Essays on Political Representation

by

Michiko Ueda

M.A., Economics, Stanford University (2001)
M.A., Political Science, The University of Tokyo (1999)
B.A., Political Science, International Christian University (1996)

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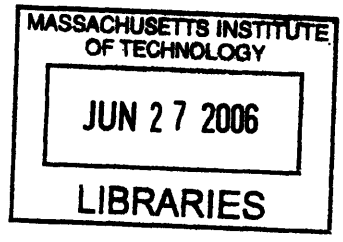

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Signature of Author: _____

Department of Political Science
May 5, 2006

Certified by: _____

James M. Snyder, Jr.
Arthur and Ruth Sloan Professor of Political Science and Professor of Economics
Thesis Supervisor

Accepted by: _____

Roger Petersen
Associate Professor of Political Science
Chairman, Graduate Program Committee

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ABSTRACT

The central goal of this dissertation is to contribute to our understanding of the link between political representation and policy outcomes. In particular, this collection of essays examines how the institutional arrangements and formal processes that precede and initiate political representation either promote or hinder the representation of various interests in society and thus determine whose interests shape public policies. The first chapter studies the relationship between descriptive representation of traditionally underrepresented minority groups and substantive representation of their interests. Examining the impact of increased African American representation from the early 1970s to the late 1990s, the chapter demonstrates that legislative representation of historically marginalized groups can lead to tangible changes in public policies. The second chapter attempts to understand why legislative representation of minority groups in American society remains low, even to this day. This chapter disentangles the impact of candidates' race on voting decisions from that of candidates' ideology, by focusing on the case of the representation of African Americans. Using extensive individual-level voting data as well as a unique data set on candidates' ideological positions, the chapter shows that minority candidates' race negatively influences voting decisions of white voters only when partisan and ideological cues are absent. The third chapter analyzes the impact of electoral institutions on political representation and policy outcomes. It provides empirical evidence that political units receive larger intergovernmental transfers, when represented by at-large delegations than when represented by delegations elected from single-member districts.

Thesis Supervisor: James M. Snyder, Jr.
Title: Arthur and Ruth Sloan Professor of Political Science and Professor of Economics

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Chapter 1
Introduction

The central goal of this dissertation is to contribute to our understanding of the link between political representation and policy outcomes. In particular, this collection of essays examines how the institutional arrangements and formal processes that precede and initiate political representation either promote or hinder the representation of various interests in society and thus determine whose interests shape public policies. My dissertation has three main goals. The first is to empirically examine the relationship between descriptive representation of traditionally underrepresented minority groups and substantive representation of their interests. The second is to understand the factors that hinder legislative representation of minority groups in society. The third goal is to study the impact of electoral institutions on political representation and policy outcomes. I explore each of the topics in the three chapters of my dissertation.

In Chapter 2, I investigate whether the legislative representation of historically underrepresented minority groups affects public policies. The impact of minority representation on policy outcomes is not immediately obvious. On the one hand, gaining access to a representative body provides minority groups with advocates in the legislature. On the other hand, because these groups are likely to constitute only a minority within a legislature, their influence on policy-making processes may well be negligible. In the case of racial and ethnic minorities in the United States, the fact that their representation is usually achieved through the creation of majority-minority districts (districts in which racial or ethnic minorities constitute a majority of the district population) makes the issue even more complicated. The creation of majority-minority districts can have the unintended consequence of potentially shifting the ideological composition of a particular legislature to the right of the political spectrum. Doing so may decrease the likelihood that the legislature passes progressive policies favored by and intended to assist underrepresented and

disadvantaged groups.

Empirical evidence on the policy impact of minority representation is surprisingly sparse. In the American Politics literature, past studies have measured the impact of African American representation on the behavior of legislators in the chamber (e.g., roll-call voting) or on the ideological composition of the legislature. However, no previous work has comprehensively examined the effects of minority representation on *actual* policies. Changes in roll-call behavior may constitute one form of change, but it is unclear to what extent these changes alter the historically disadvantaged position of minority groups in the United States. To meaningfully assess the effects of political representation, the impact of minority representation should be measured by the extent to which it affects the day-to-day lives of minorities, instead of, for example, the liberalness of roll-call behavior.

Using the school-district level data from the early 1970s through the late 1990s, Chapter 2 provides empirical evidence as to whether the presence of African Americans in state legislatures has influenced the way states distribute financial support to public schools. In order to identify the effects of minority representation, this chapter exploits two instances of 'exogenous shocks' that led to large increases in the number of black state legislators. My analysis suggests that the political representation of minority groups is associated with a more equitable allocation of state aid to school districts. In states in which African Americans gained greater representation, high minority enrollment school districts saw a larger increase in their state funding as compared to minority districts in states where minorities remained underrepresented.

The empirical results presented in Chapter 2 demonstrate the substantive benefits of having the descriptive representatives of society's minority groups. The substantive benefits can, of course, come only after the election of members of minority groups to public office. However, this simple goal – achieving descriptive representation – has historically been an insurmountable task for racial minorities in the United States. Before the passage of the Voting Rights Act in 1965, African Americans in the South were largely deprived of the right to vote, as well as of the right to be represented in the legislature. Even after its

passage, the struggle for African Americans to achieve fair and equal political representation continues. In spite of vast improvements over the last forty years, African-Americans are still underrepresented in Congress and in state legislatures across the country, and the number of black candidates elected from majority-white districts remains almost non-existent.

Chapter 3 attempts to explain why barriers to minority political representation persist. An often-cited reason for low levels of minority representation is racially-polarized voting, in which white voters and minority voters support different candidates. Discriminatory attitudes among white voters toward black candidates allegedly underlie such distinct voting patterns. Indeed, the justification for the creation of majority-minority districts rests on the observation (or claim) that white voters almost never vote for minority candidates.

While the existence of racially-polarized voting may be unambiguous, it is still unclear whether we should ascribe such voting patterns to discriminatory racial attitudes or to other factors. The fundamental problem lies in the fact that race and ideology are highly correlated in the United States, thus making it hard to distinguish whether race *per se* or ideological factors correlated with race cause racially-distinct voting patterns. If voters and candidates of the same racial group tend to share similar ideological positions, then racially-distinct voting behavior can either reflect racial animosity or racial groups' divergent political or partisan preferences. But without detailed information on the ideological positions of both voters and candidates, disentangling race and ideology is nearly impossible.

In Chapter 3, using a unique data set containing information on candidates' ideological positions along with extensive individual voting data, I distinguish the impact of race from that of ideology on voters' voting decisions. In this chapter, I ask whether a candidate's race still influences voter behavior even after I explicitly control for the effects of both voters' and candidates' ideology. To answer that question, I analyze voting decisions of both white and black voters in the House elections of 1996 and 1998 to see if distinct racial voting patterns exist between contests that involve two white candidates and those that involve a black candidate and a white candidate. To verify the main results of the chapter, I also examine ten House elections between 1978 and 2004 using a different individual-level data

set.

In Chapter 4, I turn my attention to the link between policy outcomes and the institutional arrangements used to select representatives. The methods for selecting public officials undoubtedly determine the composition of a legislature. Chapter 2 exploited two such dramatic instances in which changes in the electoral system affected the composition of legislatures. The chapter demonstrated that these changes in the electoral system resulted in a shift in public polices in the direction favored by minority groups. In this particular instance, the rise in African-American representation was brought about by a shift from the multi-member to single-member district system and the creation of majority-minority districts. However, the impact of the electoral system is not solely confined to its effect on the composition of legislatures. Electoral systems shape the incentives and behavior of legislators, which in turn influence the outcomes of legislative activities. In Chapter 4, I explore this alternative route through which electoral systems affect policy outcomes.

My coauthor, James M. Snyder Jr., and I test two hypotheses regarding the impact of districting on legislative outcomes. First, we hypothesize that political jurisdictions will obtain a relatively bigger share of government resources when they have at-large or multimember districts, as compared to when the same geographical areas is represented by an equal number of representatives elected from single-member districts. Jurisdictions represented by legislators elected at-large benefit from having multiple advocates in the legislature working on their behalf. In addition, legislators representing the same district can form large voting blocs to increase their political power within the legislature. In contrast, those areas represented by multiple members elected from single-member districts are likely to suffer from representatives supportive of parochial interests and with little incentive to coordinate among themselves. Alternatively, our second hypothesis suggests that as district magnitude increases, credit-claiming becomes harder for individual representatives, and the incentive to free-ride will undermine the size effect described above. Thus when the size of district becomes too large, the potential benefit of having multiple representatives will diminish. We test these hypotheses by examining intergovernmental transfers from state

governments to counties in the U.S. state legislatures from the late 1960s to the late 1980s.

