Partisan Politics and Public Education: Finding the formula for (electoral) success

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Abstract

Do state politicians reward school districts that vote in favor of the party in power more than school districts that vote in favor of opposing party? With large shares of money at the state level to transfer to local governments and the ability to target core voters, it would seem likely that politicians would take advantage of the ability to distribute education funds. However, in understanding how states distribute education funds, little emphasis is given to partisan influences, particularly the congruence between local school districts and the state level. To test this, I collected data at the precinct level within each state, and using mapping software, spatially joined precinct boundaries to school district boundaries. Once this relationship was established, I aggregated precinct level information to school districts to understand the partisan voting patterns within each school district for elections from 2000 to 2010. This article finds evidence that funding formulas are susceptible to political influence and that parties are able to influence the geographic distribution of education funds to core voters.

When the Republican Governor of Maryland, Larry Hogan, took office in 2015, he withheld $68 million in funding for high-cost school systems. This decision directly impacted Prince George's and Montgomery counties, which would have received $20 million and $17 million in extra money each. Interestingly, these counties had overwhelmingly supported the Democratic opponent to Hogan in the election (Hicks, 2015). Was the decision to withhold funds politically motivated or just a cost-saving measure? While state funding for education programs has been debated vigorously from ballot boxes to court rooms, the debates often center on economic arguments. Many states rely on a funding formula to distribute education funds to local school districts with the idea that this distribution is at least partially determined by a local district's property tax base. This mathematical formula is often touted as a way to fairly distribute funds, but the formula often lacks transparency and can be quite complex. Do politicians manipulate the formula so that it rewards their core constituents more?

Political science research offers evidence that politicians distribute benefits to loyal or core voters in hopes of maximizing electoral benefits. Much of this evidence has focused on federal distributions to congressional districts or, in a few cases, state distributions to counties. While counties do define geographically similar areas, they are less likely to define homogeneous populations in terms of voting preferences. An urban area is likely to be more politically similar to other urban areas in different counties than it is to the rural area within the same county. Funding for public education provides an opportunity to test how strategic state elected officials are in distributing benefits to like voters because it defines a more homogeneous constituency. In addition, public education is the largest expenditure of local and state governments (Bernstein, 2014). With large shares of money at the state level to transfer to local governments and the ability to target core voters, it would seem likely that politicians would take advantage of this. This paper tests whether education funding is influenced by the core voter model, with districts who support the state party in power receiving more benefits.

This paper uses a novel data set to test whether the consistency between state party control and the partisanship of a local school district influence state transfers to that district. I collected data at the precinct level within each state, and using mapping software, spatially joined precinct boundaries to school district boundaries. Once this relationship was established, I was then able to aggregate precinct level information up to school districts to understand the partisan voting patterns within each school district for elections from 2000 to 2010. This data was supplemented with voting data at the county level for presidential elections from 1992 to 2012 as a comparison. By combining this data with financial and demographic information of a school district, I was able to leverage changes in partisanship over time at the state level to test how it influences the distribution of funds in subsequent years.

I find evidence that funding formulas are susceptible to political influence and that parties are able to influence the geographic distribution of education funds to core voters. I find a strong relationship when state party control and local partisan support align focusing exclusively on school districts. If there was no partisan influence in funding formulas, then we would expect that the percent voting for a Democratic candidate would be unrelated to the amount a district receives. However, a one percentage point increase in voting for the Democratic candidates in an election when Democrats have control at the state level is associated with a $9.59 per student increase to funding from the state formula, above the state mean. If Republicans have control at the state level, then a one percentage point increase in voting for the Democratic candidates is associated with a $2.53 decrease in state transfers, relative to the state mean.

Distributing Public Goods

Funding for public education in the United States is a complicated process that involves all levels of government. In the 2011-2012 school year, states provided approximately 42

percent of public school revenues, local districts provided 46 percent, and the federal government at 12 percent. However, there is considerable variation from state to state. For example, the state of Vermont contributed over 85 percent of the revenue, while Illinois contributed less than 30 percent (Odden and Picus, 2014). The ways in which states distribute their money to local school districts can vary as well. Over the years, courts and state legislatures have sought to equalize school funding within a state through these various methods of transferring money. Intergovernmental transfers can occur through grants or through a funding formula. Grants, whether unrestricted, categorical, or matching, are sums of money transferred to a district. State funding formulas are methods for transferring money back to local government and often done through either a flat-grant, foundation program, and guaranteed tax base (GTB) program (Odden and Picus, 2014).[1] Some states use a combination of the types. Hawaii, which only has one school district, fully funds the school district.

Much of the research in understanding funding formulas has focused on the economic components of the formulas and whether or not they achieve equalization.[2] The assumption frequently is that the goal of the process is apolitical, and that the process is trying to redistribute money based on need determined by the local tax base. That is, the focus is on the link between local property taxes and per pupil revenue and how that leads to fiscal inequalities (i.e. Alexander and Salmon 1995; Guthrie et al. 2007; Odden and Picus 2014). The inequality is created by uneven tax bases, and therefore creates uneven spending per pupil.

But there is a significant amount of research that shows that parties distribute goods to optimize electoral outcomes. Elected officials respond more to voters than non-voters (Griffin and Newman, 2005), and voters enjoy better policy representation and are rewarded more than non-voters (Griffin and Newman, 2012). In designing redistribution programs,

[1] See Odden and Picus (2014) for a full discussion of the details of each funding type.

[2] There are many debates within education funding about equality in education funding. Should the goal to have all school districts receive equal funding or do some districts require more money to meet the same level of education performance? The goal of this paper is to address the equality of education from the financial side, not the academic output side.

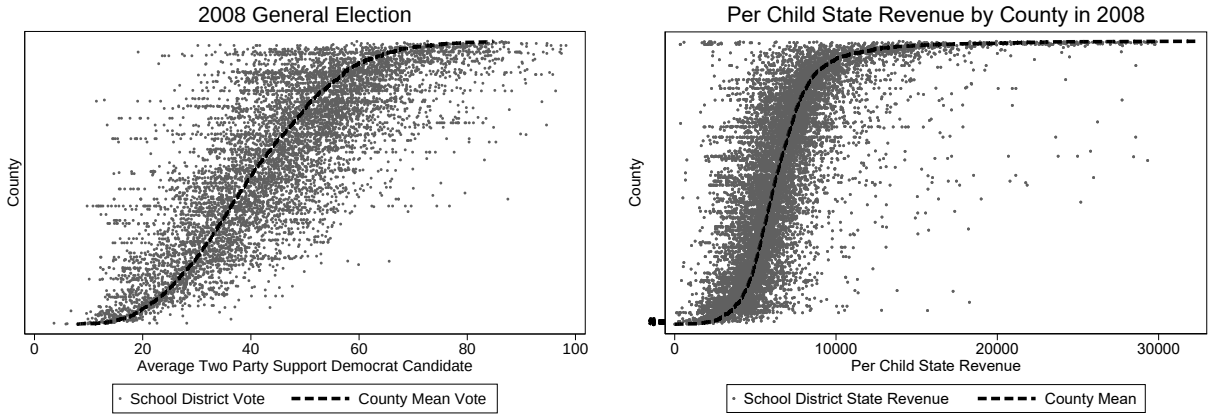
elected officials have the opportunity to reward key legislative districts and ignore districts that they believe will not be beneficial electorally (Dixit and Londregan, 1996). Scholars have debated the strategy that elected officials use to target voters. Elected officials could follow the core voter model (or loyal voter) in which money is allocated to areas that contain core voters (Cox and McCubbins 1986; Cox 2009), or a swing voter model, in which money is allocated to pivotal electoral areas(Lindbeck and Weibull, 1987). While both of these models are derived through game theoretic models, empirical work has found support for these models as well.[3]

When deciding which model is appropriate, the goal of the party must be understood. Are the parties trying to persuade voters, mobilize voters, or coordinate voting efforts? If the goal is only to persuade voters to choose between two parties and turnout is set, then the research is mixed in what parties are trying to achieve when they distribute public goods. If, however, parties are also trying to mobilize voters to turnout or affect the number and character of alternatives from which voters choose, then there is much more support for the core voter model (Cox, 2009). There is ample evidence of this at the federal level. An increase in federal spending benefits is associated with an increase in support in the popular vote for the incumbent in House elections (Levitt and Snyder Jr, 1997). In an analysis of distribution of FEMA aid after Hurricane Katrina, Chen (2013) finds that the aid had an interesting impact on turnout. Not only did turnout increase for the incumbent party but it also decreased for the opposition party in response to aid given in the aftermath of the disaster. Incumbents who are vulnerable electorally might be more likely to seek out new money to bring to a congressional district to shore up votes Stein and Bickers (1994). Legislatures are strategic in getting resources to those most likely to support and vote for them.

Much of this research has focused on the federal level, with a few exceptions of state transfers to counties (Ansolabehere, Gerber and Snyder 2002; Ansolabehere and Snyder 2006).

