

# A Large Retrospective Multivariate Analysis of the Relationship Between **Medical Student Debt and Primary Care Practice** in the United States

Julie Phillips, MD, MPH

Stephen Petterson, PhD

Andrew Bazemore, MD, MPH

Robert Phillips, MD, MSPH

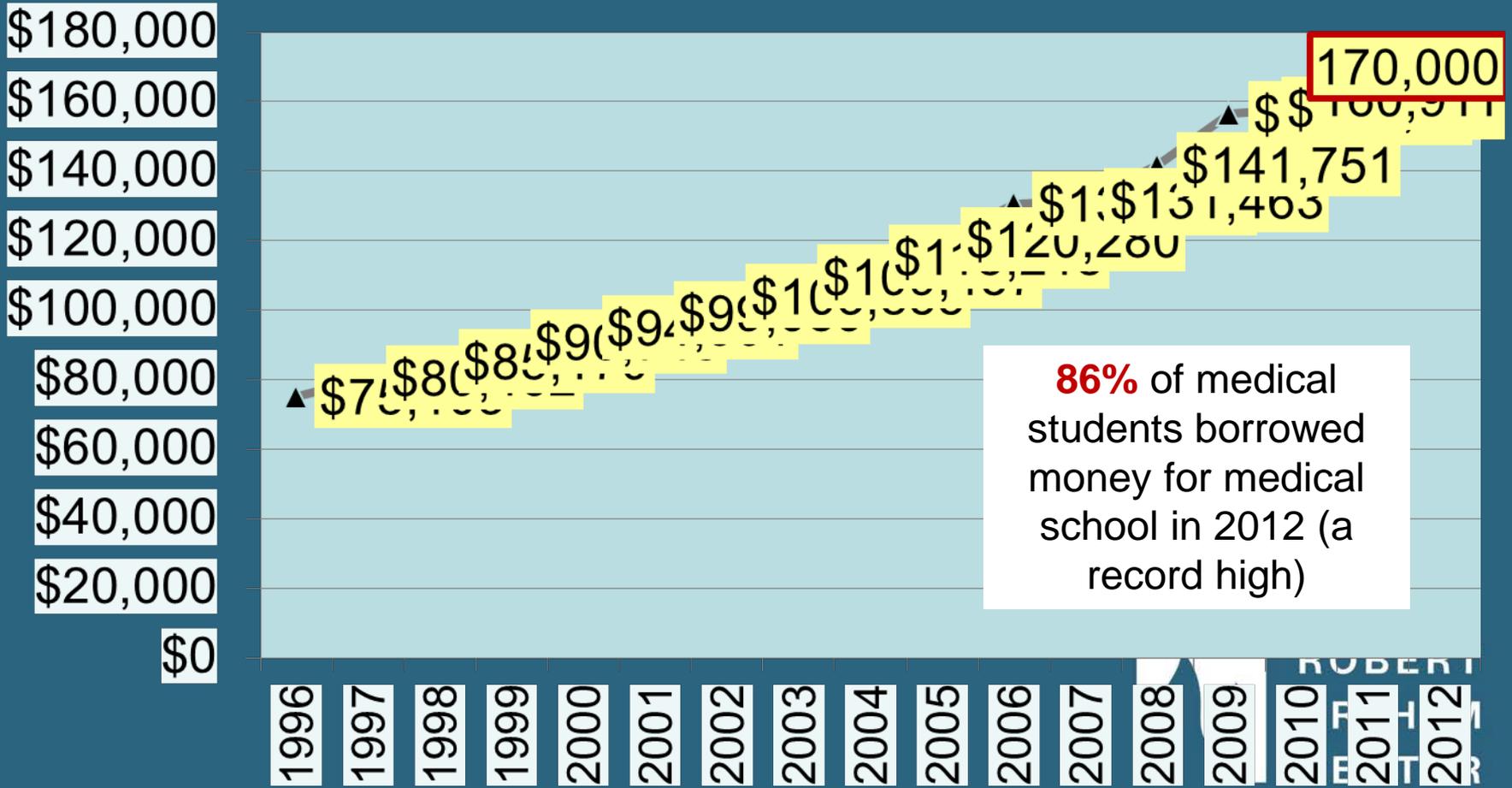


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NAPCRG, 2012

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# Mean Educational Debt of Indebted U.S. Medical Students, 1996 - 2012



Source: AAMC, Graduation Questionnaire, 1996-2011

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# So What?

- No clear linear relationship between debt level and primary care and specialty choice in several good studies
- Some studies have shown that primary care physicians graduate with *more* debt, especially at low levels of debt
- Does debt *really* impact the primary care workforce?