Chapter 2
Does Minority Representation Matter For Policy Outcomes?: Evidence from the U.S. States

1. Introduction

For racial minorities in the United States, the last forty years have been a struggle to achieve fair and equal political representation. Before the passage of the Voting Rights Act in 1965, African Americans in the South were largely deprived of the right to vote, as well as of the right to be represented in the legislature. Over the last forty years, this situation has dramatically improved. Concerted efforts by federal agencies and civil rights activists have gradually removed barriers to political participation. At the same time, racial minorities have been increasingly incorporated into the legislative arena at both the national and state levels. The number of African American members of Congress increased from only four in 1962 to 39 in 2000. State legislatures across the country experienced a comparable surge; the number of state legislative seats occupied by African Americans was a mere 168 out of 7,352 total seats in 1970. By 2000 that number had increased dramatically to 571.

While minority groups achieved greater "descriptive" representation during the forty-year period since the Voting Rights Act, it is yet to be understood whether such an increase had any direct impact on policy outcomes. A group's descriptive representation in the legislative body has merit in itself, but representation becomes purely symbolic if it does not bring about policy outcomes that reflect the interests of traditionally underrepresented groups. Such "substantive" representation should matter a great deal for minority groups. This is especially true when minorities have a different set of preferences than those of the majority,[1] or, more importantly, when their underrepresentation is attributable to a history

[1] As is well documented, racial minorities in the United States tend to have different policy concerns and face a distinct set of challenges in their everyday lives. For example, median earnings of black males are lower than those of white males at every level of education (U.S. Dept. of Commerce 2003). The difference between white and black median income for those who completed high school is almost 6,000 dollars. The

of discrimination that may also have tilted policies against minority interests.

Have the developments of the past forty years resulted in substantive representation, rather than just descriptive representation, for racial minorities in the United States? This paper answers that question by examining state public policy outcomes, using extensive data from 1970 to the late 1990s. This study departs from the past literature in a major way by estimating the impact of minority representation on *actual* policy outcomes. While several other studies have measured the impact of minority representation on legislator behavior (e.g., roll-call voting) or on an ideological composition of the legislature, no previous work has comprehensively examined the effects of minority representation on actual policies.[2] To fill this void, this paper analyzes policy outcomes in an area that is of primary interest to minorities and tests if increased minority representation has produced important changes in states' public policies. More broadly, this paper asks: When minority groups have different policy preferences and needs from the majority group, does the the composition of the legislature matter for policy outcomes?

In general, a change in the composition of a representative body can have a discernible effect on policy outcomes. We expect such impact to be large when groups that gain political representation have policy preferences that are distinct from those of previously overrepresented groups. For example, scholars have devoted significant attention to the impact of female representation, finding that greater representation of women has had consequential effects on policy outcomes (see Besley and Case 2003 for a good review).[3] Given that differences in policy preferences among racial groups in the United States should be no less

unemployment rate of blacks is also higher than both whites and Hispanics at all educational levels (U.S. Dept. of Education 2003, p.117). As of 2000, 22 percent of black individuals lived below the poverty level, while 7.5 percent of non-Hispanic whites lived in such conditions (U.S. Dept. of Education 2003, p. 131). The figure is even starker for children; 30.9 percent of black children and 28 percent of Hispanic children are living below the poverty line, while the figure for their white counterparts is 9.4 percent. The condition of public schools (such as the quality of their physical plants) with a large minority enrollment tends to be worse than those of schools whose students are mostly white (U.S. Dept. of Education 1999). On policy preferences, see, for example, Tate 1993, Dawson 1994, Kinder and Sander 1996, Whitby 1997, Canon 1999, and Haynie 2001

[2]The only exception, to the best of the author's knowledge, is Haynie 2001 who examines the impact of minority representation on the state-level policy outcomes in five states over three time periods. This study expands his analysis by examining micro level policy outcomes over the last thirty years, covering all contiguous states in the U.S.

[3]Also, see Ansolabehere, Gerber, and Snyder [2002] for the policy effects of geographical representation.

significant than those associated with the gender gap (e.g. Kinder and Sander 1996), the impact of minority representation warrants a close examination. Moreover, understanding the effects of increased minority representation bears great importance in light of the upcoming renewal of the Voting Rights Act in 2007,[4] for which objective assessment of the Act will be required.

Despite the importance of this issue, we know little about the effects of minority representation on legislative outcomes. The fact that minority representation is usually achieved through the creation of majority-minority districts (districts in which racial minorities constitute a majority of the district population) complicates the issue; the creation of majority-minority districts can have an offsetting consequence for minorities by shifting the ideological composition of a particular legislature to the right of the political spectrum (e.g. Swain 1993, Lublin 1997, but also see Shotts 2002). This conservative shift happens because majority-minority districts often make surrounding districts more white and more conservative (because minorities predominantly tend to vote Democratic), by effectively packing minorities into a small number of districts.[5] Thus, as long as minority representation is attained through racial redistricting, minority representation may well hurt minorities, in spite of the ostensibly benign intentions associated with the creation of such districts. Similarly, as a result of race-conscious districting, white legislators may no longer find it necessary to be responsive to minority concerns, if minorities are removed from their districts to newly-created majority-minority districts. In sum, the net effect of minority representation is not immediately obvious when it is achieved through racial redistricting. Although racial redistricting might result in a small gain in the number of minority legislators, the potential conservative shift may outweigh the benefits for minorities.

In addition, empirical results on the effects of minority representation have been inconclusive at best. Past studies typically examine Congressional roll-call voting records or the legislators' ideological position in order to measure the overall effects of minority represen-

[4]Section 5 of the Voting Rights Act is up for renewal in 2007.

[5]The large seat gain for the Republican party in 1992 and 1994, following the creation of a record-number of majority-minority districts, is often cited as evidence for the conservative shift (e.g. Hill 1995, Lublin 1997, but also Petrocik and Deposato 1998).

tation. In an influential study, Swain (1993) examines roll-call behavior of both black and white members of Congress and concludes that white legislators can adequately represent minority interests. Subsequent studies offer mixed evidence in support of her findings (Bullock 1995, Cameron, Epstein, and O'Halloran 1996, Lublin 1997, Whitby 1997, and Canon 1999). Meanwhile, returning to the issue of racial redistricting, Shotts (2003) shows that there is no perverse effect to this redistricting practice; the fraction of southern legislators who are to the left of the House median increased, rather than decreased, after the creation of majority-minority districts in the early 1990s (but also see Lublin and Voss 2003). Finally, in a careful and thoughtful analysis, Canon (1999) examines various types of legislative activities aimed at representing black interests (e.g. bill sponsorship and floor speeches) and finds that black members of Congress are more responsive to minority concerns. Although these past studies are suggestive, what they lack is direct evidence on how minority representation has affected the day-to-day lives of minorities. More liberal legislation surely constitutes one form of change, but it is unclear to what extent such legislation has altered the historically disadvantaged position of America's minority groups. In order to obtain more concrete evidence, this paper examines actual policy outcomes, rather than legislative behavior of representatives.

To empirically measure the impact of minority representation, I create a panel data set that includes information on both the number of minority state legislators as well as on state policy outcomes in all contiguous states[6] from 1970 to the late 1990s. The policy area that I examine is the financing of public education; thus the unit of analysis is the U.S. public school district. Two observations motivate the decision to study school finance. First, nearly half of the revenues available to public school districts come from state governments, meaning that state-level education finance policy is a highly influential (and often contentious) policy area that can greatly affect the conditions of school districts and their students.[7] Second, there is a large funding disparity between districts with low minority

[6]Excluding Nebraska, as explained below.