[3]Examples of articles in support of swing voter model: Stokes (2005); In support of the core voter model: Levitt and Snyder Jr (1995);Levitt and Snyder Jr (1997);Balla et al. (2002)

Figure 1: County Mean Compared to School District



Note: These figures illustrates the variation between school districts within a county. Each row represents a county and each dot is a school district within that county. The figure on the left shows variation in voting within a county, and the figure on the right shows variation in state transfers to a school district within a county.

Can and are parties at the state level able to be more direct in their targeting of benefits? While counties do define geographically similar areas, they often do not define homogeneous populations. School districts, on the other hand, often capture much more homogeneous populations. Not only do they often represent much smaller regions than counties, the ways in which school district boundaries were formed created more homogeneous groups. There are over 12,000 school districts throughout the United States. This might allow state legislatures to target urban or rural voters more easily. Research has highlighted that school district boundaries, as well as other types of political boundaries, can serve in ways to keep residents more homogeneous and exclude certain races or economic classes (Bischoff 2008; Danielson 1976; Weiher 1991). Therefore, school districts represent areas that politicians should be able to more strategically distribute benefits than counties or even congressional districts.

Figure 1 illustrates the variation in both voting and state transfers to school districts that occur within counties in the United States. Each row represents the vote in a county and school districts within that county. In the figure on the left, the gray dots represent

the two party vote for that school district, and the dark, dashed line represents the county mean. While there is obviously correlation between the average county vote and a school district's vote within each county, there is clearly significant variation within each county in the two party vote for a Democratic candidate. For example, in some counties where the county vote went well over 60 percent in favor of Democrats, some school districts within those counties voted less than 20 percent in favor of the Democratic candidate. The figure on the right is the same set-up but with per child state transfers to a school district. Again, there is correlation between county means and what was transferred within the county to school districts but with significant variation within each county.

Furthermore, it is important to note that Republican and Democratic parties have different platforms on education, and therefore, might pursue different strategies in funding education. Following Cox and McCubbins (1986), the strategies that legislatures will pursue are ones that will benefit their constituents the most. Democrats are likely to favor strategies that target areas with higher need while Republicans might favor strategies that focus on efficiency of spending or increased school choice. The Democratic party has argued for higher levels of funding, while Republicans have argued that additional funding will not solve problems faced in education (Meier and Rutherford, 2016). In analysis of states, Hill and Jones (2017) find that Republican and Democratic governors allocate spending differently, with Democratic governors allocating higher shares of state transfers to minority students.[4]

In addition, teacher unions provide an avenue in which to alert state level politicians to school district voting behavior. Moe (2005) has found that teacher unions mobilize both their members and other voters in elections. Political activity by teacher unions have been shown to reduce the likelihood of certain reform-style policies at the state level, such as school choice (Hartney and Flavin, 2011). Teacher unions are major contributors to state legislature races (Lott and Kenny, 2013), and teachers themselves vote at higher rates than average citizens

[4]Hill and Jones (2017) also tests for partisanship influences but does not find any. They use county level presidential vote as a proxy for school district vote. Figure 1 illustrates just how much variation in voting patterns exists within a county.

(Wolfinger and Rosenstone, 1980). Because of this relationship, state legislatures are likely paying attention to party support at the district level. Furthermore, the Democratic Party has a much stronger relationship with teachers unions. The two largest teachers unions give 95 percent of their campaign and soft money contributions to Democrats (DeBray-Pelot and McGuinn, 2009).

But how much influence do state legislatures have over funding formulas? Because of the unequal nature of school funding, many funding formulas have been challenged in court. In the landmark case, *Serrano v. Priest (1971)* found California's financing of schools to be unconstitutional. They held that education was a fundamental state right, greatly changing how education spending was determined in California and set off a wave of court challenges to funding formulas (Berkman and Plutzer, 2005). As of 2017, 45 states have had their finance system challenged, with about half the states having had their funding systems completely or partially overturned by state's courts (Rebell, 2017). The second wave of school finance reform began in 1989 with a ruling by the Kentucky Supreme Court requiring that each child in the state must have an equal opportunity to have an adequate education (Lafortune, Rothstein and Schanzenbach, 2018). Lafortune, Rothstein and Schanzenbach (2018) identified 64 school finance reform events between 1900 and 2011 in 26 different states. The court systems do generally have a significant impact on the distribution of educational resources. However, inequality is often not reduced Reed (2003). This suggests that there is opportunity to influence the distribution of money through changes in the funding formula in ways that could support a core voter model. While changes to funding formulas can occur incrementally, these rulings have lead to many opportunities for the party in control at the state level to overhaul an existing formula.

School districts themselves may be strategic in providing forecasts of local revenue to "state policymakers who regularly tinker with state funding formulas" in hopes of showing more need in order to get more from the state (Lavertu and Clair, 2018, 60). It is also possible that the strategies that each party pursues to fix funding issues is likely to be the

most advantageous to their core supporters. Democrats might be more likely to pursue strategies that help school districts in high poverty, high minority areas. Republicans might be less inclined to increase spending, instead focusing on being more efficient. Therefore, these higher need districts would not get any additional money.

Transfers can happen outside the formulas as well. For example, New York has bullet aid funding that is money that is distributed outside the funding formulas to school districts at the end of each fiscal year. In 2015, $15 million were distributed to schools through this type of funding (Flanagan and Klein, 2016). The spokesman for the New York Assembly Speaker Carl Heastie, Michael Whyland said, "The school aid formula can't account for every situation among the nearly 700 school districts statewide, so this is funding to schools that need it" (Harris, 2015). However, there is little transparency in how or why this money is distributed to certain districts. In addition, block grants are often given for many different areas such as special education, lunch programs, bilingual education, or transportation to make up for gaps in the funding formula. Partisanship can influence which types of programs to support. Different programs can be distributed differently, such as need-based or equality in distribution.

With opportunity to influence the distribution of education funds to different geographic locations and the ability to target populations of similar voters in school districts, state transfers for education is likely to follow the core voter model. School districts provide an excellent way to test the core voter model and see how strategic state parties are in distributing benefits to a more granular population. I hypothesize that districts that vote for the party in power at the state level receive more benefits, in terms of state transfers per child, than districts who support the opposing party. I do not focus on differences in specific funding formulas because many states take a combination approach when determining how to allocate money. However, I do run separate models on all transfers and funding formula transfers separately to see if funding formula itself is more susceptible to partisan influences. In addition, I run additional models to see if parties are targeting areas of likely supporters

or areas of greater need, but not necessarily voters themselves.

Data and Methods

Using precinct level election data, school budget data, student demographic data, and community demographic data, I created a data set from 2000-2010. This analysis consists of 33 states that I was able to obtain precinct level information. I supplement this data set using county level voting data from 1992 to 2012 that includes all states. Table 1 summarizes the data used for models that use precinct level voting data. Table B.2 in the appendix summarizes the data used for models that use county level voting data. I first discuss the data used to capture partisanship at the state and local level. Then, I discuss demographic and financial data.

Election Data

In order to understand the congruence between state and local school district partisanship, information is needed about both state party control and local support for parties. For state level information, I use data on state party control from Klarner (2013). This is yearly data that identifies which party has control of the legislative and executive branch within each state and whether the party in control has a veto-proof majority. I follow the definitions of state party control used by Ansolabehere and Snyder (2006) in their analysis of state transfers to counties. Therefore, I define a state as being under Democratic control if the Democrats have a majority in both legislative chambers and the governor is a Democrat or Democrats have a veto-proof majority in both legislative chambers. The same definition is applied for Republican control. Divided control occurs when neither major party has control. Table B.1 in the appendix shows the number of years that the state has had either Democratic, Republican, or divided party control. It also indicates whether that state is included in the analysis.

State level control is determined based on the budget cycle of that state. States either have an annual or biannual budget cycle. Depending on which process a state has, I either look at the previous year or the previous two years to determine party control. If it is an annual budget cycle, a period of Democratic Control is defined if the previous year Democrats controlled the state legislature. Republican control would require Republicans to be in control, while Divided control would be defined if neither party had control in the previous year. In states that have biannual budget cycles, I look at the previous two years to define control.

As a robustness check, I look at two additional time-frames of party control. I first use an eight year window of control. This is the same definition used by Ansolabehere and Snyder (2006). They select this time-frame because policies often take time to implement and budget changes are often slow moving. A period of Democratic Control in a state if Democrats maintained control for at least four of those years and Republicans had control for three or fewer (or it could also be under divided control for four or fewer years). Republican control during this eight year window would require four or more years of Republican control. Therefore, when I am predicting the intergovernmental transfers for the 1993 school year, I focus on the party in control during the years 1985-1992. If Democrats maintain control for at least four of those years, it is coded as under *Democratic Control*. The variables are defined by *Democratic Control*, *Republican Control*, and *Divided Control*. Lastly, I create a time-frame of four years of party control. This allows me to split the difference between the shorter time-frame of a budget cycle, and the longer time-frame of the eight year window.

