scholarships are awarded disproportionately to those in the middle and higher socioeconomic classes (Glater, 2017; Heller and Marin, 2002; Taylor and Cantwell, 2019)
- Does this directly translate into the middle-class being disproportionately aided?

# 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

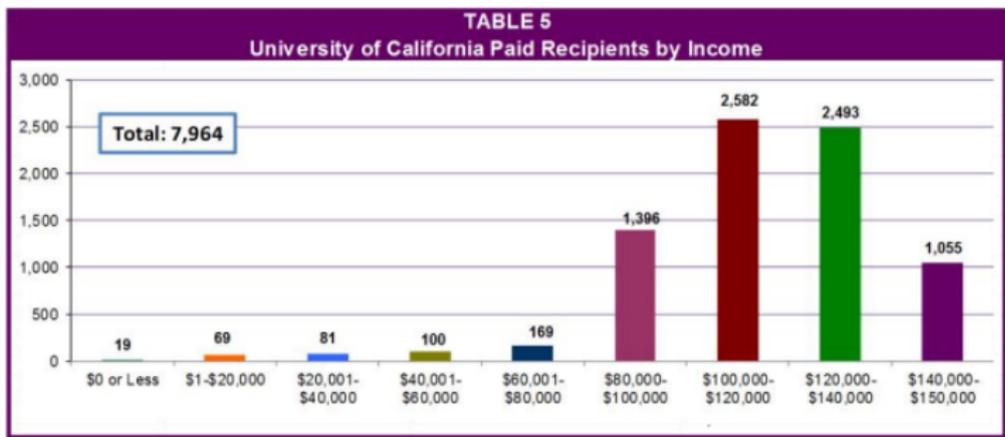
- Need Based Aid for the Lower Class
  - consistent findings that need-based aid increases likelihood of college attendance, persistence, and graduation (Feenery and Heroff 2013, Dynarski 2003)
- The "forgotten middle"
  - 54% of middle class senior citizens are financially unable to obtain necessary 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)



