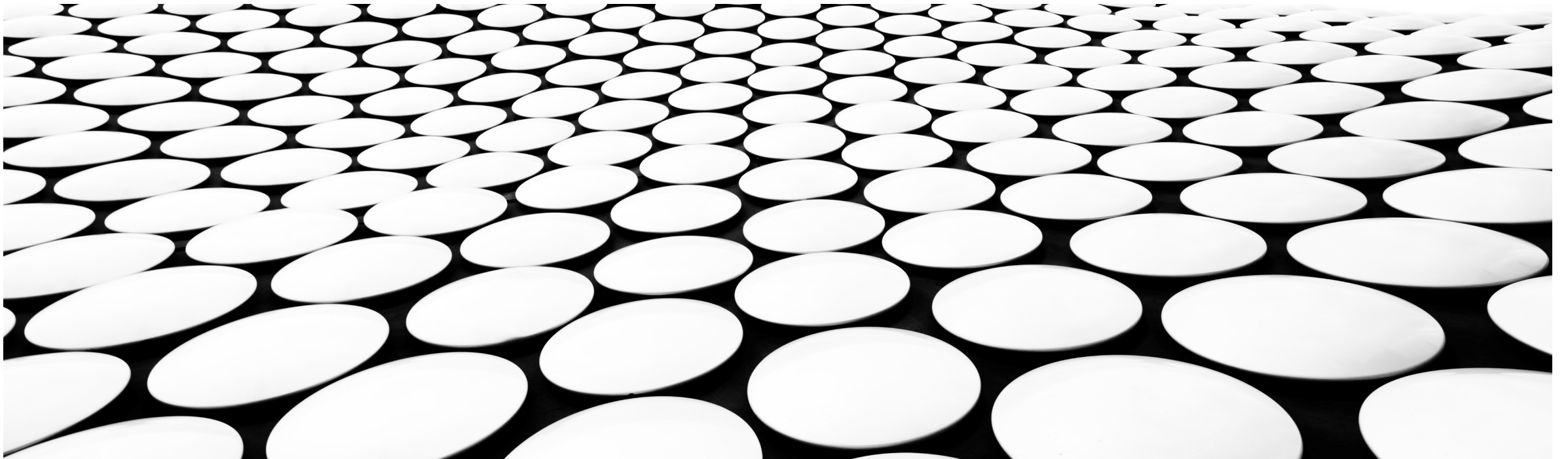# SHAPING PREFERENCES FOR STATE SUPPORT FOR HIGHER EDUCATION: THE ROLES OF THE MEDIAN VOTER, INCOME INEQUALITY, AND SOCIAL MOBILITY

JENNIFER A. DELANEY, UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

PURPOSE

- This study explores determinants of funding levels and types of state investment for higher education. Specifically, it considers changes in median household income, income inequality, and social mobility as potential determinants for state preferences about funding levels and type of higher education support.

PRIOR LITERATURE ON POLITICAL DETERMINANTS OF STATE SUPPORT FOR HIGHER EDUCATION

- Partisanship (governors and legislative composition, partisanship and governing board interactions)
  - Chin & Shi, this webinar; Hearn et al., 2017; Hicklin & Meier, 2008; McLendon, Tandberg, & Hillman, 2014; McLendon, Hearn, & Mokher, 2009; McLendon, Heller, & Young, 2005; Nicholson-Crotty & Meier, 2003; Weerts & Ronca, 2012.
- Political ideology
  - Doyle, 2006; Doyle et al., 2010.
- Interest groups
  - Ness, Tandberg, & McLendon, 2015; Tandberg, 2010a, 2010b.
- Political structures/Power (governor veto power, appointment of SHEEOs and Boards, politico-institutional context, etc.)
  - Hearn & Ness, 2018; Knott, & Payne, 2004; Lowry, 2007; McLendon, 2003; McLendon, Hearn, & Mokher, 2009; Ness, Hearn, & Rubin, 2018; Tandberg, 2013.
- Legislative professionalism (number of staff, intensity of legislature appointments, legislator pay, etc.)
  - Tandberg, 2010a, 2010b, 2013.
- Demographic characteristics of elected representatives
  - Gender (Schiltz, Gansemer-Topf, Abraham, forthcoming)
  - Alumni status (Chatterji, Kim, & McDevitt, 2018)

VOTERS AND REPRESENTATIVE DEMOCRACY

- Under representative democracy, voters have the ability to influence resource allocation by electing representatives whose priorities align with their preferences.