To determine the congruence with local voters, I first focus on precinct level data. Because counties group a large share of voters together and can have multiple school districts, I use precinct level data to obtain a more granular picture of partisan turnout within each school district. Precincts or voting districts are smaller divisions within a county and can be aggregated to show the vote within a school district. Figure 2 illustrates just how different a county two party vote and the school district votes within the county can be by using New

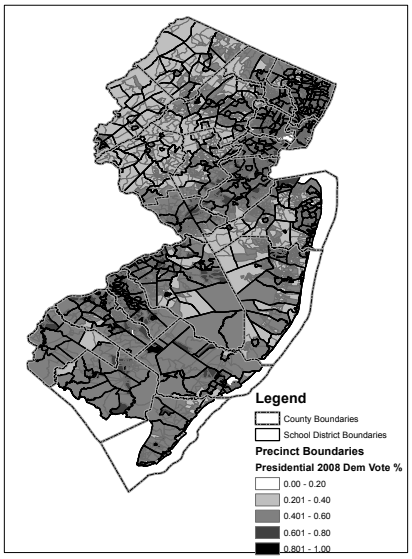
Jersey as an example. County boundaries are dashed lines while school district boundaries are dark black. The average vote for the two party 2008 Democratic presidential election for each precinct is color-coded based on the degree of support. For example, within Camden, there are 35 different school districts. The average Democratic presidential vote in the 2008 election in Camden was 67.5%, but there was wide variation at the precinct level. On the low end, the vote in Waterford Township School District was 53.7%. On the opposite end, the vote in Lawnside Borough School District was 97.4%. By using precinct level data, I have a more accurate view of support for a party within a school district.

I run a robustness check with county-level election data to see what difference the more granular data makes. Presidential election data is collected at the county level for the following years: 1988, 1992, 1996, 2000, 2004, 2008, and 2012. This information was compiled from CQ Press (2016) by state and election year. I use this data to identify the average two-party vote received by the Democratic candidate for president for the previous two elections within a county. Therefore, when I am predicting the intergovernmental transfers for the 1993 school year, I would use the 1988 and 1992 election results. This variable is called *Dem Vote C*. This county level information serves as a proxy for district partisanship.

Precinct data are not inherently connected to school district boundaries. In order to make this connection, I used the mapping software ArcGIS to match precinct boundaries to school district boundaries.[5] Table B.1 in the appendix provides the source used for precinct boundaries for each state. This resulted in 33 states that are included in this analysis.[6] School district boundaries were mapped using data from the National Center for Education Statistics (2013). For the majority of cases, a precinct was defined to be within a school district if it fell completely inside the school district boundaries. However, there are cases in which a precinct crossed school district lines. When this occurred, the votes for that precinct were counted in all school districts for which it fell inside. Please see Appendix A for additional details about the mapping process.

[5]Specifically, I used the "Union" tool to join boundaries based on spatial location of the data.
[6]17 states either did not have boundaries mapped or precinct voting data available.

Figure 2: New Jersey by County, School District, and Precinct Boundaries



Note: This figure illustrates the variation in voting that occurs within a county.

Once the crosswalk between precincts and school districts were complete based on 2010 boundaries, I created crosswalks across different election years. Data collected by Ansolabehere, Palmer and Lee (2014) contains precinct level voting data by state for elections between 2000 and 2012. This includes results for presidential, governor, US House, and US Senate elections. While some states use the same name or precinct code across elections, other states were less consistent in their naming conventions and coding. Through extensive cleaning, I was able to match most precincts over this time frame. Detailed code can be provided upon request that match precincts across years.[7] Vote counts for each election type and year were then aggregated to the school district level. Most years have more than one election, therefore, I take the average Democratic vote across elections within a year. The average two-party vote for a Democratic candidate is rescaled so that it represents the deviation in state party support and local party support. Because there is variation from

[7] An example of matching precinct data over time would be the precinct *cedar falls w1p1* in Black Hawk county, Iowa. While it was called that in some years, in other years it was called *cf w1p1*.

state to state in average Democratic support, this allows a more accurate comparison of divergence or congruence from state averages. As an example, if the state average two-party vote was 51 percent and the district vote was 55 percent, then the district supported the Democrats four percentage points more than the state average. This variable is called *Dem Vote Precinct*.

In order to understand the impact of the party in power at the state level and its relation to the school district vote, I create an interaction between the two. Therefore, *Dem Vote Precinct*[8] is interacted with *Dem Control*, *Republican Control*, and *Divided Control* to create *Dem Vote Precinct X Democrat Control* , *Dem Vote Precinct X Republican Control*, and *Dem Vote Precinct X Divided Control*[9]. As Ansolabehere and Snyder (2006), notes these variables measure the direction that the governing party skews funds. The expectation is that if Democrats are in control at the state level, then they would award more money to districts that support Democratic candidates. This interaction captures this relationship. Lastly, I include a variable that indicates how close the vote was within the district. *Close Vote 50-50* indicates how close the vote was between the two parties. A value 0 would indicate that the Democrats and Republicans received the same percentage of the vote; a value of 15 would indicate that one party received 15 percentage points more than the other party.

School District Information

In addition to partisanship information, financial information for each district was collected. To measure the transfers from state to local governments, I use the Public Elementary – Secondary Education Finance Data provided by the U.S. Census Bureau from 1995 to 2011(US Census Bureau, 1993-2011). This data set breaks apart revenue by local, state, and federal governments and provides what each district receives from each level of govern-

[8]or *Dem Vote County* when using county level information

[9]or *Dem Vote County X Democrat Control* , *Dem Vote County X Republican Control*, and *Dem Vote County X Divided Control*

ment.[10] In addition, state level revenue is further refined by denoting the source. That is, the funding is detailed by whether it is a transfer from a general funding formula, special education program, or a bilingual education program, as examples. All dollar amounts are in 2013 constant dollars.

This data set is the source for the main dependent variables: a per student measure of all state funds to a district and a per student measure of funds from a general formula assistance. Districts vary in size and states vary in their capacity to provide education funding. In order to understand how one district's revenue from the state compares to another district within the same state, I transform each dependent variable so that it is in relation to the state mean. That is,the dependent variable is the difference between the district per child state revenue ($y_{jk,t}$)and the mean per child state revenue ($s_{k,t}$) at time t:

$$d_{jk,t} = y_{jk,t} - s_{k,t}$$

where

$$s_{k,t} = \sum_1^{j_n} y_{jk,t}/q_k$$

where j references districts,k references the state, and t references the year. The number of districts within state k is given as q_k. A negative number indicates that the district at time t receives less in revenue from the state than the state average, while a positive number would indicate that they received more than the state average. In addition to the two dependent variables, I also create two explanatory variables from this data set to control for local school district capacity and federal government support. They are both transformed so that they are in reference to the state mean within a given year: *Per child local* and *Per child federal*. The budget data is paired with student demographic information that is collected by the Local Education Agency (School District) Universe Survey, provided by the National Center of Education Statistics (NCES, 1993-2012). I include community level information about the school districts from the 1990, 2000 and 2010 Census (US Census Bureau 1990;

[10]Revenue that originates from the federal government but is distributed by states is not considered to be part of state funding. For example, Title I revenue that is distributed by states would be considered from the federal government and not included as a source of state revenue.

US Census Bureau 2000; US Census Bureau 2010) and linearly interpolate data between the three Censuses.

There are many other factors that are likely to affect the amount of revenue transfered to local school districts. The most important is the ability of a local district to contribute. Districts that are wealthier will be able to collect more in taxes than districts than poorer districts. Local governments and the federal government contribute at different rates as well. While I include the actual per child amount that the local district and federal government contribute, I also include *Median Household Income* in thousands of dollars as a measure for district wealth. I include the percent of residents with a bachelor degree or higher, *% Bachelor or higher*, as a proxy for education support. I also include percent of residents who own their home, *% Own Home*. I include the log of the population, *Log Pop*, to control for variation in size of district.

Diversity of residents has consistently been highlighted as an important predictor of investment in public goods. I include *% Black*, *% Hispanic* and *% Asian* to capture the diversity of the district. This is also important because Black voters overwhelmingly support Democratic candidates. Therefore, when Democrats are in control, they could target areas based on demographics which can be highly correlated with partisanship. Lastly, I include percent of students receiving free or reduced lunch (*% Free Lunch*) and percent enrolled in Special Education (*% SPED*). These measures capture district needs, and states often have specific funding programs to help with these types of needs. Table 1 summarizes these district variables for two years in the data set.