# Limitations of Previous Studies

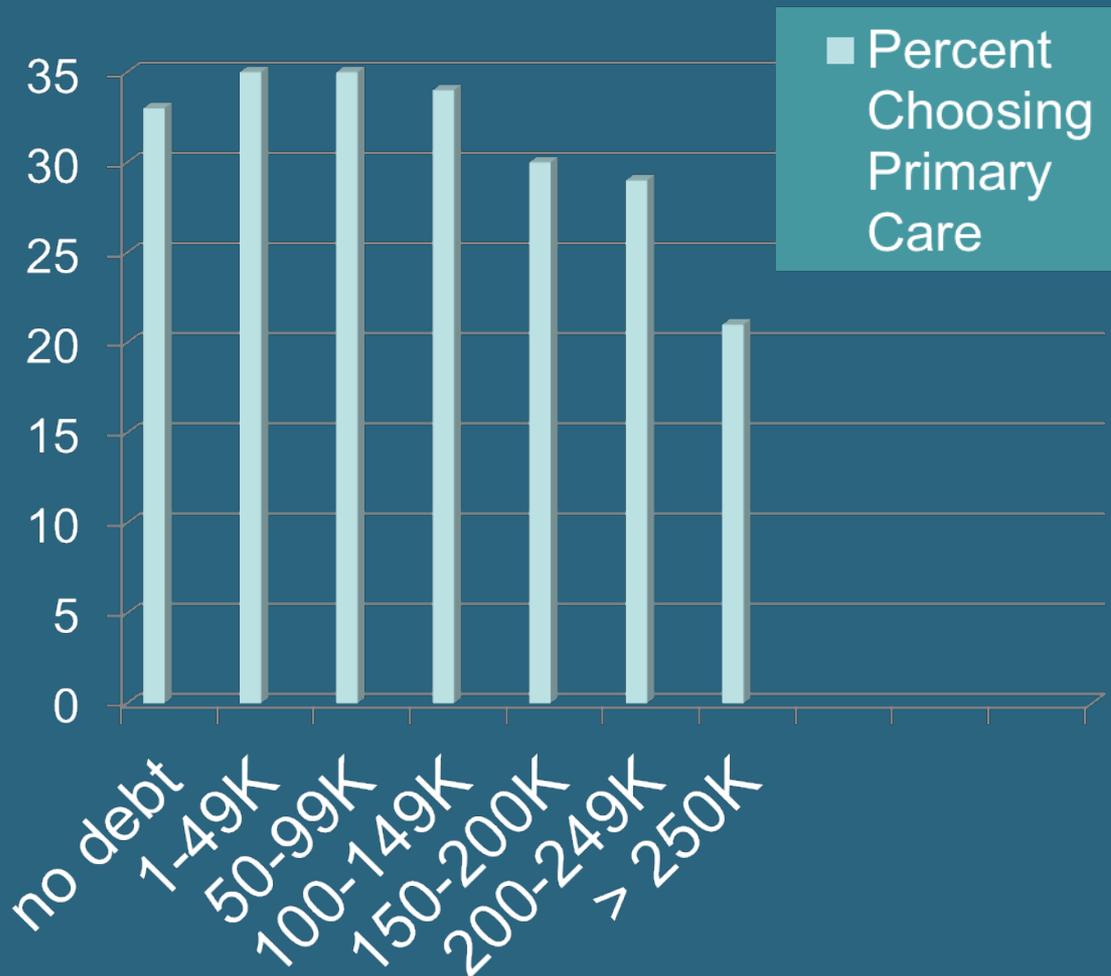
- Medical student socioeconomic status correlates with debt and with primary care specialty choice
  - Students from low income families are more likely to choose primary care
  - Students from low income families have more debt
- In many studies socioeconomic status has not been controlled



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# Limitations of Previous Studies



Some studies have found non-linear relationships (Rosenblatt, 2005)

# Purpose:

Re-examine the relationship between debt and primary care specialty choice, using:

- large sample size
- control for student socioeconomic status
- non-linear analysis



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# Methodology

- Retrospective sample
- All medical students who graduated from allopathic U.S. medical schools between 1988-2000, practicing medicine in the United States in 2010
- Excluded:
  - International medical graduates
  - Osteopathic physicians



# Data Sources

- AMA Physician Masterfile
- AAMC Graduate Questionnaire
- National Health Service Corps participant database (HRSA)
- Residency training data
  - Data sources were combined to create a unique analysis file.
  - Data de-identified before analysis.
  - IRB approval from Georgetown University.
  - Dataset used for previous analysis



Specialty and Geographic Distribution of the Physician Workforce:

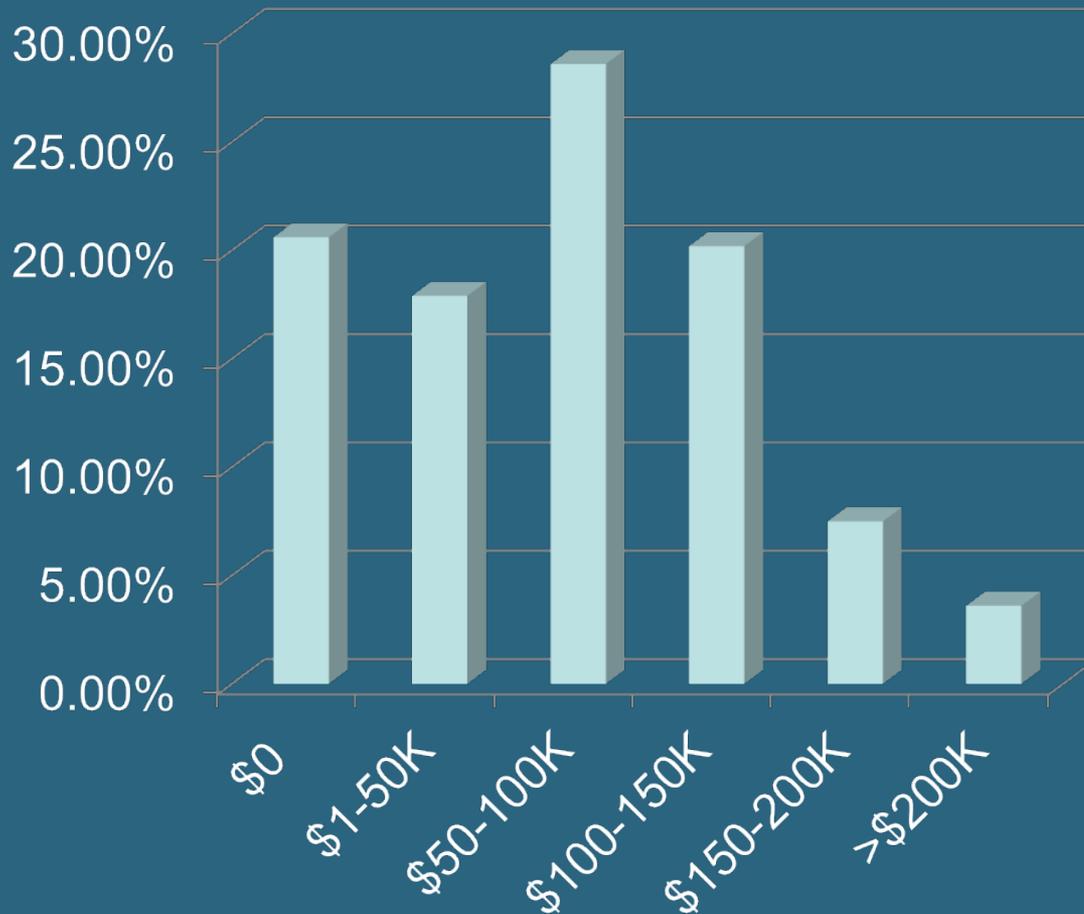
What Influences  
Medical Student & Resident  
Choices?

Funded by the Josiah Macy, Jr. Foundation



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# Study Sample Characteristics



- **N = 136,232**
- 60.2% male
- 62.1% public medical school

**Median Debt \$85,000**



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# Control Variables

- Demographic factors:
  - Rural birthplace (county)
  - Marital status (at med school graduation)
  - Age (at med school graduation)
  - Gender
- National Health Service Corps participation
- Medical school characteristics
  - Rural
  - Community based
- Graduation year
- All dollar amounts adjusted to 2010 dollars



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# Loans Used as Proxy Indicators of Medical Student Socioeconomic Status, 1988-2000

Loan	Eligibility
<b>Loans for Disadvantaged Students</b>	Students must demonstrate exceptional financial need or be from a disadvantaged background.
<b>Perkins Loans</b>	Institutions are mandated to give “priority to the neediest students.”
<b>Health Professions Student Loan</b>	Must demonstrate financial need, including parents’ resources.