- However, very little scholarly work has considered the roles of voters in setting state higher education policy.

- This study seeks to contribute to the existing literature by exploring the ways in which electorate preferences are reflected in higher education funding decisions.

CONCEPTUAL FRAMEWORK: MEDIAN VOTER THEOREM

- Median Voter Theorem (MVT) starts with the premise that voters try to direct resources towards themselves.

- Drawn from political economy, MVT posits that politicians in a representative democracy maximize votes by aligning positions with the preferences of the median voter.

- As the median income of a group of voters changes, their preferences change (Persson & Tabellini, 2000).

  - Since it is difficult to measure voter preferences, median income can serve as a proxy for changes in median voter preferences.

- Assumptions of MVT are limitations:

  - Single issue voting

  - Only two candidates

  - No ideology or influence

  - No selective voting

  - No money

  - Full information

- However, it remains a useful and relatively simple game theoretic way of thinking about voter preferences for higher education policy.

THEORETICAL FRAMEWORK – MEDIAN VOTER THEOREM

Sketch of Proof (pairwise voting of policy alternatives)

Median voter: B

Condorcet winner: q^*
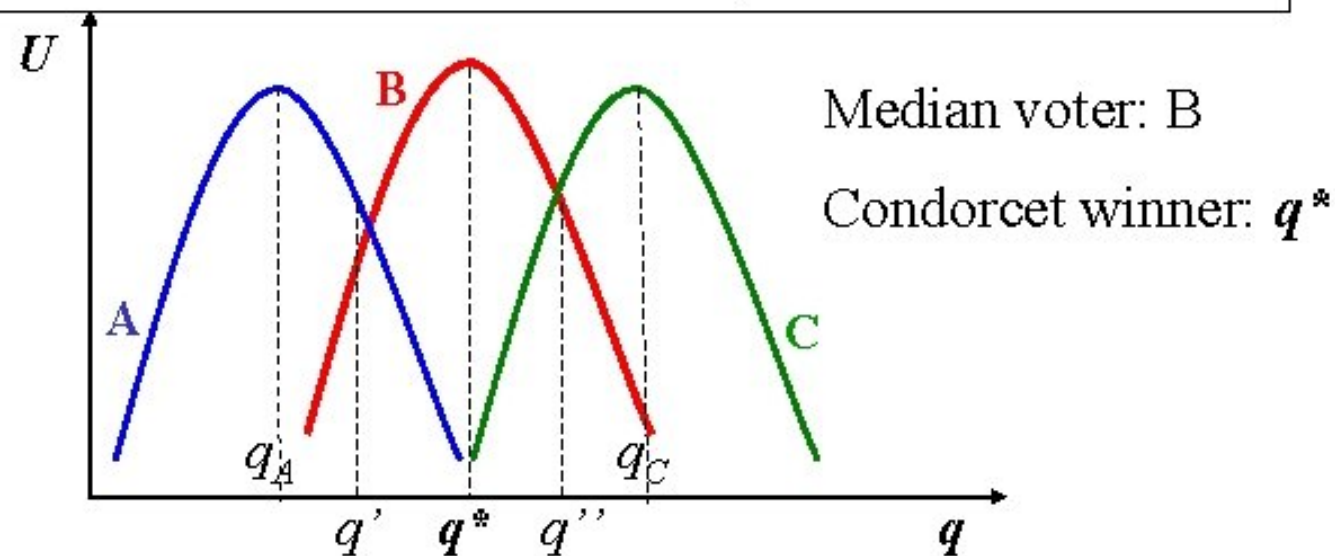
$q' < q^* \begin{cases} \text{A prefer } q' \\ \text{B and C prefer } q^* \end{cases}$ $q'' > q^* \begin{cases} \text{A and B prefer } q^* \\ \text{C prefer } q'' \end{cases}$