The Model

In order to test the hypothesis that districts that support the party in control in elections are rewarded through more financial support, I use the following model. I include district fixed effects to capture time-invariant differences in the district. I also include year fixed effects to capture changes over time. The model given by the following equation:

Table 1: Summary Statistics

	2002			2010		
	Mean	Std Dev	N	Mean	Std Dev	N
State Dem Control	0.24	0.43	6,817	0.20	0.40	6,822
State Rep Control	0.31	0.46	6,817	0.35	0.48	6,822
Dem Control X Dem Vote	0.04	7.38	5,437	0.00	3.47	5,711
Divide Control X Dem Vote	0.06	10.13	5,437	0.31	10.08	5,711
Rep Control X Dem Vote	0.03	8.04	5,437	0.03	8.81	5,711
Median HH Income	56.28	21.54	6,807	53.47	20.88	6,822
Log Pop	9.04	1.39	6,807	9.10	1.43	6,822
% Bachelor or Higher	19.03	11.81	6493	22.06	13.42	6,822
% Black	5.46	10.87	6,807	5.96	10.98	6,822
% Hispanic	9.93	17.11	6,807	12.22	18.26	6,822
% Asian	1.55	3.96	6,807	2.20	4.89	6,822
% Own Home	75.30	10.99	6,807	75.83	11.73	6,822
% Free and Reduced Lunch	36.08	22.05	6,266	45.28	22.52	6,715
% Special Education	14.02	4.42	6,817	13.05	5.21	6,822

Note: This table presents district level data for select years of the data set. The two-party Democratic vote is relative to the state mean.

$$d_{j,t} = \beta_1 DemVotePrecinctXDemControl_{j,t-1} + \beta_2 DemVotePrecinctXRepControl_{k,t-1} +$$
$$\beta_3 DemVotePrecinctXDividedControl_{j,t-1} + \beta_4 DemControl_{j,t-1} + \beta_5 RepControl_{j,t-1} +$$
$$\beta_c X_{j,t-1} + f_t^{year} + f_j^{district} + \epsilon$$

β_1 is the coefficient on *Dem Vote Precinct X Dem Control*, β_2 is the coefficient on *Dem Vote Precinct X Rep Control* , and β_3 is the coefficient on *Dem Vote Precinct X Divided Control*. β_4 and β_5 are the coefficients on the dummy variables for whether the state is under Democrat or Republican control. This specification allows for a linear combination of the interaction between *Dem Vote Precinct* and partisan state level control. X is the design matrix for the fixed effects for β_c (where c references controls: percent Black percent Hispanic, percent Asian, median household income, log population, percent that own homes, per child state, per child federal, and percent bachelor degree). j references the school district. Because it is over time, t references the year of observation where t=2000....2010. In all models, I bootstrap standard errors. The model is intended to show how a change in party at the state level effects state transfers *within* a local school district, given the local support of the party.

There is a potential to underestimate findings because Democratic states and Republican states do not fund public education at equal levels. In 2010, the average spending per child in a Democratic controlled state was $5,524. The average in Republican controlled states was $4,103. Therefore, I re-run the main analysis using multilevel modeling with a nested design, with school districts nested in states. Results are consistent with this model.

Congruence between state and local party matters

The first set of analyses answers the question do school districts that are more in line with the state level government receive more in state transfers? Table 2 seek to answer this question. The dependent variables in these models are the entire per child state transfer to the school district, relative to the state mean (columns 1 and 2) and the per child state transfer that comes through the funding formula, relative to the state mean (columns 3 and 4). Therefore, if *Dem Vote Precinct X Dem Control* is positive and significant, that would imply that when Democrats are in control at the state level, each percentage point in the two-party presidential vote for a Democrat that the school district voted above the state mean would result in an increase in money from the state.[11] Columns 1 and 3 contain a basic model with just key variables of interest. Columns 2 and 4 add the full set of covariates.

In Table 2, *Dem Control X Dem Vote Precinct* is positive and significant across all four models, *Divided Control X Dem Vote Precinct* is positive and significant when focusing on transfers through the funding formula, and *Rep Control X Dem Vote Precinct* is negative and statistically significant in all but one model. Figure 3 plots the 95% confidence intervals for the key variables corresponding with Table 2 columns 2 and 4. Even after controlling for local and federal contributions and district demographics, district partisan vote predicts transfers from the state to the district. It appears that both the overall transfers and transfers through the funding formula are susceptible to partisan influences. Interestingly, the closeness of the vote is statistically significant for all models as well. It is positive, indicating that the greater

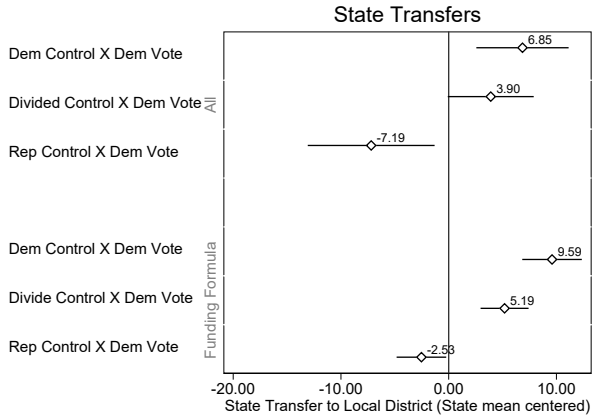
[11] Interpretation of the constant is when the state government is under divided control.

Table 2: State Transfers and Party Control at School District Level

	All	All	Formula	Formula
Dem Control X	6.32*	6.85*	8.28**	9.59**
Dem Vote Precinct	(2.72)	(2.90)	(1.40)	(1.71)
Divided Control X	1.62	3.90	5.57**	5.19**
Dem Vote Precinct	(2.24)	(2.01)	(1.08)	(1.24)
Rep Control X	-8.72**	-7.19**	-1.64	-2.53*
Dem Vote Precinct	(2.95)	(2.53)	(1.26)	(1.27)
Dem Control	-0.37	2.92	-0.27	-5.41
	(21.76)	(25.95)	(11.25)	(12.88)
Rep Control	27.34	49.24	19.99*	30.79**
	(27.37)	(29.07)	(10.04)	(10.94)
Close Vote 50-50	4.92**	4.83**	1.89**	2.57**
	(1.56)	(1.18)	(0.71)	(0.82)
Per Child Local	-0.03	-0.02	-0.11**	-0.10**
	(0.02)	(0.02)	(0.02)	(0.02)
Per Child Federal		0.04		0.04**
		(0.03)		(0.01)
Median HH Income		-18.37**		-6.05*
		(6.93)		(2.94)
Log Pop		-1184.67**		-684.13**
		(265.71)		(192.03)
% Bachelor or higher		-30.86		-2.13
		(19.19)		(13.21)
% Black		-10.28		-4.81
		(25.85)		(10.30)
% Hispanic		19.39		33.60**
		(14.02)		(6.73)
% Asian		-18.66		18.81
		(19.05)		(12.39)
% Own Home		-4.97		3.00
		(10.43)		(5.32)
% Free/Reduced Lunch		8.06**		6.01**
		(2.55)		(1.48)
% SPED		-0.04		-2.18
		(2.84)		(2.19)
Constant	-98.08	12389.22**	-70.53**	5908.26**
	(50.11)	(2461.39)	(23.27)	(1600.60)
District/Year Fixed Effects	X	X	X	X
Observations	36,981	33,246	36,981	33,246

Note: All refers to all state transfers; formula refers to transfers through the funding formula. Bootstrap standard errors are in parentheses. **p<.01, *p<.05

Figure 3: District Level Transfers and District Two Party Vote



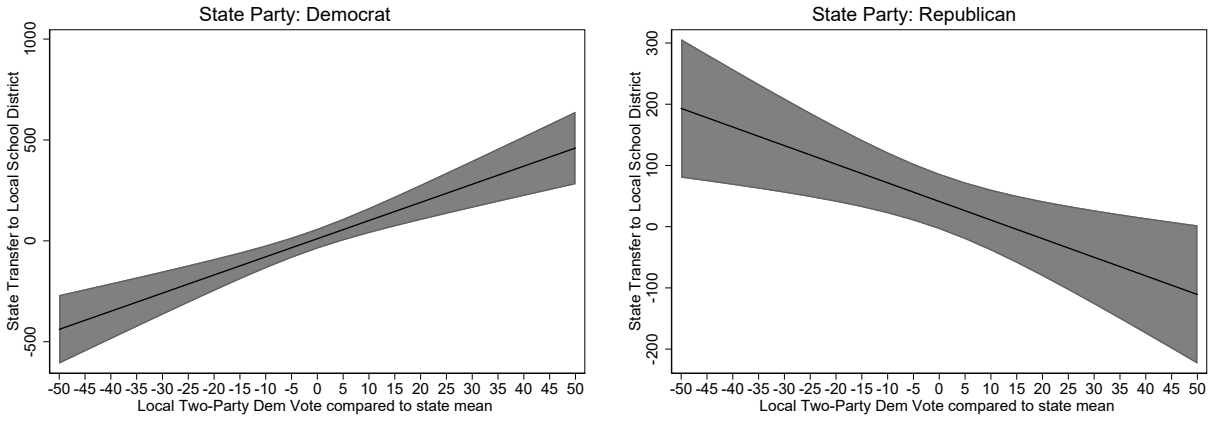
Note: This figures plots the 95% confidence intervals for party control and Democratic vote at the district level for Table 2. Two separate models are shown: all transfers and funding formula transfers (columns 2 and 4).

the margin of victory, the larger transfer of funds.

The effect of a marginal change in two party vote on state funding formula transfers is plotted in Figure 4. The left plots the change when Democrats are in control at the state level and the figure on the right plots the change when Republicans are in control. While the relationship is much stronger for Democrats, both are in the expected direction. When Republicans have control at the state level, districts that support Republicans at higher rates still receive a boost. A one percentage point increase in support above the state mean while Democrats are in control at the state level is associated with $9.59 more per student in the state funding formula. When Republicans are in control, a one percentage point increase in support of Republicans above the state mean is associated with $2.53 more per student.