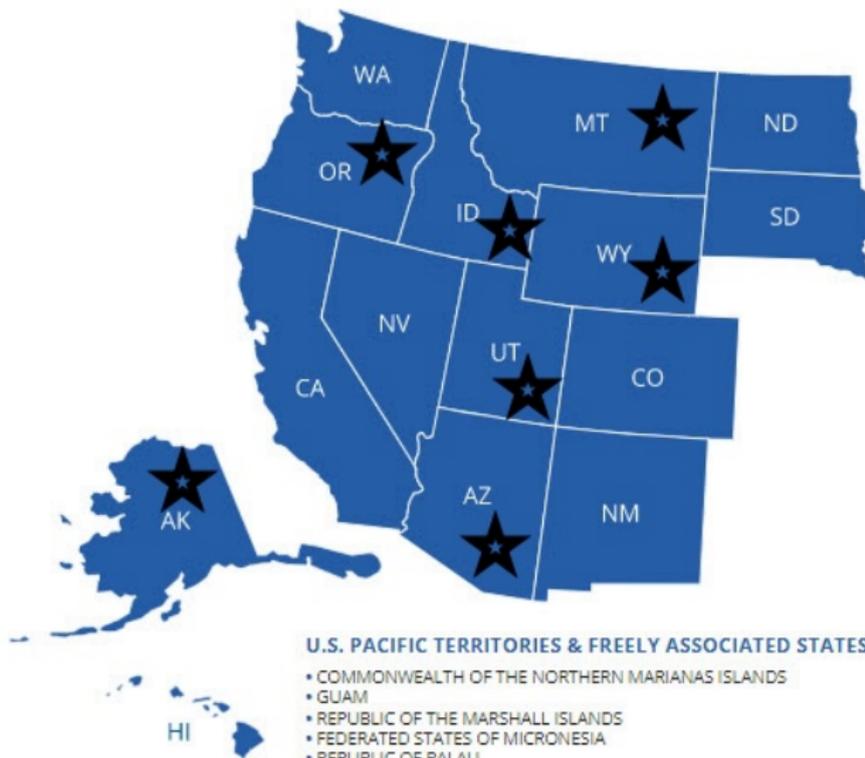
# Table of Contents

- 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

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

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

# Model Description II

- Arkhangelsky et al. 2021

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

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

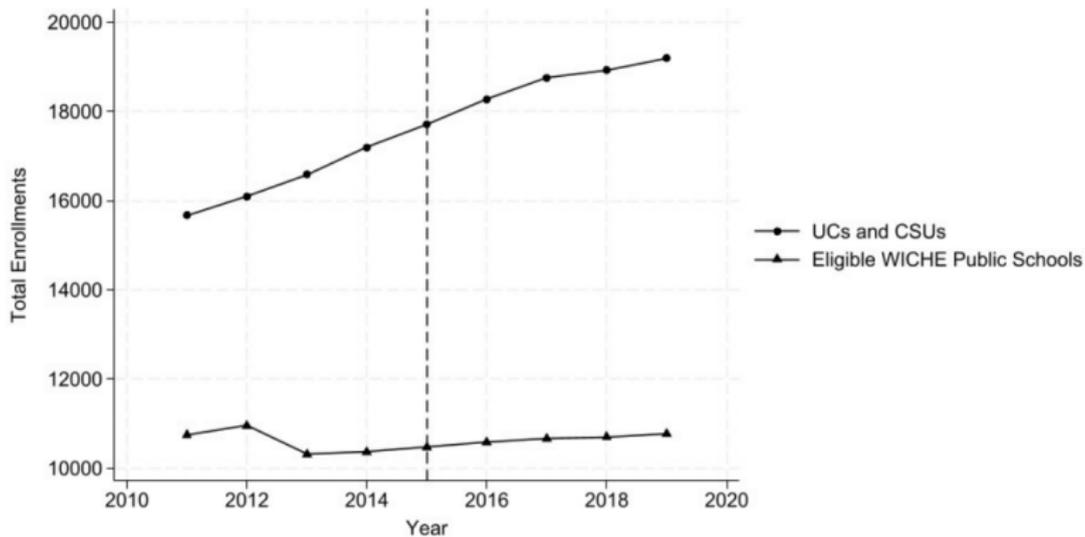
# Unit and Time Weights

- 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

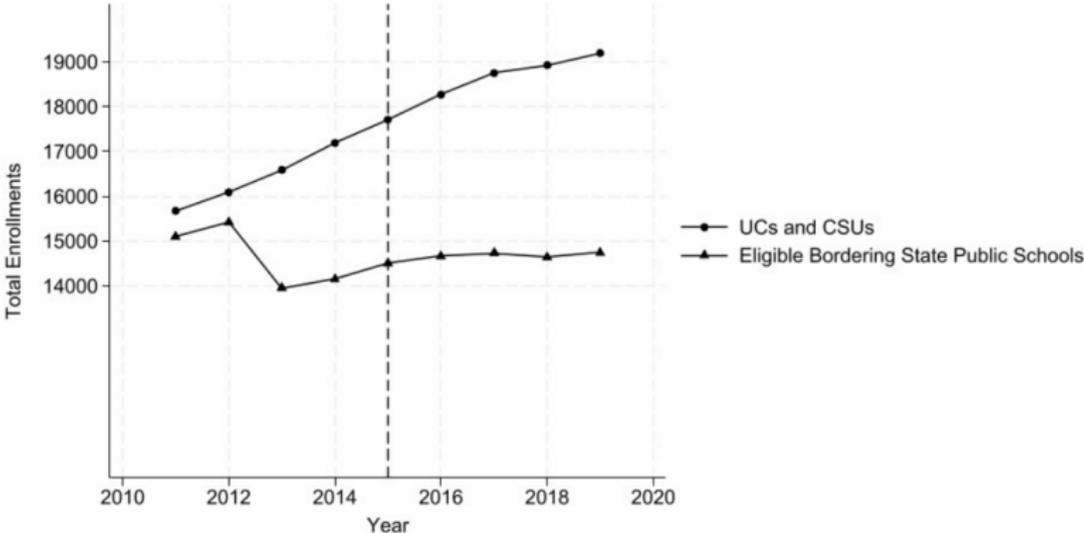
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- ② Introduction
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- ④ Enrollments**
- ⑤ Graduation Rates
- ⑥ Conclusion