$\Rightarrow q^*$ always win in a majority voting election

PRIOR WORK USING MEDIAN VOTER THEOREM

- MVT has been used to understand education finances in:

  - K-12 literature (see for instance, Corcoran & Evans, 2010; Fletcher & Kenny, 2008)

  - MVT has motivated theoretical work (Creedy & Francois, 1990)

  - Pre-paid college tuition plans (Baird, 2006).

  - Toutkoushian and Hollis (1998) use MVT to posit that changes in median income led to changes in state appropriations

HYPOTHESES

1. As median household income increases, state allocations to higher education should increase, both in terms of direct appropriations and total student financial aid.

2. Because merit aid is more likely to be received by wealthier students and because voters want to re-direct resources towards themselves, preference for merit aid (and not need-based aid) will increase as median income increases.

DATA

- Time Frame:
  - 1985-2004

- Outcome Variables:
  - Higher Education Appropriations (SHEEO's SHEF study)
  - Student Financial Aid (NASSGAP)

- Independent Variables
  - Median household income (US Census Bureau)
  - Income inequality measures (Frank)
  - Social mobility measures (Opportunity Insights)

- Additional Covariates
  - Political
  - Higher education infrastructure
  - Attainment measures.

METHODS

- Two models are tested:

- (1) Two-way fixed effect panel analysis (by state and year)

$$y_{st} = \beta_1 MedInc_{s(t-1)} + \beta_2 \boldsymbol{X}_{s(t-1)} + \mu_s + \delta_{(t-1)} + \epsilon_{st}$$

- y is the outcome of interest:
  - Appropriations
  - Total student aid
  - Need-based aid
  - Non-need-based aid

- (2) In considering the impact of changes in median household income on the introduction of a statewide merit aid program, a logit analysis is used.

RESULTS

- Higher median household income was associated with statistically significant increases in:
  - Higher Education Appropriations
  - Total Student Financial Aid
  - Non-need-based Aid

- Increased median household income did not have a statistically significant effect on need-based aid.

- I observed a positive, significant relationship between median household income and the introduction of a merit aid program.

Table 3: Median Household Income and State Higher Education Investment Levels: Appropriations, Total Aid, Need-Based Aid, and Non-Need-Based Aid, 1985-2004

	(1) Appropriations	(2) Total Aid	(3) Need-Based Aid	(4) Non-Need-Based Aid
ln Median Household Income	5.658e+08***	6.515e+07***	9.764E+06	1.072e+07**
	(1.042e+08)	(1.605e+07)	(3.539e+07)	(4.358e+06)
Proportion of Republicans in Senate	3.917E+08	6.841e+07*	6.909E+07	4.043E+07
	(3.222e+08)	(3.887e+07)	(5.379e+07)	(2.775e+07)
Proportion of Republicans in House	-1.483E+08	-2.019E+07	-1.554e+08**	6.859e+07**
	(5.024e+08)	(7.626e+07)	(7.522e+07)	(3.190e+07)
Voter Participation Rate – Pres. Elect.	-2.375E+06	1.613E+06	1.929E+06	1.056E+06
	(9.063e+06)	(1.605e+06)	(2.496e+06)	(7.656e+05)
Voter Participation Rate – Cong. Elect.	-2.430e+07*	-3.178e+06*	-1.009E+07	2.371E+05
	(1.437e+07)	(1.709e+06)	(7.345e+06)	(4.449e+05)
Republican Governor	-3.065E+07	4.244E+05	7.314E+06	-1.217E+06
	(5.095e+07)	(7.685e+06)	(1.550e+07)	(2.566e+06)
Percentage of College Age Population	-7.998e+09*	-7.836E+07	-5.926E+08	1.167E+07
	(4.724e+09)	(5.710e+08)	(5.641e+08)	(1.194e+08)
% of Students Enrolled in 2-Yr Colleges	3.199E+08	-2.173E+07	9.106E+07	-2.707E+07
	(7.209e+08)	(1.006e+08)	(9.830e+07)	(4.648e+07)
Number of Public Institutions in a State	1.639E+06	6.866E+05	1.522E+05	1.192e+06***
	(4.785e+06)	(8.899e+05)	(1.006e+06)	(4.350e+05)
Number of High School Graduates	4.888E+03	5.026E+01	5.221E+01	1.983E+01
	(3.005e+03)	(3.500e+02)	(3.215e+02)	(4.827e+01)
Type of Governing Board	-1.662e+08**	-1.615e+07*	-1.881e+07*	-1.409E+06
	(7.931e+07)	(8.139e+06)	(1.066e+07)	(2.025e+06)
State with K-12 Court Reform	7.638E+07	-2.894E+05	8.810E+06	3.087E+06
	(1.215e+08)	(1.888e+07)	(1.831e+07)	(8.579e+06)
Constant	-4.192e+09***	-5.474e+08**	4.052E+08	-2.552e+08**
	(1.322e+09)	(2.392e+08)	(5.421e+08)	(1.159e+08)
State Fixed Effects?	Yes	Yes	Yes	Yes
Observations	1000	998	996	979
Number of States	50	50	50	50
R-squared	0.533	0.297	0.052	0.226