In terms of other covariates in the model, many follow the expected direction. An increase in median household income is associated with a decrease in state transfers to the district. An increase in the percent of students receiving free or reduced lunch is associated with an increase in state transfers. Several variables are not related to the state transfer, including percent that own a home or many of the measures of diversity. The one exception is percent Hispanic is related to the transfers through the funding formula. This could be explained by

Figure 4: Marginal Change in District Two Party Vote on State Transfers



Note: This figure plots the effect of a marginal change in two party Democratic vote within a district on the per child state transfer to the district, relative to the state mean. The left plots the change when Democrats are in control at the state level. The right plots when Republicans are in control at the state level. These figures correspond to Table 2 column 4.

increased funding for programs to help English Language Learners.

One possible explanation for the partisan transfers is that parties have different priorities in funding education. Based on policy preferences, we might expect Democrats to focus on equity issues, such as increased funding to school districts with higher needs. For example, Democrats might target funding to areas that have a higher percentage of students on free and reduced lunch because this would help achieve their policy goal of improving education outcomes in high poverty areas. Republicans have not made this a priority, so we would not expect them to direct funds in this way. Parties might also try to direct education funds to areas that are likely supporters, not just voters themselves. Black citizens vote for Democrats at significantly high rates than for Republicans. Democrats again might try to target funds to school districts that are more likely to support them. To test how different goals for education funding might matter, I run two additional models: (1) I interact state level control with % Black within a district and (2) I interact state level control with % students on free or reduced lunch within a district. These models will allow me to see if Republicans and Democrats have different priorities in distributing funds.

In addition to these new interactions, I also include the main interaction with district two party vote. If Democrats are targeting areas that are likely to have high Democratic support or areas that they deem are in the most need and not Democratic voters themselves, then the coefficient for *Dem Control X Dem Vote Precinct* should no longer be statistically significant once these other variables are included in the model. Table 3 shows the results. Even after including this additional interaction, results hold. This suggests that after controlling for differences in preferences for distributing education funds, parties are still targeting their own voters in the funding formula.

Focusing on columns 1 and 2 first, the interactions between state level party control and % Black are not statistically significant, but are in the expected direction. However, the main interaction between school district partisanship and state control are consistent with the previous model. The main exception is that the coefficient on *Dem Vote Precinct X Dem Control* is for all state transfers is not statistically significant. However, it is for transfers through the funding formula. The coefficient on *Dem Vote Precinct X Rep Control* is negative and statistically significant in both models.

When focusing on columns 3 and 4, the main interaction between school district partisanship and state control are again consistent. State transfers are statistically related to partisan voting within a district. State transfers to areas of higher need, as measured by % Free and Reduced Lunch students, is related to the party in control at the state level. The interaction term is positive and statistically significant for *%Free Lunch X Dem Control* but not *% Free Lunch X Rep Control*. This indicates that Democrats are also targeting areas of higher need, but we do not see the same effect when Republicans are in control.

Republicans and Democrats can have different strategies for targeting funding, but there is variation from state to state in what it means to be a Democrat or a Republican, particularly when focusing on the South. The next set of analyses looks at region of school district to see if there are any differences in partisan transfers. In determining the ideological position of states, Shor and McCarty (2011) found that the Democratic party in many Southern states

Table 3: State Transfers and Party Control at School District Level

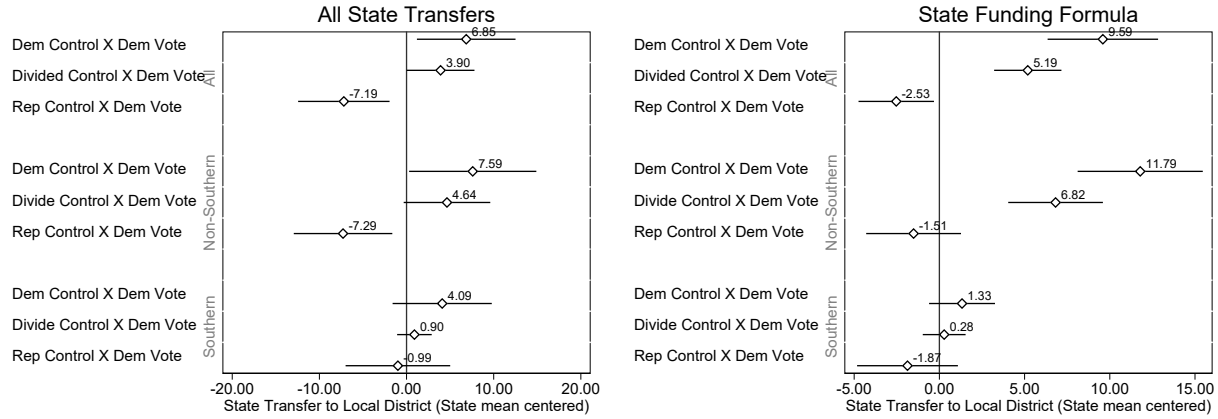
	All	Formula	All	Formula
Dem Control X	3.62	11.24**	4.50*	11.65**
Dem Vote Precinct	(2.44)	(1.87)	(2.06)	(1.91)
Divided Control X	4.32	4.02**	4.22	3.94**
Dem Vote Precinct	(2.36)	(1.33)	(2.78)	(1.24)
Rep Control X	-7.40*	-2.90*	-7.88	-2.96*
Dem Vote Precinct	(3.19)	(1.46)	(4.03)	(1.34)
% Black X Dem Control	3.84	3.48		
	(15.31)	(9.01)		
% Black X Divided Control	1.49	-2.30		
	(16.67)	(9.16)		
% Black X Republican Control	-13.70	-8.72		
	(17.16)	(9.76)		
% Free Lunch X Dem Control			9.81**	8.05**
			(2.55)	(1.56)
% Free Lunch X Divided Control			8.78**	5.82**
			(2.68)	(1.54)
% Free Lunch X Rep Control			-0.43	-0.16
			(2.78)	(1.50)
% Black			2.14	-1.40
			(18.10)	(10.68)
% Free/Reduced Lunch	8.61**	6.19**		
	(2.49)	(1.55)		
Per Child Local	-0.02	-0.10**	-0.02	-0.10**
	(0.02)	(0.02)	(0.02)	(0.02)
Per Child Federal	0.04	0.04*	0.04	0.04*
	(0.03)	(0.02)	(0.02)	(0.02)
Close Vote 50-50	4.45**	2.11*	4.66**	2.45*
	(1.42)	(0.95)	(1.39)	(1.04)
Dem Control	-20.60	-47.13**	-31.50	-91.04**
	(28.70)	(15.46)	(50.27)	(25.99)
Rep Control	135.49**	73.03**	372.34**	237.96**
	(34.14)	(12.43)	(54.57)	(25.94)
Constant	11951.01**	6118.49**	11239.21**	5481.86**
	(2789.77)	(1717.71)	(2581.88)	(1852.83)
District/Year Fixed Effects	X	X	X	X
Observations	32,612	32,612	32,612	32,612

Note: The model also includes the following covariates not shown for space reasons: % Hispanic, % Asian, Log Pop, % Speical Ed, Median HH Income, % Bachelor or greater, and % Own Home. The results include district and year fixed effects. Bootstrap standard errors are in parentheses. Elections between 2000-2010 are included. **p<.01, *p<.05

was more conservative than the Republican party in other, non-southern states. Figure 5 plots the key coefficients for three models: all states, non-Southern states, and Southern states for both all state transfers (left) and state funding formula (right).[12] Interestingly, there is little relationship between partisanship at the district level and state control in the South for all state transfers or transfers from the funding formula. For non-Southern states, the magnitude is slightly larger than the overall models. A one percentage point increase in voting for a Democrat when Democrats are in control is associated with a $7.59 increase in overall transfers and a $11.79 increase in transfers from the funding formula to the district in non-Southern states. Similarly, a one percentage point increase in voting for a Democrat when Republicans are in control is associated with a $7.29 decrease in overall transfers and a $1.51 decrease in transfers from the funding formula to the district in non-Southern states. The relationship is not statistically significant. It is possible that what it means to be a Democrat in the South has changed significantly during this time-frame that it is not a good measure in the South.

[12]Southern states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia, and Texas. I have also looked at a more restrictive definition of the South that does not include West Virginia and Maryland. Results are consistent.