[7]State and local funding play a much larger role in school finance than federal aid. As of 1990, 93 percent of the revenues for elementary and secondary school districts come from state and local sources (U.S. Dept. of Education 2004).

enrollment and those with high minority enrollment because the funding level primarily reflects property values in districts. School districts with a large number of minority students, particularly urban districts, often lack a tax base to provide sufficient funding for education.[8] Despite efforts to tax themselves at a higher rate, high minority enrollment districts' per-pupil expenditures are still much smaller than those of wealthy school districts that are typically located in suburban areas and have a low enrollment of minority students. For example, according to a report prepared by the Department of Education, the average general revenues per student (cost- and need-adjusted) for public elementary and secondary school districts with high minority enrollment (more than 50 percent) in 1991-1992 are 3,402 dollars, while those of districts with the lowest levels of minority enrollment (less than 5 percent) are 4,142 dollars (U.S. Dept. of Education 1998). This funding disparity is not a recent development. As of 1972, the average revenues per pupil (unadjusted) from state and local sources in those districts located in southern states and with a high fraction of black students (more than 50 percent) were 1,997 dollars (in 1990 dollars) while revenues in districts with low minority enrollment (less than 5 percent) were 2,384 dollars.[9]

Representing constituencies that face disadvantages in raising local funds, minority legislators may try to reduce the funding gap by allocating more state funds to minority or poor districts, to supplement their scarce property tax incomes.[10] My empirical results suggest this is indeed the case; in states where African Americans gained greater represen-

[8]Among urban districts, large central-city districts face the most unfavorable conditions with a high poverty rate among pupils, inferior facilities, and high minority and new immigrant enrollments (see, for example, Wong 1999).

[9]Calculated by the author. Unweighted and unadjusted for costs and needs. See Data Appendix for data sources. For each district, the per-pupil total revenue is calculated as the sum of state and local property tax revenues, divided by the number of students. As of the 1972-1973 school year, funds from the state and local sources constitute 91.3 percent of their revenues (U.S. Dept. of Education 2004). Note that some localities have other types of local revenues other than property tax income, that are not included in the calculation. Therefore, the total revenue figure should be treated as an approximation. However, the local property tax income comprises a predominant proportion of local revenues and the amount of other types of revenues is very small. The number of school districts in the sample used for the calculation is 302 for high minority enrollment districts and 493 for low minority districts. The standard deviations are 710.506 and 877.279, respectively. A simple t-test for an equal mean hypothesis is easily rejected ($p = 0.000$).

[10]In order to reduce fiscal inequity across districts, three main options are available to state policymakers. They can (1) redistribute education funding to poorer districts, (2) increase the share of the total education expenditures contributed by the state (relative to the local contribution), or (3) cap spending in wealthy districts (e.g. U.S. General Accounting Office 1997, Carr and Fuhrman 1999).

tation, high minority enrollment districts saw a greater increase in state aid compared to those high minority enrolment districts found in states where African Americans remained underrepresented in the state legislature. Although Hispanic elected officials and voters increasingly occupy a prominent role in the American politics, this paper focuses exclusively on African Americans, because of the limited data availability for Hispanics.

More specifically, by regressing changes in the degree of minority representation on changes in the level of state aid to school districts, I examine whether the increased presence of minority policymakers changed the way that states distributed financial support to local school districts. Since the adequacy of education funding correlates highly with the racial composition of districts, if minority representation matters in a substantive sense, then the amount of intergovernmental transfers to minority districts should increase once minorities achieve greater representation. I do not specify mechanisms through which minority legislators influence education-finance policies, nor do I observe actual legislative processes (such as their committee assignments or the size of the black caucus). Thus the empirical result presented here is an indirect piece of evidence on the policy impact of minority representation.[11] However, the subsequent section contains various forms of robustness checks in order to ensure that I do not erroneously attribute the policy shift to minority representation when other factors are in fact driving the results.

One of the potential problems associated with the specification presented here is the possible endogeneity of "the percent of black legislators" variable that appears as a regressor. If some unobservable characteristics of a particular state (for example, state ideology) determines both the number of black legislators and the generosity of state education finance policies, then the estimated effects are likely to be biased. For instance, if liberal states tend to elect more minorities and, at the same time, are more likely to enact policies

[11]It should be noted that education-finance experts often observe that school finance reform involves the politics of race and that the outcome of education finance reforms depends crucially on the presence (or lack thereof) of minority legislators in state legislatures. For example, Wong [1999], an education-finance specialist, claims that increased presence of black state legislators is one of the factors that promotes more equitable distribution of state funds. Carr and Fuhrman [1999] argue that underrepresentation of racial minorities in the New Jersey legislature was one of the reasons for its large spending inequality between white and black/Latino districts.

that serve minority interests,[12] then the effects of minority representation in the legislature will be overestimated. To deal with this issue, the specification detailed below always includes state- and year-fixed effects, which eliminate time-invariant state- and year-specific unobserved factors. In addition, in order to further guard against potential endogeneity, this paper utilizes two instances of 'exogenous' changes that led to a precipitous growth in the number of black officeholders over a relatively short period of time. These two cases enable us to isolate the effects of minority representation from the impact of other factors that can also move education finance policies in the same direction.

First, the paper takes advantage of an imposed change in electoral law during the 1970s that caused a substantial increase in the level of minority representation. Due to a series of litigations and interventions by the Department of Justice, several states in the South were forced to change their state legislative districts from multimember districts with positions (in which minorities are much less likely to be elected) to single-member districts. The impact of the change on levels of minority representation was large and immediate; the number of African Americans in state legislatures expanded from almost zero to more than ten in many states. Given the widespread hostility toward black officeholding during the period and the magnitude of the resistance to the outside intervention,[13] it is obvious that these southern states would not have introduced single-member districts had it not been for the Department of Justice's intervention. Thus, the increase is clearly attributable to the outside, or exogenous, forces.

Second, I exploit an intervention surrounding the 1990s round of redistricting. As a result of an amendment to the Voting Rights Act in 1982 and a highly influential Supreme Court decision in the mid-1980s (*Thornburg v. Gingles*), the number of majority-minority districts (and correspondingly, minority legislators) greatly rose when states redrew state legislative district boundaries following the 1990 decennial Census. This redistricting pro-

[12]Wood and Theobald [2003] show that ideology of states (both citizen and government) influences equity of education-finance system.

[13]A report by the Commission on Civil Rights division of the Department of Justice, written at that time, documents how fiercely and persistently white legislators in these states resisted the change (U.S. Commission on Civil Rights 1975).

vides us with an ideal opportunity, because the large increase was not due to ideological shift of individual states, but due to "exogenous shock" or policy change at the national level.[14] We can then confidently attribute any observed policy change after the "event" to the rise in the number of minority representatives, as opposed to some other unobservable effects of individual states. Section 2 contains a more detailed description of these developments to provide further evidence on the "exogeneity" of the events.

These two events undoubtedly enhanced minority representation, thus providing ample and exogenous variations in the number of black elected officials. Accordingly, the analysis below examines two time periods: (1) before and after the switch to single-member districts in the 1970s, and (2) pre- and post-1990 redistricting. In both cases, this paper finds that increased minority representation is associated with the targeting of more aid to minority and poor school districts by the state government. Thus, my empirical results suggest that minority representation bears more than symbolic meaning.

The paper is organized as follows. The next section reviews some seminal events in the 1970s and 1980s that greatly affected levels of minority representation in the subsequent time periods. Section 3 explains data and method. Section 4 presents the main results and then checks the robustness of the results by examining alternative explanations for the observed outcomes. Importantly, I rule out the possibility that the improved condition of minority school districts was due to court-mandated education-finance reforms. The final section concludes.

2. Historical Background: The Voting Rights Act and its Consequences

This section briefly describes the development of the Voting Rights Act and a series of important Supreme Court decisions in the 1970s and 1980s.[15] The purpose of this section

[14]If anything, the rate of increase for minority representation and state ideology may be *negatively* correlated, because conservative states had relatively few minorities representatives before 1990 and were also more likely to be subject to minority vote dilution challenges and intervention from the Department of Justice. In the case of a negative correlation, the estimates will be underestimated, which should not constitute a major problem.

[15]For more complete description of the background, see, for example, Davidson 1984, 1992, Grofman, Handley, and Niemi 1992, McDonald 1992, and Davidson and Grofman 1995, Lowenstein 1998, O'Rourke 1998, Posner 1998. This section draws heavily on these sources.

is to summarize these events and then to show how these events radically transformed the racial composition of state legislatures, especially in the South. Since these events were national in scope, neither they nor the rise in the number of minority legislators associated with them, were directly caused by factors found in any individual state. This property is particularly important in order to obtain clean identification. Two events are relevant for the purpose of this paper: (1) the transition from multimember state legislative districts to single-member districts in several southern states in the 1970s; (2) the creation of majority-minority districts during the 1990s round of redistricting.