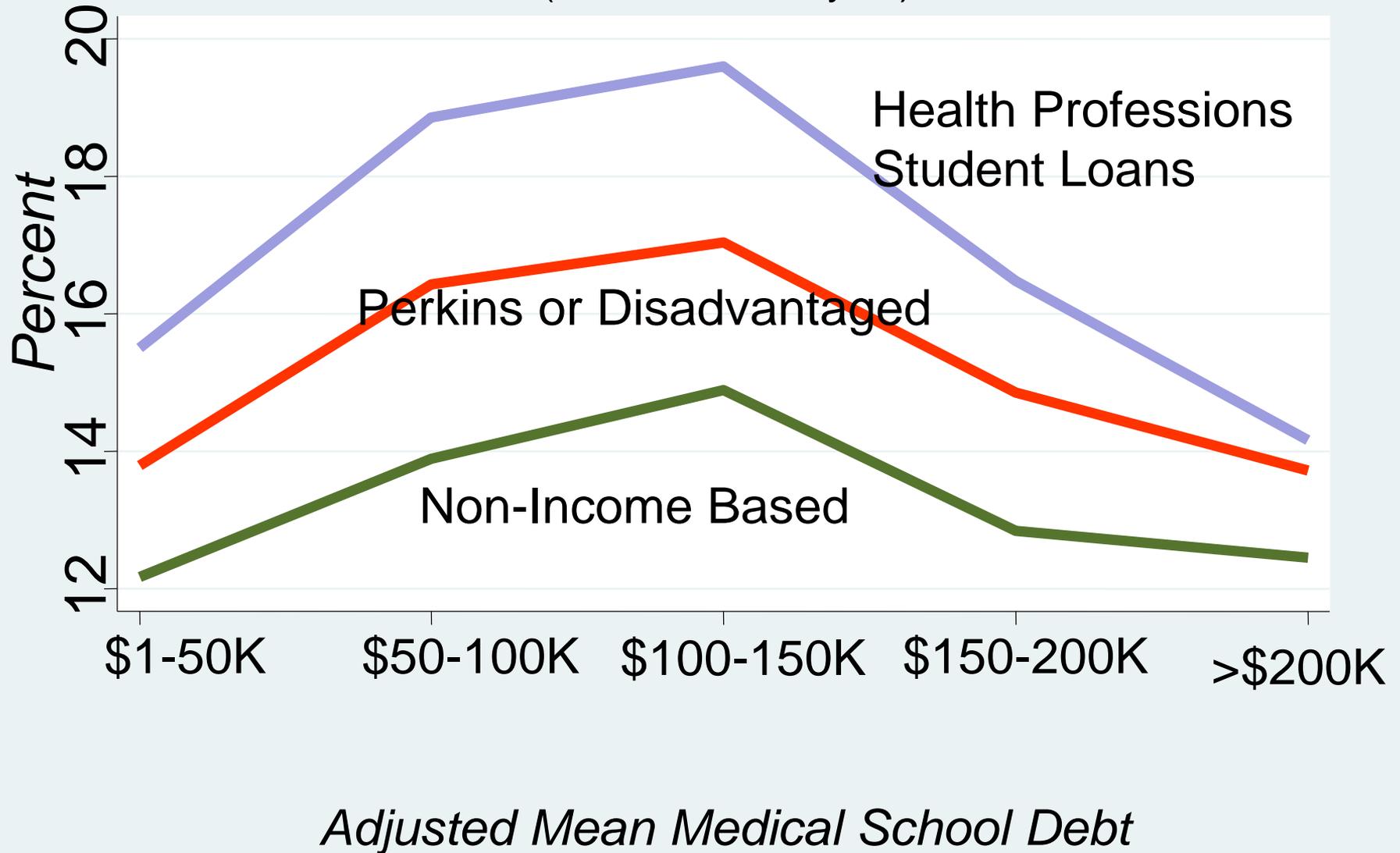


# Outcomes

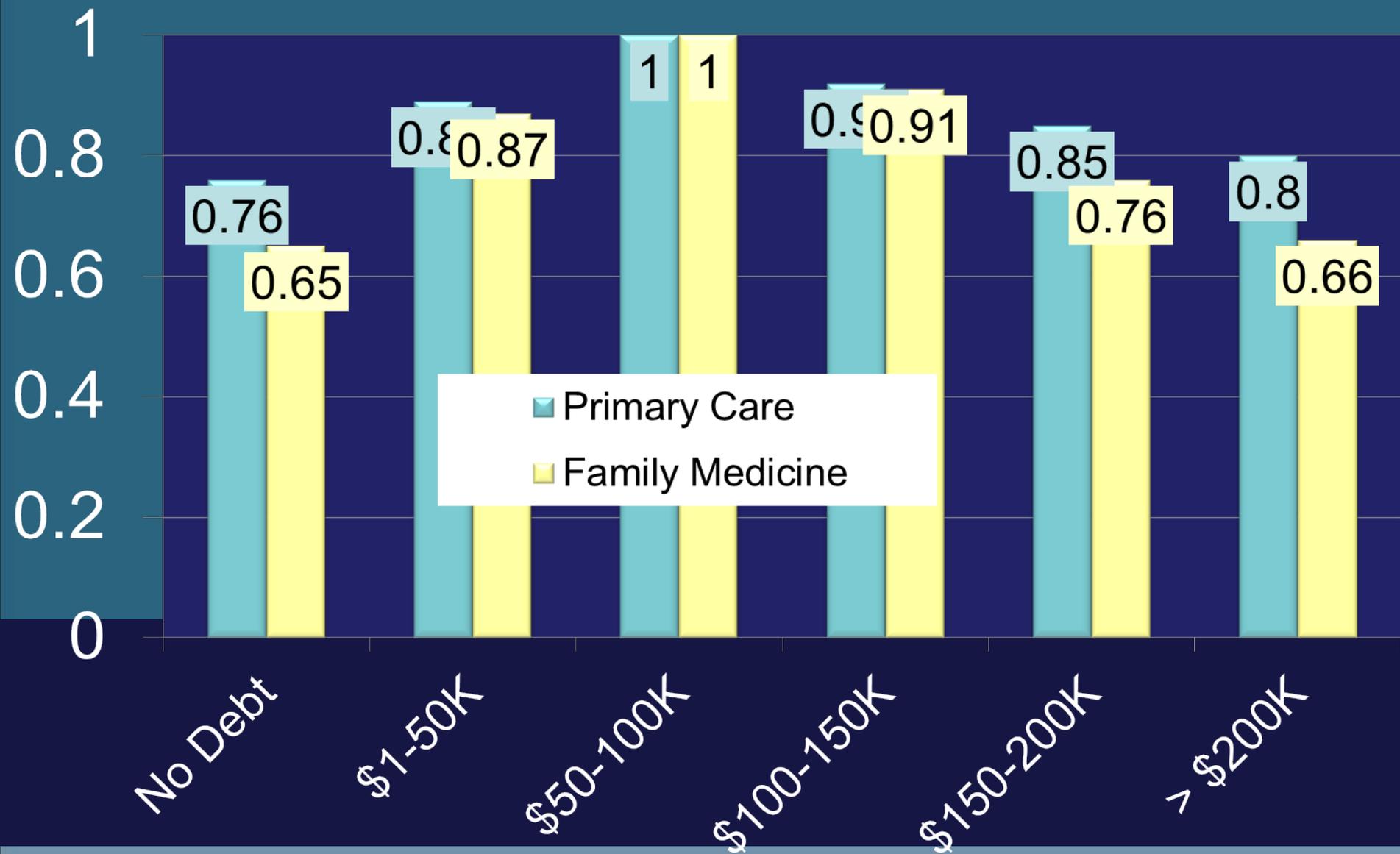
- Family Medicine practice in 2010
- Primary care practice in 2010
  - General practitioners
  - Family physicians
  - General pediatricians
  - General internists
  - Geriatricians