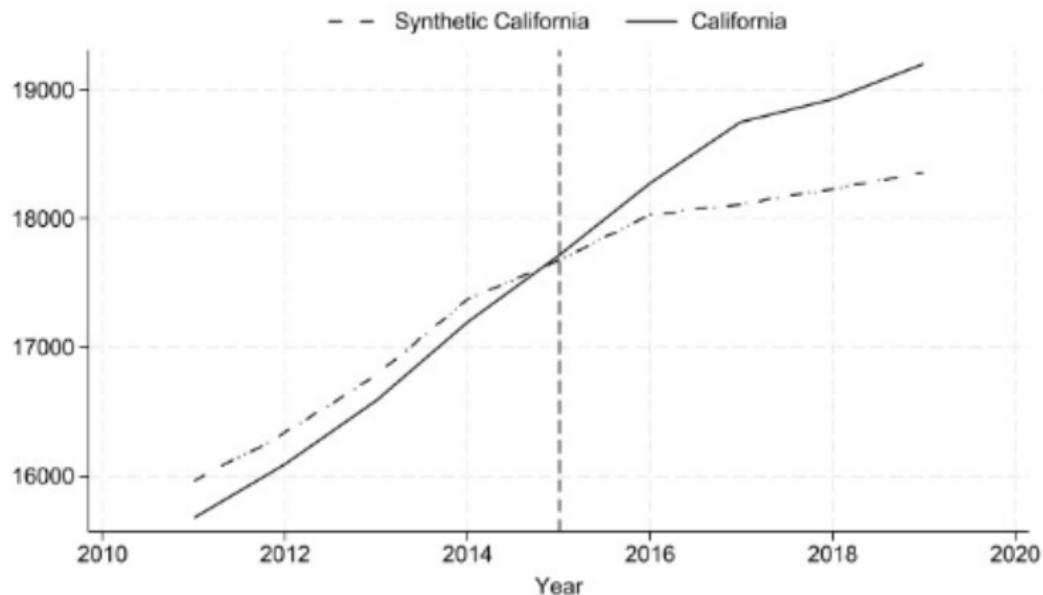
# DiD Design Raw Trends



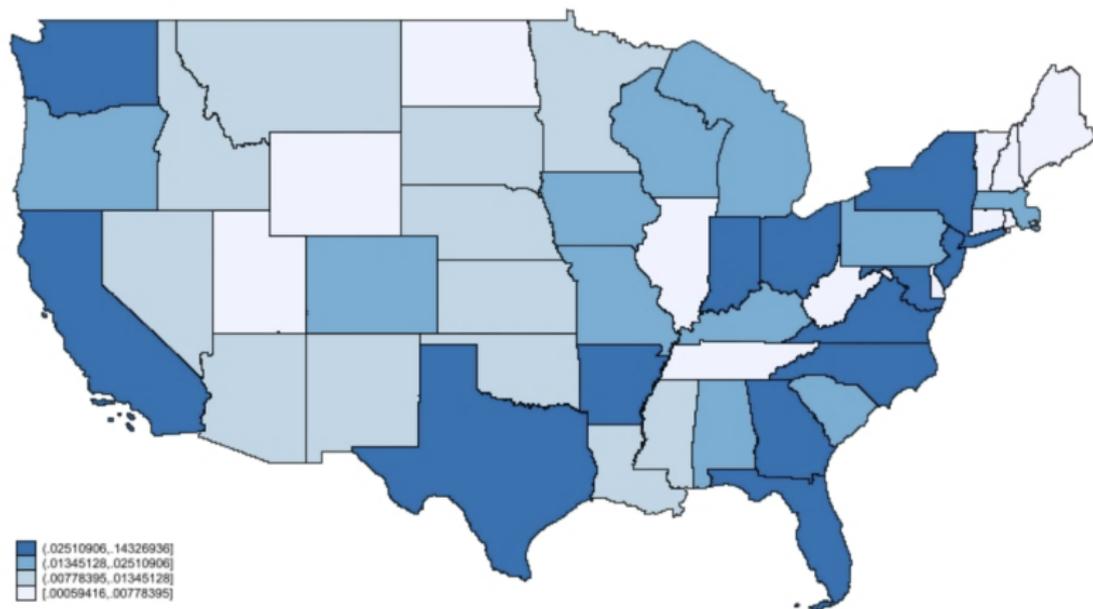
# DiD Design Raw Trends II



# SDID Design Trends



# SDID Design Weights



# SDID Design Estimates

	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
	<b>Total</b>	<b>Male Students</b>	<b>Female Students</b>
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