The first event was closely associated with the unprecedented power of the Department of Justice to object to discriminatory practice under section 5 of the Voting Rights Act. Section 5 requires states and localities with a history of discrimination[16] to obtain approval from the Justice Department for any new or changed voting-related statutes (the "preclearance" requirement). However, the Justice Department did not exercise its preclearance power very often until 1969, primarily because it was unclear whether section 5 applied only to laws governing voter registration or if it also covered minority vote dilution practices.

In 1969, the scope of the Act had greatly expanded to include minority vote dilution in *Allen v. State Board of Elections.* In *Allen*, the Supreme Court held that any practice or laws that cause minority vote dilution is also subject to the section 5 preclearance provision. Thus any election procedure that can potentially deprive minorities of their ability "to elect the candidates of their choice," including multimember districts, became subject to a court challenge and intervention by the Justice Department. During the 1960s, racial gerrymandering and the extensive use of multimember districts were very common, especially in the South.[17] After this seminal ruling, objections by the Justice Department under section 5 dramatically increased (from 6 to 118, Davidson 1992:28).[18]

[16]They are originally six southern states (Alabama, Georgia, Louisiana, Mississippi, South Carolina, and Virginia) and parts of North Carolina. States that employed a literacy test (or similar device) and had a registration rate of less than 50 percent of the voting age population as of 1964 were subject to the section 5 preclearance requirement. The covered jurisdictions expanded later.

[17]For example, U.S. Commission on Civil Rights 1968, 1975. Multimember districts are used in conjunction with other requirements (such as numbered post and full-slate voting) to dilute minority voting power strength.

[18]According to the Department of Justice, the full implementation of section 5 preclearance provision did

The following years brought many successful court cases filed by minority plaintiffs. In 1972, a federal district court invalidated further use of multimember legislative districts in Alabama, at least in part to prevent minority vote dilution (*Sims v. Amos*). In addition, in 1973, two important court cases (*White v.Regester*, *Zimmer v.McKeithen*) ruled that plaintiffs in vote dilution cases do not have to provide proof of discriminatory *intent* and that vote dilution should instead be judged by the "totality of circumstances" (*White*) or by eight factors (*Zimmer*). Following *White* and *Zimmer*, the number of constitutional challenges to election procedures significantly increased at all levels of government. At-large and multimember district systems were particularly prone to attack.

The developments in the early 1970s led to substantial litigation and persistent intervention by the Justice Department, as well as the creation of district plans by federal courts. These combined efforts subsequently resulted in the elimination of multimember districts in several southern states. Louisiana introduced single-member districts in its lower house in 1972; Georgia did so in 1973, Alabama in 1974, South Carolina in 1975, and Mississippi in 1978. In each state, resistance by white members of state legislatures was substantial, and it often required many years of efforts to dismantle the discriminatory electoral laws.[19]

The impact of the shift from multimember to single-member districts on the level of minority representation was dramatic. For example, after the Alabama state house had its first legislative election under a single-member plan in 1974, the number of minority legislators increased from 0 in 1970 to 15 in 1975. In South Carolina, when the state legislature finally adopted a single-member district plan for its state house, the number of African Americans in the lower house rose from 0 (1970) to 13 (1975). To illustrate the change, Table 2 reports the total number of African Americans represented in state legislatures in 1970 and in 1980, as well as the type of legislative districts used before the introduction of single-member districts. The number of African American legislators in the five 'reform' states increased from 16 in 1970 to 83 in 1980. In terms of the mean

not begin until the end of 1971. (U.S. Commission on Civil Rights 1975: 345)

[19]See, for example, U.S. Commission on Civil Rights 1975, Parker 1990, the various chapters in Hardy, Heslop, and Anderson 1981.

percentages of seats occupied by African Americans, this corresponds to 1.9 percent in 1970 to 9.6 percent in 1980.[20] By contrast, in the other southern states where there was no outside intervention and where multimember districts were primarily used throughout the period (the bottom panel, Table 2), the increase was modest: from 8 to 30 (1.7 percent to 4.7 percent).[21]

Another instance of a sudden and large increase in the number of minority legislators occurred in the early 1990s, when a large number of states created the maximum number of majority-minority districts during the 1990s round of redistricting. Two events contributed to this effort. First, Congress amended section 2 of the Voting Rights Act in 1982, primarily in response to a decision by the Supreme Court two years earlier (*City of Mobile v.Bolden*). In *Bolden*, the Court ruled that proof of discriminatory *purpose* must be provided by plaintiffs, which was a large burden of proof and a major setback for civil rights activists.

The new section 2 explicitly prohibited any voting schemes that *result* in minority vote dilution. This meant that minority plaintiffs no longer had to prove discriminatory *purpose* of election laws in order to challenge them. In addition, the language of the new section 2 suggested that the proportion of majority-minority districts should approximate the share of the population consisting of minorities. That was the interpretation of the time, although the section included a statement that it would not guarantee proportional representation. In addition, because the section covered the entire nation (in contrast to section 5, which covered only some states), any jurisdiction with a large minority population was now vulnerable to a section 2 challenge for minority vote dilution practice.[22]

[20]It is worth mentioning that the Georgia Legislature adopted in 1965 some single-member house districts in several urban counties in response to a decision by the Supreme Court, which explains its relatively high level of black representation in 1970. This does not imply that Georgia voluntarily created more single-member districts after the 1970 Census; it was after section 5 objections and the Supreme Court decision in 1973 (*Georgia v.United States*) that the Georgia Legislature adopted single-member districts (U.S. Commission on Civil Rights 1975, Parker 1990).

[21]Tennessee is excluded from the analysis because it employed single-member district plans throughout the period. The number of African American state legislators in Tennessee was 8 in 1970 and 13 in 1980. Including Tennessee in the "no-reform" group does not change any of the substantive results presented below.

[22]A legal publication prepared by the National Conference of State Legislatures to assist states in their redistricting process in the 1990s emphasizes this point (National Conference of State Legislatures Reapportionment Task Force 1989).

Second, the Supreme Court ruled in *Thornburg v.Gingles* (1986) that only one factor – the existence of "racially polarized" bloc voting – would justify overturning discriminatory electoral schemes. The decision "was enormously significant because it simplified decisions in voting cases and added greater predicability." (McDonald 1992: 69) Thus as long as it can be shown that that white voters and black voters vote differently, then the creation of majority-minority districts would now be justified.

Consequently, when states started decennial redistricting processes after the 1990 census, they were under tremendous pressure to create the maximum number of majority-minority districts possible.[23] In some cases, the creation of such districts was done at the insistence of the Justice Department. Encouraged by the development in the 1980s, "the Justice Department exercised its section 5 preclearance power extremely aggressively after the 1990 census" (Lowenstein 1998: 62-63).[24]

As a result, the number of majority African American state legislative districts in states with a black population exceeding 10 percent increased from 16 in 1990 to 50 in 1992, [25] which was followed by a great increase in the level of minority representation in a relatively short period of time.[26] In 1990, the number of African American legislators represented in state legislatures around the country was 404, but it grew significantly to 509 in 1992,[27] and it reached 566 by 1996 – a 40 percent increase since 1990. Under the threat of litigation and intervention[28] (and actual intervention by the DOJ), states with a large minority population

[23]For example, Donovan 1991, Duncan 1991, various chapters in Grofman 1998.

[24]The number of redistricting plans that the Justice Department received between 1991 and 1995 was nearly 3,000, of which 183 were rejected. In the previous redistricting periods, about 1,500 plans were submitted between 1981 and 1984 for preclearance and 400 plans were submitted between 1971 and 1974. According to Posner [1998], the large increase in the number of submission is largely due to the amendment of section 2 of the VRA in 1982. While the objection rate has remained almost the same since the 1980s, the absolute number of plan objections in the 1990s was a record high and the number of objections during the 1990s redistricing cycle constituted nearly 40 percent of all the objections since 1965.

[25]Calculated by the author based on the percent of majority African American districts provided in Handley, Grofman, and Arden [1998]. Handley *et.al.* do not specify what constitutes the "majority". The number in 1990 does not contain the number of majority-black districts in Arkansas and New Jersey and the number in 1992 does not include the number of majority-black districts in Alabama, because Alabama did not finish redistricting by 1992.

[26]Handley, Grofman, and Arden [1998] observes that 80 percent of majority black districts in the South elected African American legislators. By contrast, only 1 percent of non-majority black districts elected black legislators. The same pattern holds outside the South.

[27]Alabama, Louisiana and Virginia did not hold state legislative elections in 1992.