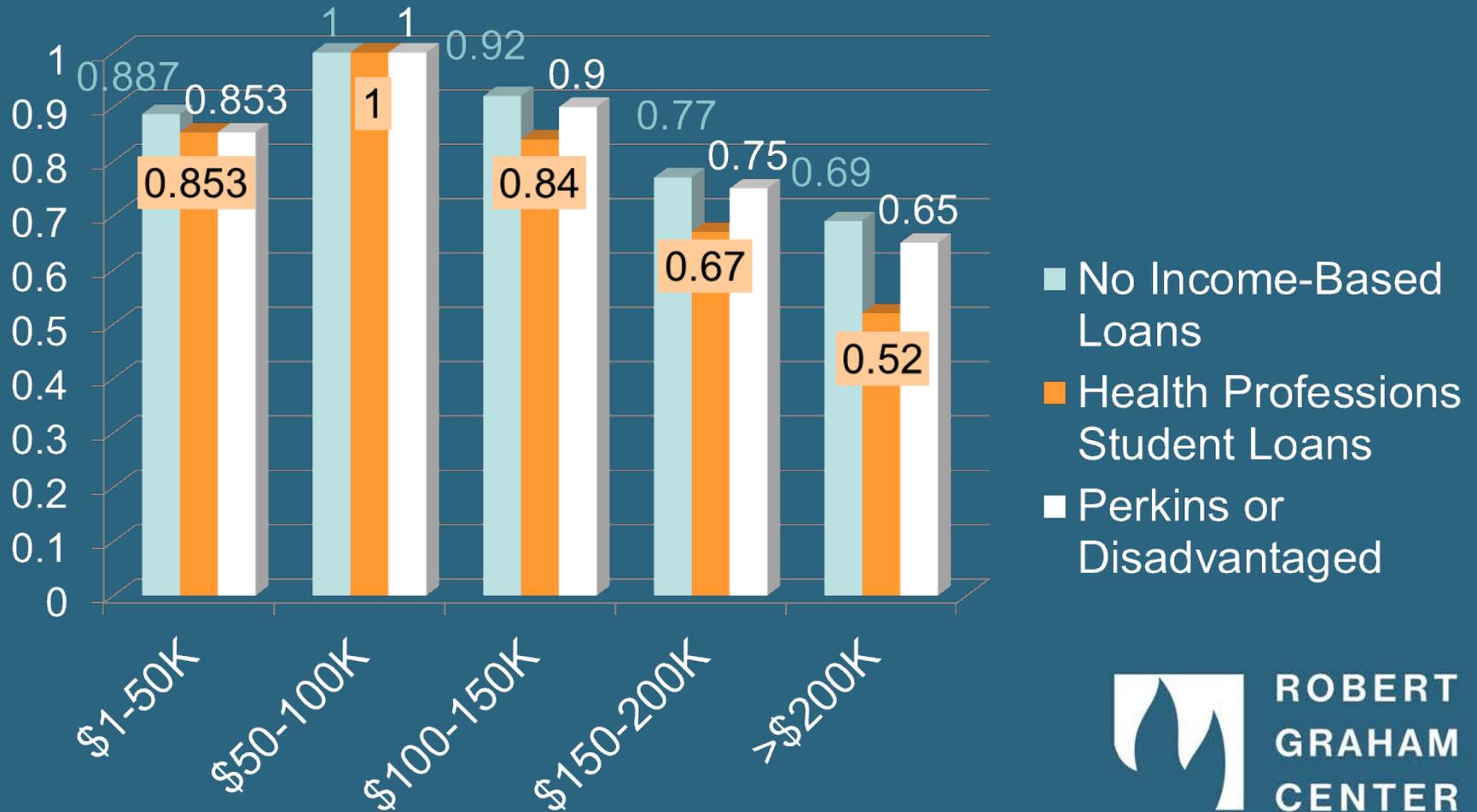
Percent of 1988-2000 Allopathic U.S. Medical Graduates in Family Medicine  
(univariate analysis)