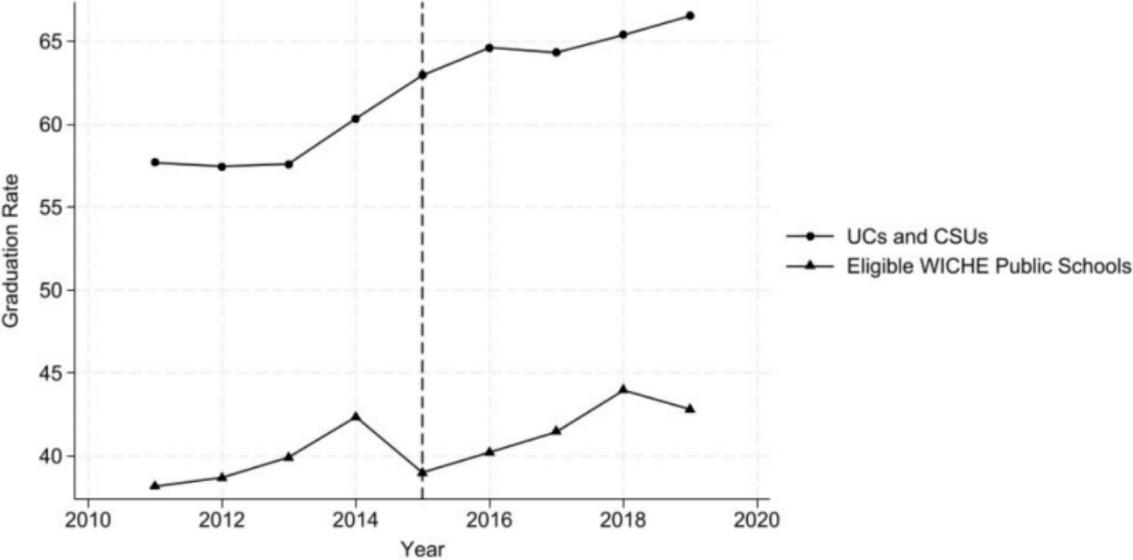
# Enrollment Analysis Results

- 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

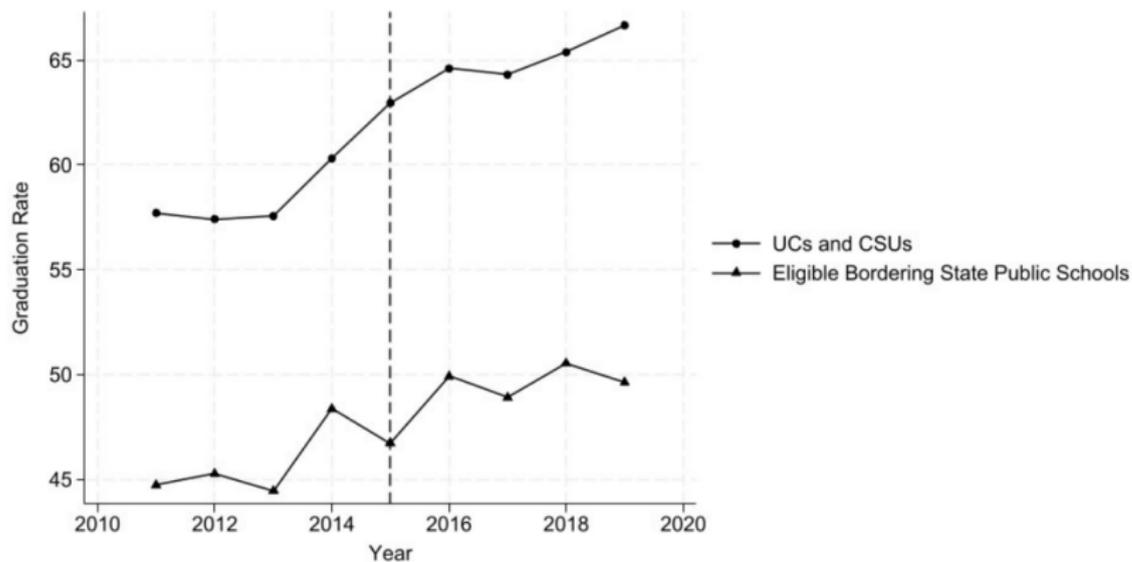
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- ⑤ Graduation Rates
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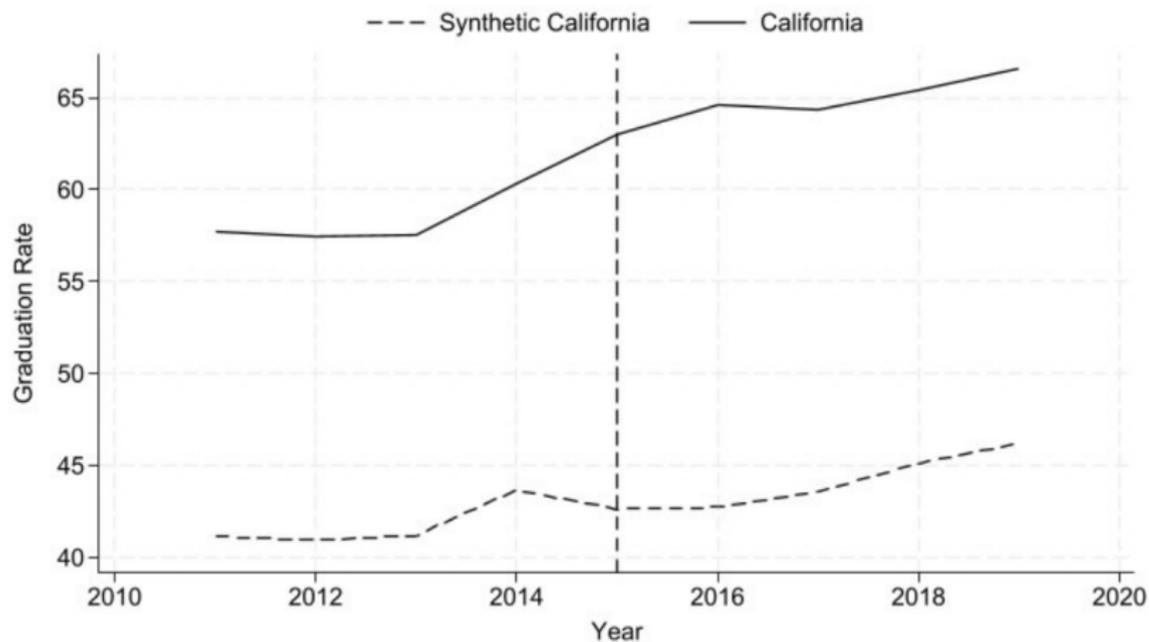