[28]See Posner [1998] for a discussion on a strong deterrence effect of section 5.

had no choice but to create majority-minority districts. The increase was largely due to the events at the national level, rather than voluntary efforts to elect minority state legislators.

3. Data and Methods

Specification

The main dependent variable in this paper is the amount of total state aid per pupil received in each school district. When available, the amount of per-pupil general aid formula assistance revenues (which is a subset of the total state aid) in the district is also used as the dependent variable.[29] I expect to see an increase in state transfer to high minority enrollment districts once more minorities are represented in state legislatures. It should be noted that states rarely decrease the amount of state transfers to wealthy districts in order to achieve a more equitable allocation of state aid; the reform often takes the form of the so-called "leveling up" strategy, in which states provide more state funding to poor districts, without decreasing the level of state aid to wealthy districts.[30]

In general, the intergovernmental transfer to school district j in state i is given by,

$$y_{ijt} = c_{ij} + \mathbf{x}_{ijt}\beta^0 + \delta_t + u_{ijt}. \tag{1}$$

where y_{ijt} is the measure of state transfer defined as above and $\mathbf{x}_{ijt}$ is a vector that contains characteristics of district j in state i. c_{ij} captures unobserved characteristics of the district, which may or may not be correlated with any of the explanatory variables. δ_t is a year-fixed effect.

I assume the effect of c_{ij} to be constant over time. Then the district-specific unobservable effect can be removed by a first-difference transformation. The identifying assumption is

[29] General aid formula assistance revenues are general non-categorical assistance from the state government. Each state employs a different formula and states use complicated, and often multiple, funding formulas to allocate state funds to local school districts. Types of general formula programs include foundation program, minimum or basic formula support, power equalization, variable guarantee plans, flat or block grants. Examples of items included in the total state aid, but not in general formula assistance, are: funds for special education programs, transportation, staff improvement, compensatory and basic skills programs, school lunch programs, bilingual programs, and capital outlay for school construction and building aid.

[30] See, for example, Carr and Fuhrman 1999.

$E[\Delta \mathbf{x}_{ijt} \Delta u_{ijt}] = 0$, where $\Delta \mathbf{x}_{ijt} = \mathbf{x}_{ijt} - \mathbf{x}_{ij,t-1}$, and $\Delta u_{ijt} = u_{ijt} - u_{ij,t-1}$. The year dummy is absorbed by the transformation, and the constant in the new equation captures the effect of the base year. For the analysis of the 1990s event, the data contain values in the late 1990s minus those in the early 1990s. For the 1970s analysis, the 1970 data are subtracted from the 1980 data. The data section below explains the data structure in greater detail.

To be more specific, the above equation can be written as;

$$\begin{aligned} \Delta y_{ijt} &= \alpha_0 + \alpha_1 \Delta \texttt{[BlackRep]}_{it} \cdot \texttt{[\%Black]}_{ij} \\ &\quad + \alpha_2 \texttt{[\%Black]}_{ij} + \Delta \mathbf{w}_{ijt} \beta + \gamma_i + \Delta u_{ijt}, \end{aligned} \tag{2}$$

where $\Delta y_{ijt} = y_{ijt} - y_{ij,t-1}$ and $\Delta \mathbf{w}_{ijt} = \mathbf{w}_{ijt} - \mathbf{w}_{ij,t-1}$. Other variables are similarly defined. $\texttt{[BlackRep]}_{it}$ is the percentage of seats occupied by African American legislators in the state legislature of state i in time t. For each state, the variable is calculated as the total number of black legislators in both chambers divided by the total number of seats in the legislature (state senate and house combined). $\texttt{[\% Black]}_{ij}$ is the percentage of African American pupils in the district, and it is held constant over time. This is because I am interested in the extent to which minority districts (with a given minority population) benefit from the change in the level of minority representation.[31] $\mathbf{w}_{ijt}$ is other characteristics of districts that can affect levels of state aid, such as district enrollment, the number of schools, household median income, property tax income, educational attainment of adults, poverty level, and the percentage of population living in the urban area. γ_i is a state-fixed effect, which captures time-invariant unobservable characteristics of each state, such as baseline state ideology or the state's education system.

The regressor of interest is the interaction term: $\Delta \texttt{[BlackRep]}_{it} \cdot \texttt{[\%Black]}_{ij}$. The estimated coefficient on the interaction term measures the impact of minority representation on the funding level of districts, which is assumed to be a function of minority enrollment. If black districts benefit from having minority legislators in the state legislature,

[31] This is also because the variable does not vary much over time at the school district level. See Table 1.

α_1 is expected to be positive. Another possibility is that minority legislators advocate the interests of poor districts, not just those of minority districts and try to target state funding to poor districts. This possibility arises because African American legislators' main constituency, African Americans, are disproportionately economically disadvantaged (see footnote 1). Consequently, black legislators represent relatively poor districts. According to state legislative district-level data in the 1990s, the average household income of state house districts that are represented by African American legislators is 29,246.60 dollars, while that of districts represented by non-Hispanic white legislators is 37,650.25 dollars.[32]

To check if the rise in minority representation is associated with greater targeted funding to poorer districts, I also interact the fraction of black legislators with districts' poverty level, measured by the percentage of population living below the poverty line. The coefficient on this interaction term measures the extent to which poor districts benefit from the increase in minority representation.

In addition to analyzing the coefficients on the interaction terms, in some specifications I split the sample into two groups in order to present simpler results that highlight the contrast between the group that experienced a dramatic rise in black representation and the one that saw only a modest increase. Because only a subset of southern states experienced a significant increase in the level of black representation in the 1970s, I compare the 'reform' southern states with the 'no-reform' southern states to see if there is any distinct pattern in their targeting efforts.

[32]I calculate the average household income figures by matching three sets of data. First, I enter state legislative district-level household median income data from Barone, Lilley, and DeFranco 1998. Second, I match the household income data with state legislative election return data that contain candidate and district names (Collet 1997). Finally, information on the race of legislators is taken from the 1993 national roster of black elected officials (Joint Center for Political and Economic Studies 1993) and the 1994 national roster of Hispanic elected officials (National Association of Latino Elected and Appointed Officials Education Fund 1994). The race information is then added to the merged state legislative district-level data by candidate and district names. Alaska, Hawaii, and Nebraska are excluded from the calculation for reasons explained below. Idaho, Maine, Montana, New Mexico, North Dakota, South Dakota, Utah, and Wyoming had no African Americans in their respective state houses as of 1993 and are therefore not included in the calculation. The household income data in Barone *et.al.* are from the 1990 census, aggregated up to the state legislative district level.

Data

This section explains the principal sources of data in this study. The Data Appendix contains more detailed descriptions of the data and the definitions of variables. Table 1 reports descriptive statistics. I examine the amount of state funds allocated to U.S. public school districts over time. Thus, all the data are measured at the school district level, except for the state-level legislative data. Using three sources of data, I created a panel data set that contains demographic, financial, and non-financial information on school districts across the country from 1970 to 1999. Then the data set was merged with state legislative information. The years included in the analysis are 1970-72, 1980-82, and 1990-1999.

As of 1997, there were approximately 15,000 public school districts in the United States, but after eliminating school districts according to the following criteria, the final sample size becomes approximately 9,600 for the 1990s and 8,100 for the 1970s and 1980s. To ensure comparability, the data set only contains districts that offer both elementary and secondary schools. Non-operating districts, districts that offer only special education, and districts whose grade level begins with grade 13 or higher are excluded. School districts in Hawaii and the District of Columbia are not contained in the data set since each has only one school district. Alaska and Nebraska are also excluded from the analysis. I exclude Nebraska because its legislature is unicameral and non-partisan. Since per-pupil revenue measures can be highly sensitive to enrollment figures for very small districts, districts with enrollments of less than 100 are eliminated. In addition, in order to exclude extreme cases, districts whose per-pupil revenue is more than 150 percent of the 95th percentile and less than 50 percent of the 5th percentile (calculated for each state) are also deleted.[33] Finally, school districts that are consolidated or split are excluded from the analysis.

Basic demographic information for each school district was taken from school district tabulations of the Censuses of Population and Housing (1970, 1980, 1990, 2000). The district mapping data is created by the Census Bureau and National Center for Education Statistics (NCES) by aggregating household-level decennial census data up to the school district level.

[33]This algorithm is adopted from Murray, Evans, and Schwab [1998].