Figure 5: Transfers by South vs. Non-South States



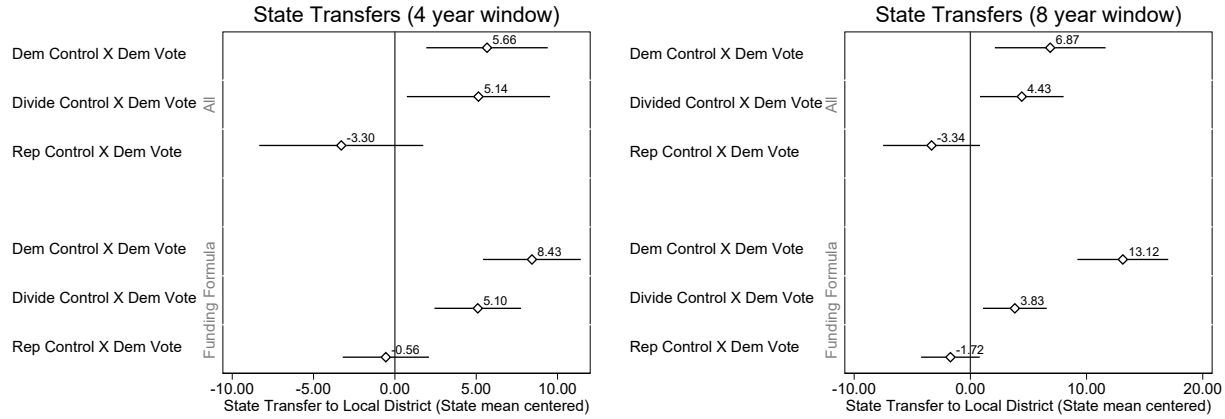
Note: These figures plots the 95% confidence intervals for party control and presidential vote within the school district. Within each graph, three separate models are shown: all districts, districts not in the South, and districts in the South. The all district models correspond to Table2 columns 2 and 4. The Southern and Non-Southern models include the same covariates, but are subset by region.

Robustness Checks

To ensure results are consistent, I run several different robustness checks. First, I test the window of state control. In the previous models, I used a time-frame of party state control based on the budget cycle of that state (i.e. one or two year). However, some changes might take longer to implement. Therefore, I run additional models where I change the window to four years and eight years of state control. Results are consistent, although slightly smaller in magnitude. The figure on the left in Figure 6 shows the 95 % of the key variables for each of the time-frames. Both *Dem Control X Dem Vote Precinct* and *Divided Control X Dem Vote Precinct* are positive and significant when focusing on all transfers, *Rep Control X X Dem Vote Precinct* is negative but not significant.

The next robustness check focuses on model specification. First I change how a model the standard errors. Instead of bootstrap standard errors, I use jackknife standard errors. The results are shown on the left in Figure 7. Results are consistent. Next I focus on the way I model the state-district relationship. Instead of using fixed effects for school districts,

Figure 6: Change Window of State Control

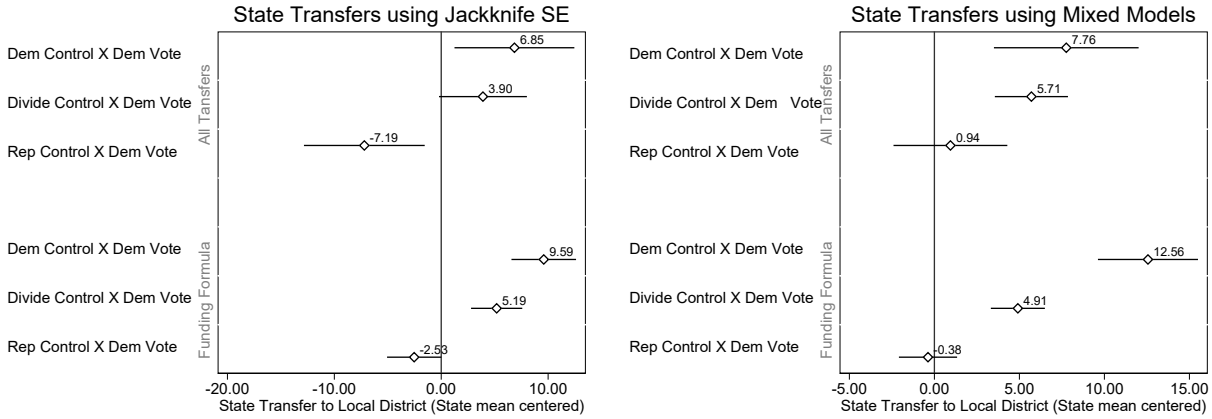


Note: These figures plots the 95% confidence intervals for party control and Democratic vote at the district level. In the graph on the left, a four year window of state control is used. In the graph on the right, an eight year window of state control is used. The models include the same covariates and specification as Table 2 Columns 2 and 4.

I used a mixed model approach. In this model, I nest school districts within states and included random intercepts for both school districts and states. The graph on the right in Figure 7 displays the coefficients for the variables of interest. Results are very similar to the overall models, showing that the results are robust to modeling strategies.

Finally, I run models that uses district level transfers but county level two-party vote. While the two-party county vote masks variation in voting preferences between school districts within in the same county, it is an approximation. In addition, I was able to collect more years of data for the county two-party vote than for precinct two-party vote. The years are expanded to 1992-2012 and include all states. Figure B.4 in the appendix plots the 95% confidence intervals for the key variables. Again, results show a similar pattern but slightly larger in magnitude. The exception is that *Rep Control X Dem Vote Precinct* is positive. This indicates that this county level of data could be masking relationships that we find with more granular data.

Figure 7: Changing Model Specifications



Note: These figures plots the 95% confidence intervals for party control and presidential vote within the school district. Instead of using fixed effects for school districts, a mixed model is used with school districts nested within states. The models include the same covariates as Table 2 Columns 2 and 4.

Discussion and Conclusion

I have tested whether state party control influences distributions of state transfers to local school districts based on a core voter model. Previous research has found support for the core voter model when looking at total state transfers at the county level, but counties can include a wide variation of voters. I use school districts as a way to define more homogeneous groups of voters. While state funding formulas are often touted as a way to distribute money fairly, they are often not transparent and difficult to understand. This lack of transparency might make it easier for politicians to create formulas that would favor their constituents most likely to support them and not based on need. The results are consistent in that transfers to like constituents occur.

The results suggest that Democrats and Republicans act differently when in control at the state level. When looking at the overall transfers, the magnitude on the interaction terms is similar between the two parties. When focused on the funding formula itself, the magnitude is larger when Democrats are in control at the state level. Therefore, when Republicans

are in control at the state level, they are possibly choosing to reward supporting districts with other types of funding for education not captured in the funding formula. Differences between the two parties are even more evident when looking at the interaction between state party control and percent of students receiving free lunch. When Democrats are in control at the state level or it is divided control, more money is transferred to these districts with higher need. This is not the case when Republicans are in control at the state level. An increase in percent of students receiving free or reduced lunch is associated with no change in state transfers. But even after controlling for differential transfers based on need, I still find evidence of partisan transfers based on voting patterns. State politicians are strategic in getting resources to partisan voters. This paper does not capture all education spending. This focuses specifically on transfers to traditional public schools. To further understand the differences in partisan influences, future research should capture transfers to local districts that include transfers to non-traditional public schools, like charter schools or voucher funding, to see if partisanship preferences play a role here as well.

These results also suggest that the South is still distinctive. The relationship does not hold when looking at Southern states by themselves. While Ansolabehere and Snyder (2006) did not look at Southern and non-Southern states separately, of the 13 states that they excluded for not changing party leadership during the time-period they analyzed, 11 were southern states.[13] The lack of findings in the South could be explained by an imprecise measure for support for Democratic candidates in this region. Most of the election voting are based on federal office, with the exception of the vote for governor. Democratic candidates at the federal level and and Democratic candidates at the state level looked different during this time-frame. Future work should address whether this is a measurement issue or if the South is distinctive in other ways.

There are many implications for the distribution of funds for public education. As Hoxby (2001) notes, because funding formulas are based on local property taxes, the distributive

[13]Some would consider all 13 to be southern, depending on whether one counts Maryland and Oklahoma as a Southern state.

nature is very different than other types of government transfers. The type of funding scheme selected can leave some districts, including poorer districts, worse off. It can also have effects beyond public school finance, including property prices, private school attendance, and student achievement. Increases in school funding is found to have strong, lasting effects. Jackson, Johnson and Persico (2015) find that a 10 percent increase in per child spending in each year of schooling for all 12 years leads to more years of completed education, higher wages, and reduction of adult poverty. It is, therefore, important that all factor that influence the distribution of these goods be understood.