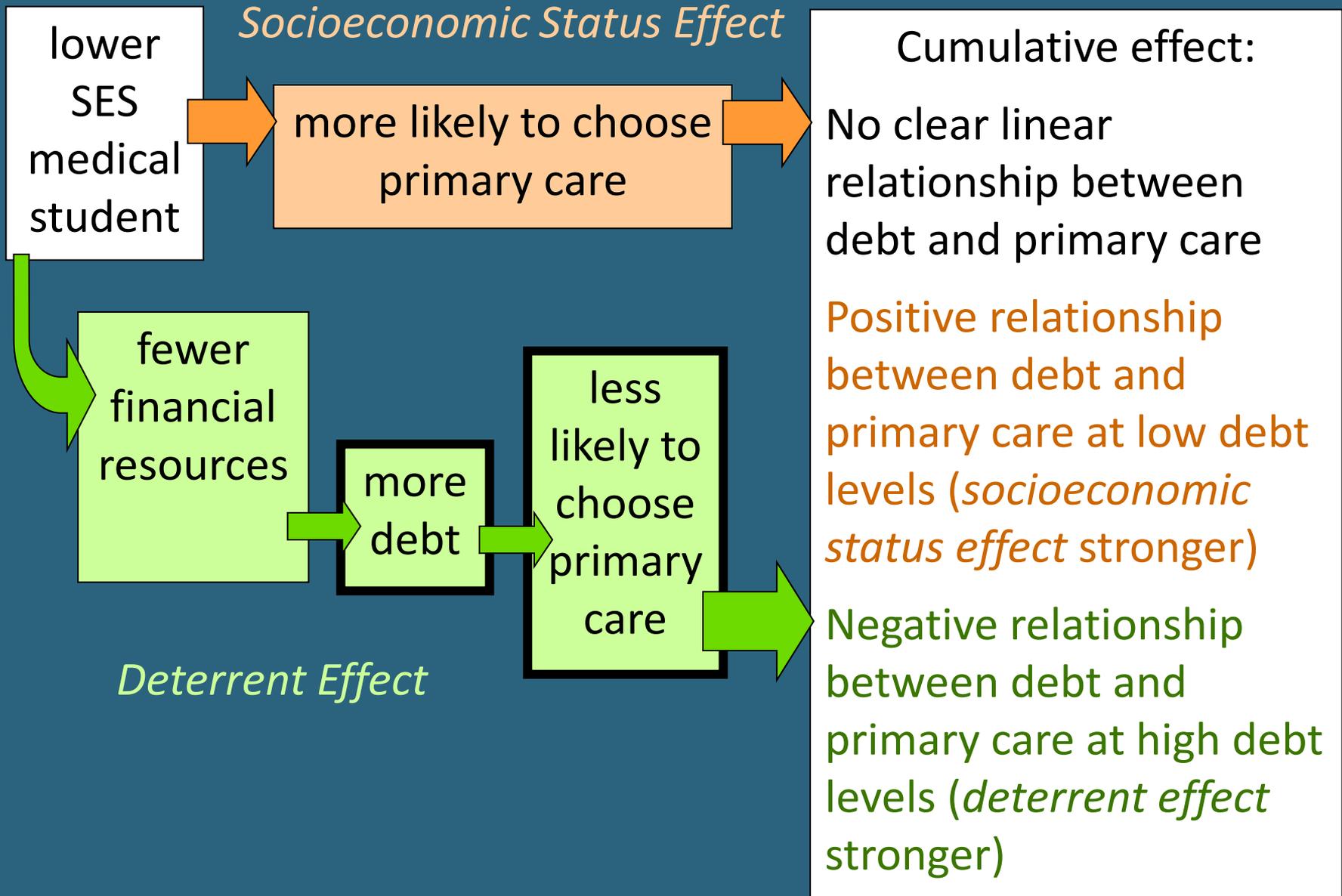


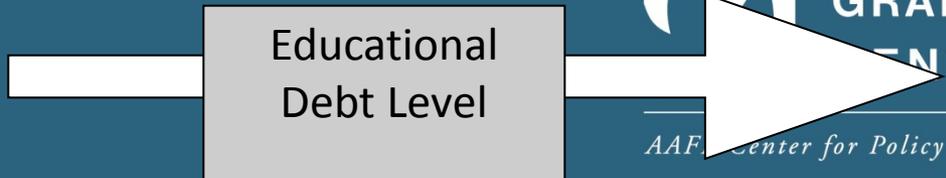
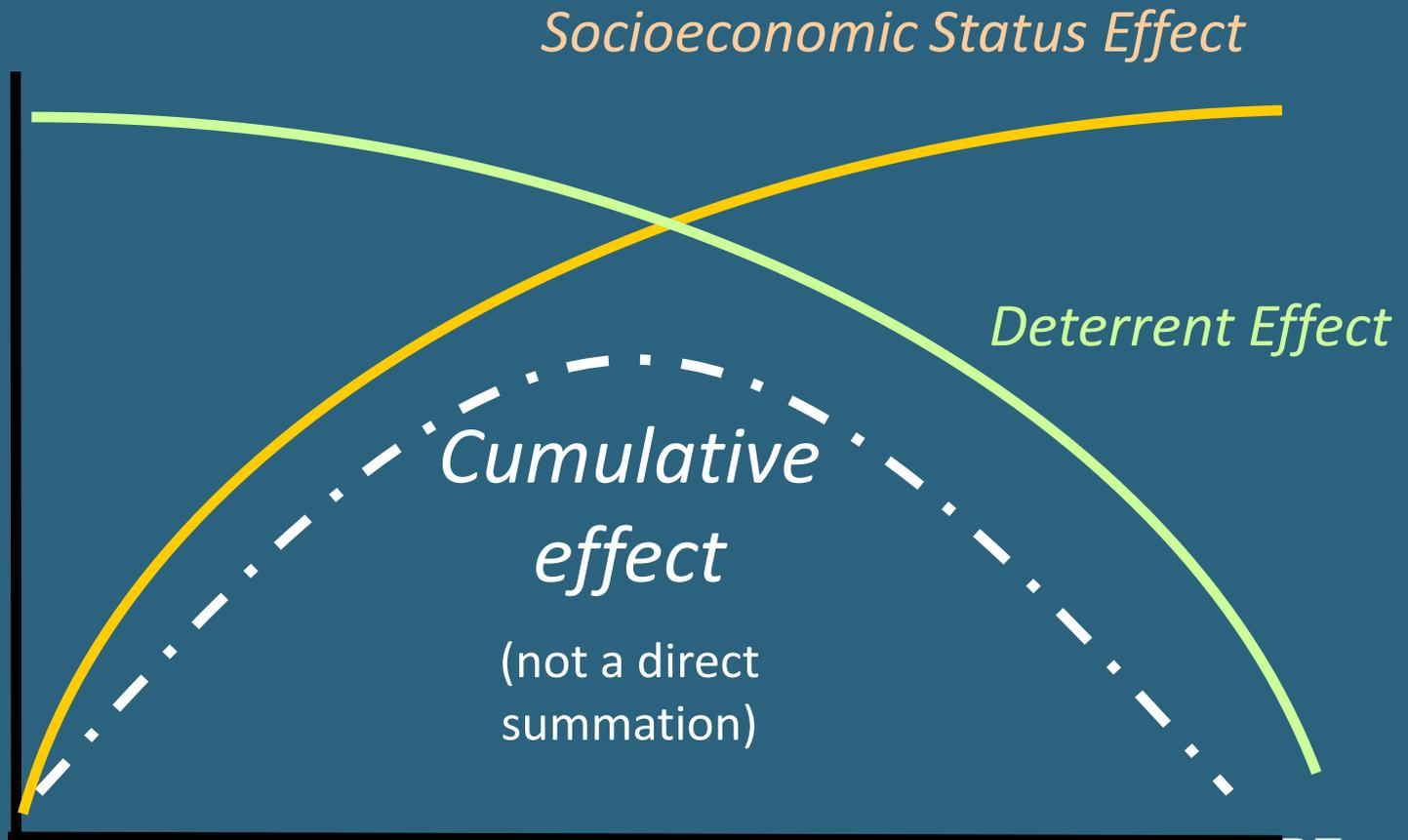
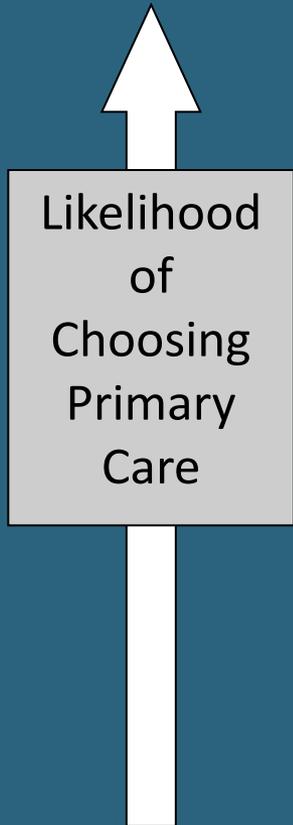
# Odds of Primary Care or Family Medicine Practice (all students, multivariate analysis)



# Odds of Family Medicine Practice by Loan Type (multivariate analysis)









Medical Student  
Debt is Eroding the  
Primary Care  
Workforce...  
especially Family  
Medicine



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# Acknowledgements and Disclosures

- Josiah Macy, Jr. Foundation provided financial support for data collection and creation of the dataset
- The information and opinions presented here do not necessarily reflect the views or policy of the American Academy of Family Physicians
- We are grateful to the American Association of Medical Colleges for the use of their data, but the findings and conclusions do not reflect their views or policy.