The 1970 data are compiled from *the Fifth Count* summary tape and *Summary Tape File 3F* is used for 1980. In the 1970 data, only school districts with more than 300 students are reported. *The School District Data Book (SDDB)* (ICPSR version) is used for 1990 and *Census 2000 School District Tabulation Data* (STP2) are downloaded directly from the Census Bureau web site. The demographic variables include total population, population by race, the fraction of black students (*%Black*), median household income (*Median Income*, in 1990 dollars), the percentage of population living in poverty (*% Poverty*), living in the urban area (*% Urban*), 65 years and older (*65 yrs+ old*), educational attainment of the adults (the percentage of adult population with at least 12 years of education (*12+ yrs schooling*) and with at least 16 years of education (*16+ yrs schooling*)). When available, the percent of Hispanic enrollment (*% Hispanic*) and the percent of pupils receiving free or reduced-price lunches (*% Free Lunch*) are included in the analysis as control variables. For 1970, additional information is supplemented using *Elementary and Secondary General Information System (ELSEGIS): Merged Federal File* and the district median household income is estimated from the income distribution (see Data Appendix).

The sources of school finance data are *the Censuses of Governments* (1972, 1982) and *the Survey of Local Government Finances for School System*, known as the F-33 data (1992-1999). The financial data include the amount of intergovernmental transfers from the state government and local property tax revenue. After 1992, detailed information on the nature of state funds is also available. For example, the F-33 reports the amount allocated through the general aid formula, the amount designated for transportation programs, compensatory and basic skills programs, bilingual education programs, to list a few. Thus, the panel data contains a detailed breakdown of state funds from 1992 through 1999. All financial data are expressed in constant 1990 dollars.

Finally, non-financial school district information is obtained from *Elementary and Secondary General Information System* (ELSEGIS) data (1972-1973, 1979-1980) and *the Common Core of Data* (the 1990s), created by the National Center for Educational Statistics. The data include total enrollment (*Enrollment*), the number of schools (*No. of Schools*),

district types (operating/non-operating), and the grade span.

Each school district has a unique 7-digit NCES and 9-digit census identification number. For each year, the three types of data sets – demographic, financial, non-financial – were carefully merged by either of the IDs. When matching by the IDs did not work for some districts, they were carefully merged manually by state and district names. Next, the merged school district data were combined with state-level legislative information. The variable of interest in this study is the share of state legislative seats occupied by African American members (*BlackRep*). It is calculated as the total number of black legislators in both the lower and upper houses divided by the total number of state legislative seats in each state.

To check for the possibility that other political factors are affecting policy outcomes, I also collected data on the seat share of Democrats (*% Democrats*) and an indicator variable for the Democratic party's control of the governorship. The number of African American legislators is reported in various volumes of *Roster of Black Elected Officials* and the other legislative information is obtained through the ICPSR.

The data sets were then merged across time. I created two sets of data: one that contains the 1970 and 1980 data and another that contains the 1990s data. The demographic data are available only in the census years, so the financial information in 1972 was merged with the 1970 census data, as well as with legislative and non-financial district information in 1970. Similarly, financial information in 1982 was matched with the demographic, legislative, and district data in 1980. Finally, the 1970 and 1980 data were appended. As for the data in the 1990s, since the annual F-33 data do not report values for all districts in some years, I first made two sets of financial data by taking the average of two or more years (1992-1993 and 1997-1999) and then merged the averaged 1992-1993 data with the 1990 census data and the averaged 1997-1999 financial data with the 2000 census data. The non-financial data were merged in a similar fashion. The legislative information in 1990 was used for the first period and data from early 1997 were used for the second period. These two data sets were appended across time to create the 1990s data set.

4. Estimation Results

4.1. Basic Results

Basic Results for the 1970s

To provide an initial look at the impact of increased presence of black legislators on school finance policies, Table 3 shows average state aid per pupil and total revenues per pupil[34] in southern states in 1972 and in 1982. All dollar values are expressed in constant 1990 dollars. Panel (a) presents the change in district revenues in the 'reform' southern states and panel (b) reports the trend of the 'no-reform' southern states. The 'reform' states refers to states that were forced to adopt single-member districts in the 1970s as a result of the federal intervention. Thus, these states experienced a significant surge in the level of black representation in their state legislatures (see Table 2). By contrast, the 'no-reform' states did not undergo any change and therefore had only modest increases in levels of black presentation. To highlight the difference between high minority enrollment and low minority enrollment districts, each panel presents averages for all districts, averages for high minority enrollment districts (more than 50 percent black), and averages for low minority enrollment districts (less than 10 percent black).

The middle rows in panels (a) and (b) show that the rate of increase in the amount of state aid per pupil and total revenues per pupil for low minority enrollment districts are roughly the same across two groups with a growth rate of about 50 percent. What is noteworthy is the contrast between the two groups for high minority enrollment districts. On the one hand, the level of state aid for high minority enrollment districts in the 'reform' states increased by nearly 1,000 dollars: from 1,404 dollars in 1972 to 2,360 dollars in 1982, a 68 percent increase. On the other hand, districts with a large minority pupil enrollment in the 'no-reform' states experienced a very slight increase: 1,527 dollars in 1972 to 1,925 dollars in 1982 (a 26 percent increase). This is much lower than the rate of increase for low minority enrollment districts in these states (whose growth rate is 50

[34]See footnote 9 above for the definition of the variable.

percent). Consequently, when the total revenues per pupil in the 'reform' southern states increased by 56 percent, the total revenues of predominantly minority districts in the 'no-reform' states increased by merely 22 percent (right-hand side columns in Table 3). Clearly, one observes a substantial jump in state aid between 1972 and 1982 only for the high minority enrollment districts in the 'reform' southern states. Note that the initial district revenues were almost the same across these two sets of states; the per pupil total revenue for high minority districts was around 1,900 dollars in 1972, in both 'reform' and 'no-reform' states. The major difference between the two groups are that the 'reform' states experienced a large increase in black representation, while the 'no-reform' states did not.

Although the contrasting pattern found in Table 3 is highly suggestive of the impact of black legislators on school finance policies, the descriptive statistics does not take into account the effect of other factors, especially that of state-specific factors and district characteristics. In order to abstract from these confounding effects, I next turn to regression analysis. First, in order to check if the distinct pattern observed above holds even after controlling for these confounding factors, I estimate the following equation, which is a simplified version of Eq. (2):

$$\begin{aligned} \Delta y_{ijt} &= \alpha_0 + \alpha_1 [\texttt{Reform}]_i \cdot [\texttt{\%Black}]_{ij} \\ &\quad + \alpha_2 [\texttt{\%Black}]_{ij} + \Delta \mathbf{w}_{ijt}\beta + \gamma_i + \Delta u_{ijt}, \end{aligned} \tag{3}$$

where Δy_{ijt} is the change in state aid per pupil between 1972 and 1982 and [Reform] is a dummy variable that takes a value of 1 if school districts are in the 'reform' states. [%Black] is the percentage of black pupils in the district and is measured in 1970. All specifications include state fixed effects (γ_i) and column (2) reports estimated coefficients when other control variables are also included. Since the main interest here is the comparison between the 'reform' and 'no-reform' southern states, the sample consists of only public elementary and secondary school districts in southern states (N=1,751). Table 4 reports the estimation results. In both columns, the coefficients on the interaction term (*Reform * % Black*) are

positive and statistically different from zero, suggesting that the 'reform' southern states transfer more state aid to districts with high minority enrollment, compared to the 'no reform' southern states. Thus, Table 4 confirms the pattern found in Table 3.

Next, in order to estimate the extent to which an additional increase in minority representation affects the funding level of disadvantaged districts, I estimate Eq.(2) using school districts in the 'reform' southern states. Recall that only the 'reform' southern states experienced exogenous increase in the level of black representation. Table 5 presents the results. The dependent variable in all columns is the change in intergovernmental transfer to a public school district from 1972 to 1982. Columns (1) and (2) of Table 5 report estimation results when Δ *BlackRep* is interacted with *% Black*. The coefficient on the interaction term is an estimate of the policy impact of black representation on the amount of state aid, which is assumed to be a function of the size of the minority population in the district. Columns (3) and (4) contain estimated coefficients when Δ *BlackRep* is interacted with *% Poverty*. The coefficient on the interaction term measures the extent to which changes in black representation affect districts' funding levels as a function of districts' poverty levels. If black representation has any positive effect on districts with high minority enrollment or poorer students, the coefficients are expected to be positive. For each set of columns, I present estimation results for the simplest specification first, followed by estimation results when various regression controls are included. All specifications include state fixed-effects. With state effects, the main black representation term (Δ *BlackRep*) is absorbed.