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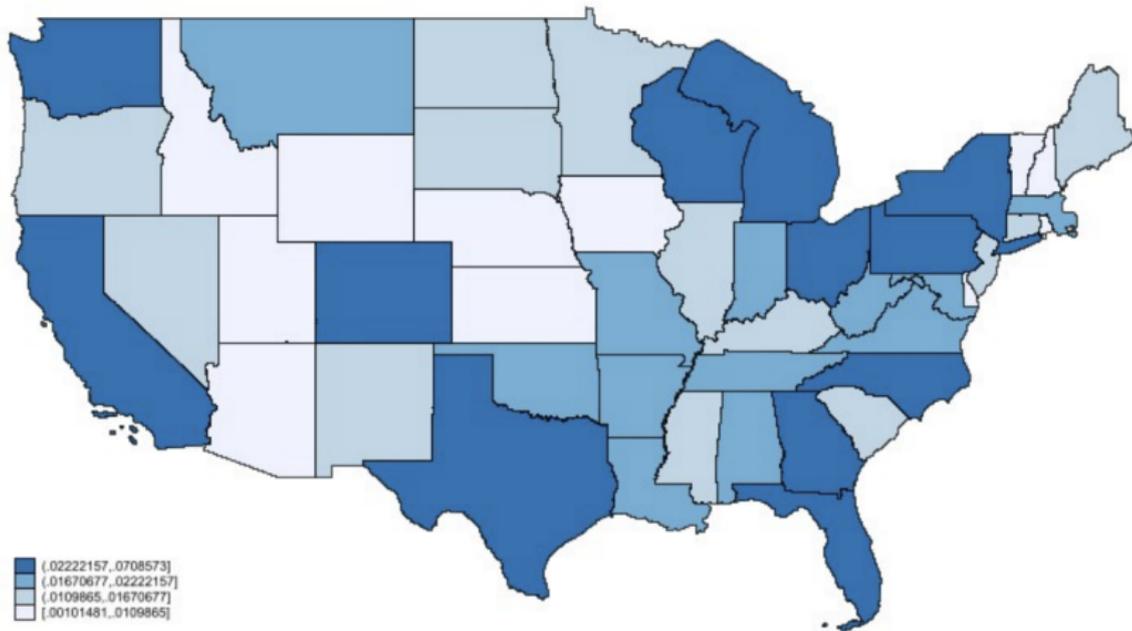
# DiD Design Raw Trends II



# SDID Design Trends



# SDID Design Weights



# SDID Design Estimates

	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
	<b>Total</b>	<b>Male Students</b>	<b>Female Students</b>
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.