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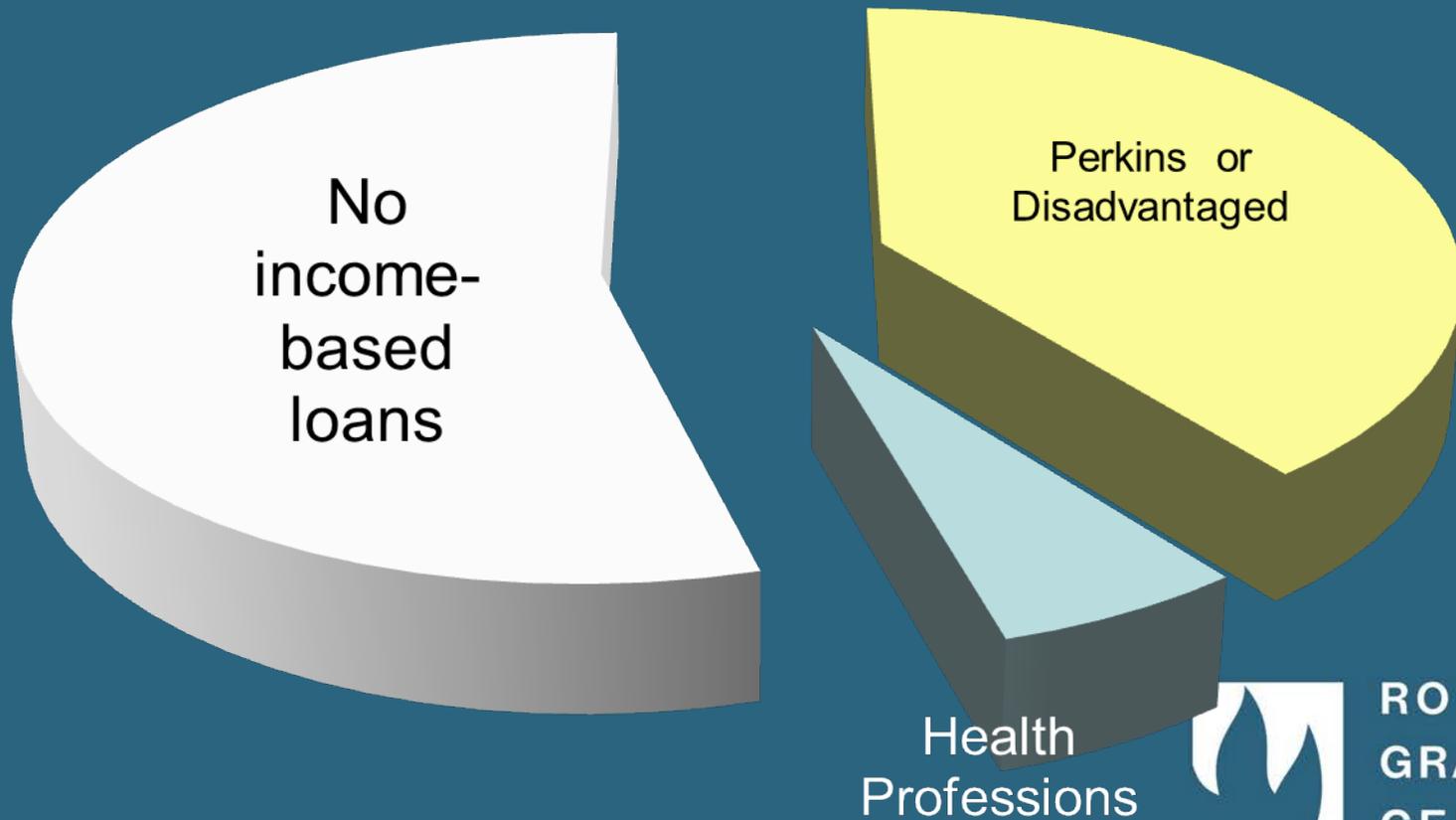
# Questions?



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# Study Sample Characteristics



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# 6 Multivariate Models for Each Outcome:

- All students\*
- Public school grads\*
- Private school grads\*
- Each loan grouping
  - Perkins Loans or Loans for Disadvantaged Students
  - Health Professions Student Loans
  - No income-based loans

\*Loan Types used as control variables in these models



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