All dollar values are adjusted for CPI. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4: Median Household Income and the Introduction of a State-Level Merit Aid Program, 1985-2004

	Introduction of a Large Scale State Merit Aid Program
ln Median Household Income	110.1**
	(46.16)
Proportion of Republicans in State Senate	13.10
	(13.11)
Proportion of Republicans in State House	78.93***
	(23.37)
Voter Participation Rate - Presidential Elections	-0.0365
	(0.199)
Voter Participation Rate - Congressional Elections	1.541**
	(0.745)
Republican Governor	-8.534***
	(3.097)
Percentage of College Age (18-24) State Population	640.3**
	(324.5)
Percentage of Higher Education Students Enroll in 2-Year Colleges	58.66
	(37.47)
Number of Public Institutions in a State	0.373
	(0.383)
Number of High School Graduates in a State	0.0000496
	(0.0000355)
Type of Governing Board	-10.80
	(7.433)
State with K-12 Court Reform	-5.061
	(7.185)
State Fixed Effects?	Yes
Observations	260
Number of States	13
R-squared	.

All dollar values are adjusted for CPI. Robust standard errors in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

CONCLUSIONS

- Changes in median household income influence state higher education policy, in terms of both higher education spending overall and the the implementation of certain policies, such as large-scale state-level merit aid programs.

- As median household income increases, there is a general increase in support for higher education through appropriations and student financial aid.

- However, while I observe a statistically significant, positive relationship between median household income and merit aid, I did not observe a statistically significant association between median household income and need-based aid.

- Increased median household income is associated with increased probability that a state will introduce a large-scale state merit aid program.

- In an era of increasing income inequality and limited social mobility, understanding the role of median income in the levels and type of state support for higher education is important for both scholars and policymakers.

NEXT STEPS

- Update data to include more recent years (through 2017) including recent changes to statewide merit aid programs.

- Add more nuanced inequality measures (Gini Coefficient, Theil's T, etc.).

- Add social mobility measures (Opportunity Insights).