According to Table 5, the coefficient on the interaction terms are all positive and statistically different from zero (at the 1 percent significance level, one-tailed test). The positive coefficients indicate that the rise in black representation is associated with an increase in state aid to both high minority enrollment and poor districts. The estimated coefficient of around 0.4 on the *% Black* * Δ *BlackRep* term suggests that every additional one percentage point increase in African American legislators is associated with 0.4 dollar increase in the per pupil state aid. It is thus estimated that when the level of black representation increases by 5 percentage points, the funding level of a district whose enrollment is 50 percent

minority would increase by 100 dollars per pupil, holding everything constant. Given that the average total amount of state aid in the early 1970s was around 1,300 dollars in these southern states (see Table 3), this is not a trivial amount. In terms of magnitude, it seems that minority representation has a bigger effect for the funding level of poor districts, as the coefficient of around 1.4 implies (panel (b)). In both specifications, the estimates are quite robust to the inclusion of regression controls.[35]

In sum, the estimation results in Table 4 confirm the striking pattern found in Table 3; clearly, states where black representation rose dramatically allocated more state funds to minority districts in 1982 as compared to 1972. The pattern holds even after controlling for districts' needs and state-specific factors. Furthermore, the results in Table 5 suggest a positive link between the level of black representation and the level of state funding efforts to both minority and poor districts.

Basic Results for the 1990s

The estimation results for the 1970s period suggest that changes in the racial composition of legislatures can bring about a tangible shift in state policy outcomes. However, the dramatic rise in black representation was limited in several southern states during this period, thereby leaving us with a limited opportunity to measure the impact of minority political representation. To further investigate the more general effects of minority representation on policy outcomes, I exploit another instance of a sharp rise in minority representation in the early 1990s.

Table 6 presents estimation results of Eq. (2) for the 1990s period. Data represent values from 1992-1993 to 1997-1999 measured at the public school district-level after a first-difference transformation. The number of school districts included in the analysis is about

[35] I also estimate Eq. (2) for districts in the 'no reform' southern states and districts in non-southern states. The estimated coefficients on the interaction terms are negative for the 'no-reform' southern states and almost zero for the districts outside the South. Thus, the positive statistical association between minority representation and targeted funding efforts to minority or poor districts cannot be observed in states where minorities did not gain additional representation. However, it should be noted that because the increase in black representation was slight in these states (the average Δ *BlackRep* is 0.0135), it is hard to get precise and reliable estimates of the coefficients.

9,400. The dependent variable is the amount of total state aid per pupil in columns (1)-(3) and the amount of general formula assistance per pupil in columns (4)-(6). As mentioned above, the funds distributed through the general aid formula are a subset of the total state aid and non-categorical, whereas the total amount includes funds for categorical programs, such as compensatory and basic skills programs, school lunch programs, and capital outlay program revenues (such as for construction). All dollar amounts are measured in 1990 dollars and all specifications include state fixed effects.

I employ three different specifications to estimate the effects. In columns (1) and (4), the change in the level of black representation (Δ *BlackRep*) is interacted with the percentage of black pupils in the district (*% Black*). The percent black term is measured in the first period and held constant over time. The Δ *BlackRep* variable is interacted with the percentage of population living in poverty (*% Poverty*) in columns (2) and (5). Again, I expect the coefficients on these interaction terms to be positive, if the presence of African American legislators is associated with positive changes in the way states distribute state aid to high minority enrollment or poorer districts. In columns (3) and (6), both of the interaction terms are included in order to measure the relative impact of minority representation on minority and poor districts. Although these two types of districts often overlap, the correlation between the two is not perfect at the school district level (the correlation coefficient for 1997 is 0.3984 (N=9,624)), therefore we should be able to estimate the impact separately for each type of district. To account for other factors that can affect the level of state aid, a set of regression controls are also included.[36]

In Table 6, the estimated coefficients on the interaction terms are all positive and statistically different from zero. The results suggest that increased black representation is associated with higher funding levels for both poorer and high minority school districts. Turning to individual estimation results, columns (1) and (4) indicate that that a one percentage point increase in black representation in a state legislatures raises the funding level

[36]In addition to the level of the black enrollment as of 1990 (which is interacted with Δ *BlackRep*), I also include the change in the black enrollment (Δ *%Black*) in the specification. Excluding the Δ *%Black* does not affect the coefficient estimates of other variables, including the one on the interaction term.

of districts with a high number of minority pupils by 0.65 dollar per pupil. This implies that for a hypothetical district with 60 percent black enrollment, a 5 percentage point increase in minority representation would result in about 195 dollars more in state aid per pupil compared to a comparable district with no increase in minority representation. The coefficients in columns (1) and (4) are almost identical in magnitude, suggesting that black representation has a similar impact on both the level of total state aid and the amount of general formula assistance.

The estimated coefficients on the control variables also have the expected signs. For example, the coefficients on the level of minority enrollment (*% Black*) are negative, indicating that in the absence of significant minority representation, high minority enrollment districts would receive less than districts with fewer minority students. In addition, the change in the number of black students (Δ *% Black*) have a negative effect, suggesting that as a school district loses white students, the rate of increase in state transfers goes down. Contrastingly, the coefficient on the change in Hispanic enrollment is positive, but this may be due to the effects found in a few states where there is a large Hispanic population (such as California and Texas) and where, at the same time, education finance system was ruled unconstitutional (see next subsection). As expected, the amount of state transfer is negatively correlated with the wealth of school districts (property tax income and median income) and the elderly population in the district. The coefficient on the percent urban is negative, which is the likely result of the lack of financial resources found in large central-city districts. Finally, estimated coefficients on adult education attainment (*16 yrs+ schooling*) are negative. This could be attributable to outside options (such as private schools) that these well-educated parents have.

Columns (2) and (5) report estimation results when Δ *BlackRep* is interacted with the percent poor in the district. According to column (2), a one percentage point increase in black representation is associated with a 1.445 dollar increase in the amount of per pupil total state aid to poor districts. Column (5) shows that black representation has less impact on the level of general formula assistance. Since modifying aid formulas should be more

challenging than distributing discretionary funds to districts (which appear in the amount of total state aid), the result is consistent with what we would expect. Still, the effect is not trivial; the estimated coefficient suggests that a one percentage point increase would translate into a 0.5 dollar increase in the formula assistance per pupil. For districts with 80 percent black pupils, this amounts to about a 120 dollar increase in general aid formula assistance per pupil, if the number of black legislators increases by 3 percentage points.

The substantive results remain the same when I include two sets of interaction terms (Table 6, columns (3) and (6)), but the size of coefficients varies slightly across different specifications. For example, column (3) shows that the impact of black representation on the level of total state aid for minority districts is lower (0.292) when the two interaction terms are included, compared to when only the minority district interaction term is included (column (1), 0.651). Meanwhile, the coefficient on the *% Poverty* times black representation term remain quite stable across columns (2) and (3), with a size of about 1.4. On the other hand, when I estimate the impact of black representation on levels of formula assistance with both interaction terms (column (6)), the interaction term with the percent poverty is statistically indistinguishable from zero, suggesting that the specification in column (5) potentially suffers from an omitted variable bias. Nevertheless, the estimated coefficient on the *% Black* times black representation term is not affected by the inclusion of the other interaction terms (see column (4) and (6)).

Taken together, the estimated results indicate that the level of minority representation in the 1990s positively affected the funding level of minority and poor districts. Both in the 1970s and 1990s, the presence of black state legislators is associated with states' greater targeting efforts to the neediest districts. In order to verify the robustness of these findings, next I turn to several alternative explanations for the outcomes observed in this section.

4.2. Robustness

The empirical results presented above strongly suggest that the rise in black representation in the 1970s and 1990s was followed by policy outcomes that benefited disadvantaged

school districts. The estimates are robust to controls for factors that are known to affect school finance policies and to district- and state-specific factors. This subsection presents additional checks of the robustness of the results.

Effect of Mandated School Finance Reform

Since the early 1970s, interdistrict funding inequality has led less wealthy districts to challenge the constitutionality of school finance systems in various states, based on a claim that the large funding gap violated the state constitution. As of 1998, state supreme courts in eighteen states declared their education funding system unconstitutional, thus requesting their legislatures to adopt more equitable school finance system. One may argue that the improved funding status of disadvantaged districts is due to court orders, not due to the presence of African American legislators who tend to represent such districts (see Section 3.1). Although the timing of the rulings and that of the rise in minority representation do not coincide (since each state supreme court issued rulings at different time) and also the outcomes of litigation and the level of minority representation are unlikely to be related, it is worth isolating the impact of mandated school finance reforms from that of minority legislators.