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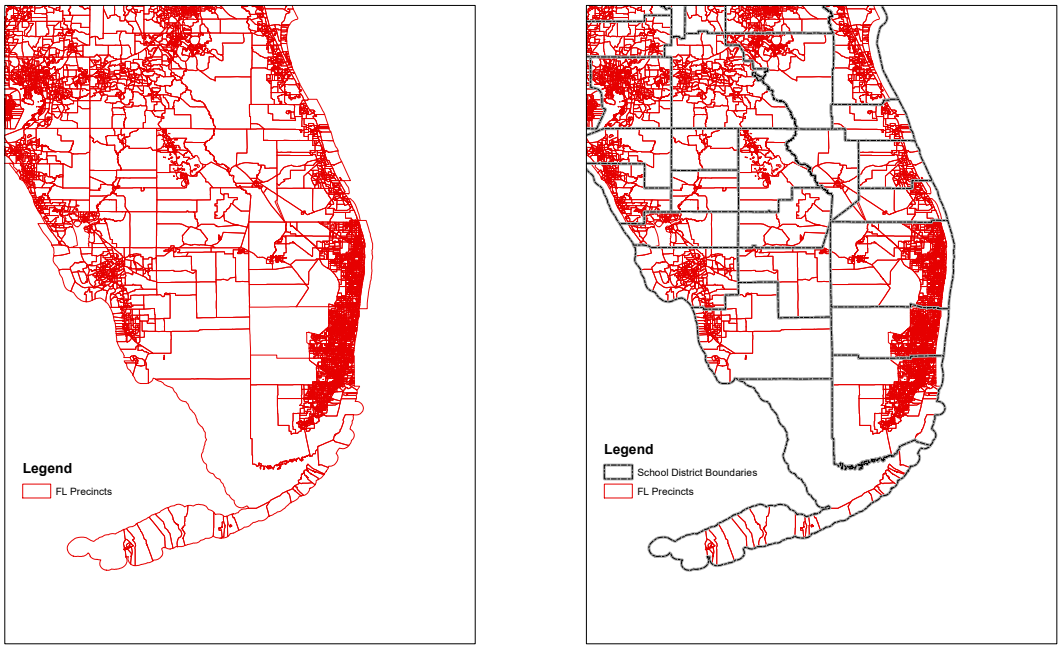
A Appendix: Mapping Precincts to School Districts

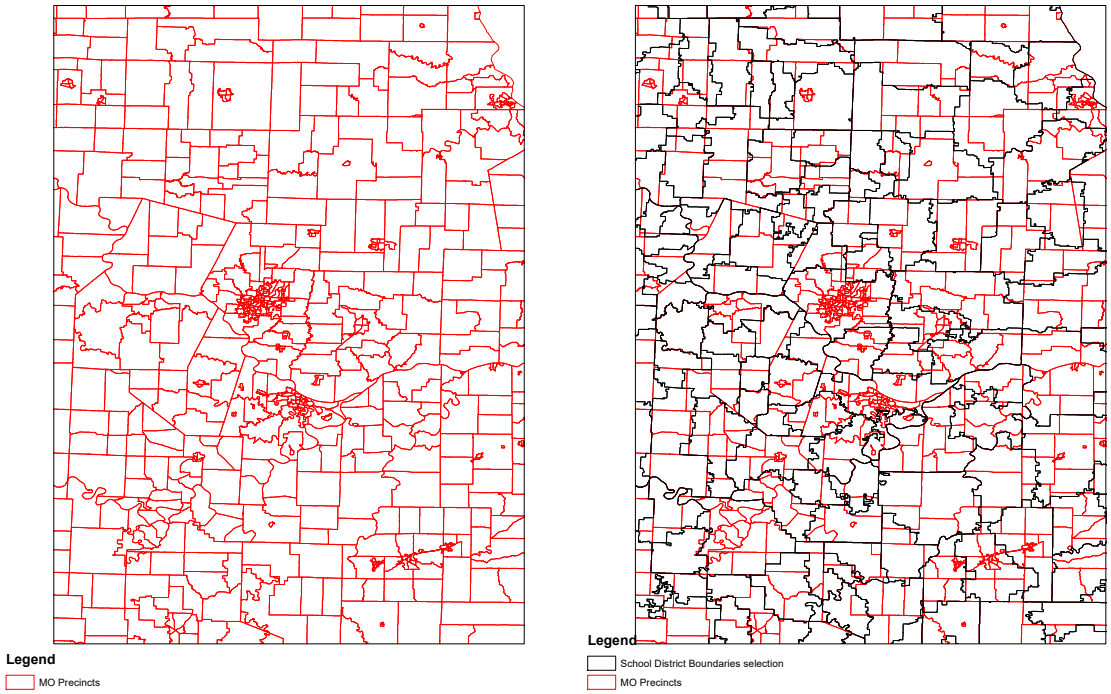
To map precincts to school district boundaries, I obtained shape files for both. I used the mapping software ArcGIS to match precinct boundaries to school district boundaries. Figure A.1 shows just the precinct boundaries for Florida on the left and then the school district boundaries on top of precinct boundaries on the right as an example. Specifically, I used the "Union" tool to join boundaries based on spatial location of the data. Table B.1 in the appendix provides the source used for precinct boundaries for each state. School district boundaries were mapped using data from the National Center for Education Statistics (2013). For the majority of cases, a precinct was defined to be within a school district if it fell completely inside the school district boundaries. This is the case for Florida. Therefore, each school district is composed of a set of precincts and vote counts are aggregated to the school district level.

Figure A.1: Florida Precinct and School District Boundaries



The figure on the left shows just the precinct boundaries. The figure on the right adds school district boundaries on top of the precinct boundaries.

Figure A.2: Missouri Precinct and School District Boundaries

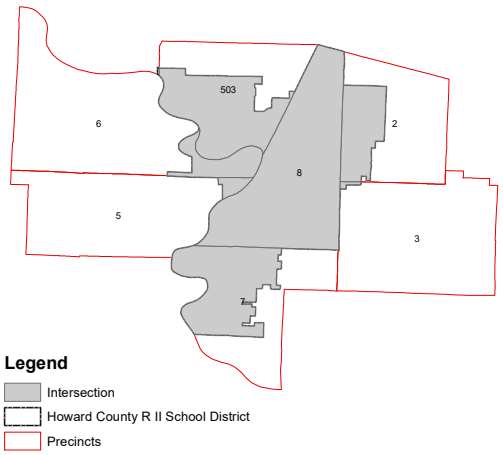


The figure on the left shows just the precinct boundaries. The figure on the right adds school district boundaries on top of the precinct boundaries.

However, there are cases in which a precinct crossed school district lines. Missouri is an example of a state in which precinct boundaries and school district boundaries do not line up. This can be seen in Figure A.2, which is a zoomed in look at boundaries in Missouri. To illustrate exactly what I did, I highlight one of the more extreme examples when precinct and school district boundaries to do not have the same boundaries. Figure A.3 maps Howard County School District to the surrounding precincts. Precinct 8 is the only one that is completely inside of Howard County School District in MO. In terms of the other precincts, ArcMap keeps the information from original feature class with each polygon. For example, the number of people who voted for the Democratic candidate for the United States House of Representatives was 50 in precinct 503. ArcMap does not divide this information in anyway based on area using either the *Union* or *Intersection* tools.[14] The *Union* tool in ArcMap

[14]This is true for the license that I have. There are ways to do this with a more comprehensive version of

Figure A.3: Hoard County School District



then would assign each precinct to this school district that overlap with it.[15] Therefore, the 50 votes that the Democratic candidate received in precinct 503 would be associated with both Howard County School District **and** any additional school district that it overlapped with.

Precincts 8, 6, 5, 503, 2, 4, and 7 would also be associated with Howard County School District. To determine the percent that voted in favor of a Democratic candidate, I would use information from **all** precincts that overlapped with it. I would aggregate the information up to the school district level, and then obtain the % based on the votes cast within each

ArcGIS that I do not have access to.

[15]Note: I could use a different tool, like the *intersection* tool, and while the visual would look slightly different, the end result would be the same. It would associate each of those precincts with that school district.

of those precincts. These precincts would be used again in a different school district if they overlapped with that school district (which is all of the precincts in this example, except for precinct 8).[16]

B Appendix

Table B.1 contains information about the number of years within each state that a party maintained control of state government. It also indicates whether or not the state is included in the precinct data and the source of precinct boundary files. I define a state as being under Democratic control if the Democrats have a majority in both legislative chambers and the governor is a Democrat or Democrats have a veto-proof majority in both legislative chambers.

Table B.1: Years of State Party Control from 1994 to 2011

State	**Dem Rep Divide**	**Include**	**Boundary Source/Exclude**
Alabama	17 - 1 - 0	**Yes**	Ansolabehere and Rodden (2011*a*)
Alaska	0 - 8 - 10	No	Excluded
Arizona	0 - 10 - 8	**Yes**	Ansolabehere and Rodden (2011*b*)
Arkansas	18 - 0 - 0	No	District Boundary Issues
California	6 - 0 - 12	**Yes**	Ansolabehere and Rodden (2011*c*)
Colorado[17]	4 - 4 - 10	**Yes**	Ansolabehere and Rodden (2011*d*)
Connecticut	1 - 0 - 17	**Yes**	Ansolabehere and Rodden (2011*e*)
Delaware	3 - 0 - 15	**Yes**	Ansolabehere and Rodden (2011*f*)
Florida	0 - 13 - 5	**Yes**	County=School District[18]
Georgia	9 - 7 - 2	**Yes**	Ansolabehere and Rodden (2011*g*)

Continued on next page

[16]I did try an alternate way of doing this. Instead of having all votes go to each school district it is associated with, I distributed votes based on the area of the overlap. The weighted measure based on area is correlated with the original measure at 0.98 for the state of Missouri. However, it also requires the assumption the voters are distributed the same way that the land area is, which might not be the case. Because of this and the additional steps required in the calculation, I did not use this measure.