CONTACT INFORMATION

Jennifer A. Delaney

delaneyj@illinois.edu

REFERENCES

- Chatterji, A. K., Kim, J., & McDevitt, R. C. (2018). School spirit: legislator school ties and state funding for higher education. *Journal of Public Economies, 164*, 254-269.
- Doyle, W. R. (2006). Adoption of merit-based student grant programs: An event history analysis. *Educational Evaluation and Policy Analysis, 28*(3), 259-285.
- Doyle, W. R., McLendon, M. K., & Hearn, J. C. (2010). Why states adopted prepaid tuition and college savings programs: An event history analysis. *Research in Higher Education, 51*(7).
- Hearn, J. C., McLendon, M. K., & Linthicum, K. C. (2017). Conceptualizing state policy adoption and diffusion. In *Higher education: Handbook of theory and research* (pp. 309-354). Springer.
- Hearn, J. C., & Ness, E. C. (2018). The ecology of state higher-education policymaking in the U.S. In D. Palfreyman, T. Tapper, & S. Thomas (Eds.), *Toward the private funding of higher education: Ideological and political struggles* (pp. 19-47). London: Routledge.
- Hicklin, A., & Meier, K. J. (2008). Race, structure, and state governments: The politics of higher education diversity. *Journal of Politics, 70*(3), 851-860.
- Knott, J. H., & Payne, A. A. (2004). The impact of state governance structures on management and performance of public organizations: A study of higher education institutions. *Journal of Policy Analysis and Management, 23*(1), 13-30.
- Lowry, R. C. (2007). The political economy of public universities in the United States. *State Politics and Policy Quarterly, 7*(3), 303-324.

REFERENCES

- McLendon, M. K. (2003). State governance reform of higher education: Patterns, trends, and theories of the public policy process. In J. Smart (Ed.), Higher education: Handbook of theory and research (Vol. XVIII, pp. 57–143). Kluwer

- McLendon, M. K., Hearn, J. C., & Mokher, C. G. (2009). Partisans, professionals, and power: The role of political factors in state higher education funding. *The Journal of Higher Education*, *80*(6), 686–713.

- McLendon, M. K., Heller, D. E., & Young, S. P. (2005). State postsecondary policy innovation: Politics, competition, and the interstate migration of policy ideas. *The Journal of Higher Education*, *76*(4), 363–400.

- McLendon, M. K., Tandberg, D. A., & Hillman, N. W. (2014). Financing college opportunity: Factors influencing state spending on student financial aid and campus appropriations, 1990 through 2010. *Annals of the American Academy, 655*, 143-162.

- Ness, E. C., Hearn, J. C., & Rubin, P. G. (2018). The SHEEO and Intermediary Organizations. In D. Tandberg, R. Hanna, & B. Sponsler (Eds.), *The State Higher Education Executive Officer and the Public Good*. Teachers College Press.

- Ness, E. C., Tandberg, D. A., & McLendon, M. K. (2015). Interest groups and state policy for higher education: New conceptual understandings and future research directions. In M. B. Paulsen (Ed.), *Higher education: Handbook of theory and research, volume 30* (pp. 151-186). Springer.

- Persson, T. & Tabellini, G. (2000). *Political Economics: Explaining Economic Policy.* MIT Press.

REFERENCES

- Nicholson-Crotty, J., & Meier, K. J. (2003). Politics, structure, and public policy: The case of higher education. *Educational Policy, 17*(1), 80-97.

- Tandberg, D. A. (2010a). Interest groups and governmental institutions: The politics of state funding of public higher education. *Educational Policy, 24*, 735–778.

- Tandberg, D. A. (2010b). Politics, interest groups and state funding of public higher education. *Research in Higher Education, 51*, 416–450.

- Tandberg, D. A. (2013). The conditioning role of state higher education governance structures. *The Journal of Higher Education, 84*(4), 506–543.

- Tandberg, D. A., Fowles, J. T., & McLendon, M. K. (2017). The governor and the state higher education executive officer: How the relationship shapes state financial support for higher education. *The Journal of Higher Education, 88*(1), 110–134.

- Schiltz, Gansemer-Topf, Abraham (forthcoming). Examining the Intersection of Gender and Party in Relation to Volatility in Higher Education Funding. In J. Delaney (Ed.) *Volatility in State Support for Higher Education*. AERA Publications.

- Weerts, D. J., & Ronca, J. M. (2012). Understanding differences in state support for higher education across states, sectors, and institutions: A longitudinal study. *The Journal of Higher Education, 83*(2), 155–185.