[17]Issues matching precincts in Denver County from 2004 to 2006 and Larimer and Jefferson from 2006 to 2008 due to precinct consolidation

[18]Because counties define school districts, precinct data is not needed

Table B.1 – *Continued from previous page*

State	Dem Rep Divide	Include	Boundary Source/Exclude
Hawaii	18 - 0 - 0	No	Only one school district
Idaho	0 - 17- 1	**Yes**	Ansolabehere and Rodden (2011*h*)
Illinois	9 - 2 - 7	No	Precinct data unavailable
Indiana	0 - 5 - 13	No	Precinct data unavailable
Iowa[19]	4 - 2 - 12	**Yes**	Ansolabehere and Rodden (2011*i*)
Kansas	0 - 9 - 9	**Yes**	Ansolabehere and Rodden (2011*j*)
Kentucky	6 - 0 - 12	No	Precinct boundary info unavailable
Louisiana	6 - 0 - 12	**Yes**	Ansolabehere and Rodden (2011*k*)
Maine	8 - 1 - 9	No	Precinct boundary info unavailable
Maryland	18 - 0 - 0	**Yes**	Ansolabehere and Rodden (2011*l*)
Massachusetts	18 - 0 - 0	No	Precinct Issues
Michigan	0 - 7 - 11	No	Precinct boundary/vote match issue
Minnesota	0 - 0 - 18	No	Precinct Issues
Mississippi	5 - 0 - 13	**Yes**	Ansolabehere and Rodden (2011*m*)
Missouri	7 - 4 - 7	**Yes**	Ansolabehere and Rodden (2011*n*)
Montana	0 - 10 - 8	No	Precinct boundary info unavailable
Nebraska	0 - 0 - 18	No	Precinct Issues
Nevada	0 - 0 - 18	**Yes**	Ansolabehere and Rodden (2011*o*)
New Hampshire	4 - 6 - 8	**Yes**	Ansolabehere and Rodden (2011*p*)
New Jersey	6 - 8 - 4	**Yes**	Ansolabehere and Rodden (2011*q*)
New Mexico	9 - 0 - 9	**Yes**	Ansolabehere and Rodden (2011*r*)
New York[20]	2 - 0 - 16	**Yes**	Ansolabehere and Rodden (2011*s*)
North Carolina[21]	11 - 0 - 7	**Yes**	Ansolabehere and Rodden (2011*t*)

Continued on next page

[19]Issues matching precincts in Calhoun, Emmet, Greene, Guthrie, Marion, Pottowattamie, and Wayne Counties from 2004 to 2006. This involves approximately 10 percent of the precincts.

[20]Only has the years 2006, 2008, and 2010

[21]Issues matching 2006 to 2008 precinct data occurred for precincts in the following counties: Buncombe, Cumberland, Harnett, Lee, and Rockingham. This affects approximately 7 percent of the data in NC.

Table B.1 – *Continued from previous page*

State	**Dem Rep Divide**	**Include**	**Boundary Source/Exclude**
North Dakota	0 - 17 - 1	No	Precinct Issues
Ohio[22]	0 - 13 - 5	**Yes**	Ansolabehere and Rodden (2011*u*)
Oklahoma	3 - 1 - 14	**Yes**	Ansolabehere and Rodden (2011*v*)
Oregon	4 - 0 - 14	No	Boundary Issues
Pennsylvania	0 - 9 - 9	**Yes**	Ansolabehere and Rodden (2011*w*)
Rhode Island	18 - 0 - 0	No	Boundary Issues
South Carolina	0 - 9 - 9	**Yes**	Ansolabehere and Rodden (2011*x*)
South Dakota	0 - 17 - 1	**Yes**	Ansolabehere and Rodden (2011*y*)
Tennessee	10 - 3 - 5	**Yes**	Ansolabehere and Rodden (2011*z*)
Texas	1 - 9 - 8	**Yes**	Ansoloabehere and Palmer (2011)
Utah	0 - 18 - 0	No	Precinct Issues
Vermont	5 - 0 - 13	**Yes**	Ansolabehere and Rodden (2011a*a*)
Virginia[23]	0 - 2 - 16	**Yes**	Ansolabehere and Rodden (2011a*b*)
Washington	9 - 0 - 9	No	Precinct Issues
West Virginia	18 - 0 - 0	No	Precinct Issues
Wisconsin	2 - 3 - 13	**Yes**	Ansolabehere and Rodden (2011a*c*)
Wyoming	0 - 15 - 3	**Yes**	Ansolabehere and Rodden (2011a*d*)

[22]It appears that there was precinct consolidation between 2008 to 2010 that is hard to trace. While all 2010 precincts have matches to prior years, there are many 2008 precincts that disappear by 2010. This primarily affects precincts withing Cuyahoga, Franklin, Hamilton, Lucas, and Montgomery counties and about 15 percent of the data in OH.

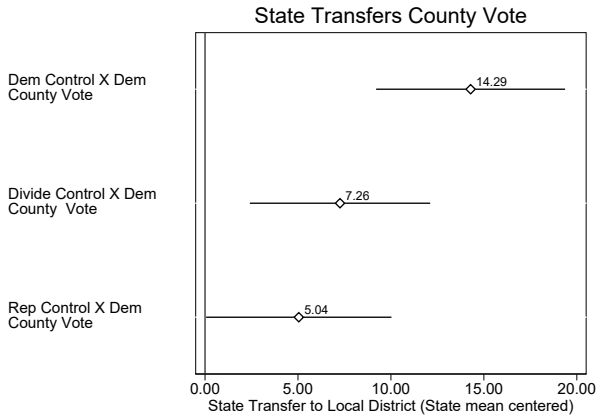
[23]School districts are county or city based so those boundaries are used to aggregate vote counts

Table B.2: Summary Statistics when county presidential vote is used

	2008			2008		
	Mean	Std Dev	N	Mean	Std Dev	N
State Dem Control	0.10	0.31	9,269	0.18	0.38	9,269
State Rep Control	0.28	0.45	9,269	0.27	0.45	9,269
Dem Control X Dem Vote	-0.02	2.51	9,269	0.05	4.51	9,269
Divide Control X Dem Vote	0.02	6.83	9,269	0.07	6.89	9,269
Rep Control X Dem Vote	0.05	4.43	9,269	0.05	5.67	9,269
Median HH Income	57.54	19.91	9,266	53.96	18.70	9,265
Log Pop	9.15	1.34	9,265	9.22	1.37	9265
% Bachelor or Higher	18.24	10.89	8885	21.22	12.40	8,885
% Black	4.72	10.58	9,266	5.40	10.88	9265
% Hispanic	7.78	15.14	9,266	9.89	16.32	9,265
% Asian	1.34	3.46	9,266	1.98	4.28	9265
% Own Home	75.40	10.77	9,266	76.17	11.15	9,265

Note: This table presents district level data for select years of the data set. The two-party Presidential Democratic vote is relative to the state mean and is at the county level.

Figure B.4: Additional Robustness Checks



Note: These figures plots the 95% confidence intervals for party control and Democratic vote at the district level. In the graph on the left, a four year window of state control is used instead of eight years. In the graph on the right, Democratic vote is based off of county level vote information.

Table B.3: State Transfers to School Districts with 8 year party control window

	All	All	Formula	Formula
Dem Control X	5.89*	6.87*	12.49**	13.12**
Dem Vote Precinct	(2.29)	(3.15)	(1.87)	(2.10)
Divided Control X	2.36	4.43*	4.77**	3.83**
Dem Vote Precinct	(2.78)	(2.04)	(1.15)	(1.26)
Rep Control	-5.23	-3.34	-2.89*	-1.72
X Dem Vote Precinct	(3.06)	(2.55)	(1.28)	(1.27)
Dem Control	-89.76*	-45.75	-49.96	-52.68
	(44.10)	(51.65)	(29.16)	(35.33)
Rep Control	-67.89**	-52.47	-48.59**	-39.26**
	(20.68)	(26.89)	(11.50)	(13.42)
Close Vote 50-50	3.25**	3.19*	0.77	1.32
	(1.23)	(1.37)	(0.87)	(0.92)
Per Child Local	-0.05*	-0.05**	-0.12**	-0.11**
	(0.02)	(0.02)	(0.01)	(0.01)
Per Child Federal		0.04		0.03**
		(0.03)		(0.01)
Median HH Income		-15.68**		-6.22
		(5.14)		(3.73)
Log Pop		-1041.49**		-790.15**
		(219.12)		(165.25)
% Bachelor or greater		-30.04*		1.90
		(14.16)		(11.50)
% Black		14.34		10.34
		(15.08)		(8.08)
% Hispanic		15.12		24.00**
		(8.99)		(6.73)
% Asian		0.42		33.50*
		(18.28)		(13.57)
% Own Home		3.95		8.21
		(8.26)		(4.97)
% Free/Reduced Lunch		7.30**		5.62**
		(1.99)		(1.21)
% Special Ed		1.52		-0.64
		(3.79)		(2.78)
Constant	4.92	10072.12**	4.97	6336.15**
	(42.32)	(2101.34)	(30.15)	(1435.09)
District/Year Fixed Effects	X	X	X	X
Observations	41,250	37,386	41,250	37,386

Note: All refers to all state transfers; formula refers to transfers through the funding formula. Bootstrap standard errors are in parentheses. **p<.01, *p<.05