In order to examine the impact of minority representation separately from that of court intervention, I split the sample into two groups: (a) states that had no litigation, or those where state supreme courts found their education finance system constitutional, and (b) states where the system was ruled unconstitutional by the courts.[37] I then estimate Eq.(2) for each group to see if any distinct pattern exists between the two. If court orders are primarily driving the results in Table 6, positive coefficients on the interaction terms should be observed only for the states where the education finance system was ruled unconstitutional. This would then suggest a spurious relationship between the level of minority representation and increased funding levels for the neediest districts. If, on the contrary, the presence of black legislators has a distinct effect on education policy outcomes, then one

[37]They are CA, NJ, CT, WA, WV, WY, AR, TX, KY, MT, TN, AL, MA, NH, VT, OH, and SC. Information is as of 1998.

should see positive coefficients on the interaction terms even if no education finance reform was mandated by the courts. In fact, one can expect the effect of minority representation to be larger when there was no court intervention. This is because the court rulings would prompt the legislature to address the fiscal disparity issue, regardless of its willingness to do so, thus making political factors largely irrelevant.[38]

In Table 7, I present estimation results for states with no court intervention in panel (a), and panel (b) contains estimation results for states where education finance systems were ruled unconstitutional. All specifications include the same set of control variables as in Table 6, as well as state-fixed effects. Comparing panel (a) and panel (b), it is clear that the effect of minority representation is estimated to be more prominent in states with no court intervention. The coefficients on the interaction terms in panel (a) are all positive and statistically different from zero (at 5 percent significance level, one-tailed test). In addition, the magnitude of the coefficients are quite comparable to those in Table 6. Contrastingly, most of the estimated coefficients in panel (b) are either statistically indistinguishable from zero or have the wrong sign. The only exception is the estimated impact of black representation on the amount of total state aid to poorer districts, which is positive and statistically different from zero (column (2) and (3), panel (b)). Overall, there does not seem to be any evidence that court-ordered school finance reforms are primarily driving the results.

Effect of Partisan Factors

Another check is to see if the estimated positive impact of minority representation is robust to the effects of other political factors, such as partisan control of the legislature. One may be concerned that the increase in African American legislators coincided with an increase in the number of Democrats in state legislatures, and that such partisan shifts, rather than the rise in black legislators, is responsible for more equitable education finance systems.

[38]However, it should also be noted that the court ruling itself does not automatically bring about equitable funding system, therefore political factors can still play a major role. State supreme courts merely direct the legislature to improve upon the existing system, and actual reforms are subject to legislative action and approval. Not surprisingly, one can find cases in which the court orders failed to bring successful changes in education finance systems because of legislative gridlock. See Carr and Fuhrman 1999. The overall impact of court ordered reform on funding equity is estimated to be positive (Murray, Evans, and Schwab 1998).

While it is true that most minority representatives are Democrats, increased minority representation does not necessarily translate into an increased seat share for the Democratic party. This is most clearly illustrated by the Republican party seat gains across the country in the mid-1990s, both at the national and state levels, despite the large increase in black representation. In order to formally abstain from the effect of such confounding political factors, I add the percentage of Democratic legislators and an indicator variable that measures the partisan control of the governorship to the model. Because partisan factors are largely irrelevant in the South during the 1970s,[39] I estimate modified equations only for the 1990s period. The results are presented in Table 8.

In the top panel, *% Black* is separately interacted with Δ *BlackRep* and Δ *Democrats*. The latter measures changes in the percentage of state legislative seats occupied by Democratic legislators (both houses combined), calculated for each state. During the period of this study, the average Δ *Democrats* for the entire sample was -0.0819. In the bottom panel, *% Poverty* is interacted with the above two legislative variables. Other control variables employed in the previous analysis, as well as a variable that indicates the partisanship of governors,[40] are also included in the estimation. In other words, the specification is exactly the same as in Table 6, except for the added political variables. Again, all specifications include state-fixed effects.

The estimation results presented in Table 8 show that the positive impact of minority representation is robust to the effects of other political factors. According to the regression estimates using the entire sample (columns (1) and (2)), the estimated coefficients on the Δ *BlackRep* interaction term are still positive and statistically different from zero, even after controlling for the effect of the partisan control of the state legislature and governorship. In addition, the magnitude of the coefficients is quite comparable to the estimation results in Table 6. In columns (3)-(6) in Table 8, the effect is separately estimated by the litigation status of states, and the results again confirm the previous conclusion; the effect of minority

[39]During the 1970s, the seat share of the Democratic party in the state legislature in the South is 0.886 for the upper house and 0.855 for the lower house (calculated by the author using Burnham [1985]).

[40]The variable takes 1 if the governor is a Democrat in both 1992 and 1997, -1 if the governor is a Republican in both periods, and 0 if the partisan control of governorship changed between the two periods.

representation is more prominent in states where there was no court intervention. Taken together, the results in Table 8 confirm that the observed outcomes are not attributable to changes in other political factors.

5. Conclusion

Despite the importance of the issue, few previous studies have investigated the impact of minority representation on actual policy outcomes. Exploiting exogenous and large variations in the level of minority representation in state legislatures, this paper finds that representation of traditionally underrepresented groups can lead to tangible changes in policy outcomes. More specifically, the central empirical findings of this paper can be summarized as follows. First, during the 1970s, southern states that experienced a sudden surge in black representation exhibited more targeting efforts to minority and poor school districts, thus narrowing the funding gap between both poor and wealthy and black and white districts. Such shifts were not observed in other southern states where the level of minority representation remained low throughout the decade. Second, another large gain in minority representation in the early 1990s was again associated with greater efforts to allocate more state funds to disadvantaged districts. Thus, in both periods, the level of black representation is positively correlated with the funding level of districts with the greatest needs. These results imply the general policy impact of African American state legislators, especially in addressing disparities in education funding.

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Table 1
Descriptive Statistics – Unweighted District Means

	1970-1972	1980-1982	1990-1993	1997-2000
% black state legislators (All states)	3.554	5.358	6.231	8.092
% black state legislators (South)	1.439	6.795	8.992	13.175
% black enrollment	7.042	–	7.519	7.941
% black in district population	5.609	5.531	5.411	5.789
State transfer per pupil (total)	1292.19	2117.92	2440.50	2956.11
State transfer per pupil (formula aid)	–	–	1818.43	2303.20
Per capita property tax revenue	304.76	312.48	326.71	309.66
Median household income (thousands)	19.117	25.085	26.086	32.339
% population living under poverty	13.903	13.092	14.143	12.053
% population living in urban area	33.283	35.541	36.341	40.745
% Hispanic enrollment	–	–	5.441	6.516
% population with 12 yrs+ Schooling	47.947	64.334	73.270	79.721
% population with 16 yrs+ Schooling	7.529	10.401	13.872	17.921
% pupils with free/reduced-price lunch	–	–	25.600	27.443
% population over 65 years of age	–	–	14.457	14.428
Enrollment	3612.6	3549.6	3720.5	4065.6
Number of schools in district	7.59	7.22	7.18	7.62
Number of observations	8109	8109	9624	9624

Notes: Data represent the U.S. elementary and secondary public schools in 47 states (districts in Alaska, Hawaii, DC, and Nebraska not included) with positive enrollments and valid data on revenues. All dollar amounts are in 1990 dollars. Cells are left empty when data are not available in the corresponding year. See Data Appendix for data availability and sources.

Table 2
The Number of African American Legislators in Southern States by Type of Reform Status: 1970-1980

(a) 'Reform' states: states that switched to single member districts

	1970	1980	Type of districts before Switch [No.]	Year of Switch
AL*	0	16	S: SMD [23], MMD-P [12]	S: —
	(0.000)	(0.114)	H: SMD [18], MMD-P [88]	H: 1974
GA*	14	23	S: SMD [56]	S: —
	(0.059)	(0.098)	H: SMD [71], MMD-P [119], Flot [5]	H: 1973
LA*	1	12	S: SMD [17], MMD-F [22]	S: —
	(0.007)	(0.083)	H: SMD [21], MMD-Free [84]	H: 1972
MS*	1	17	S: SMD [21], MMD-P [30], Flot [1]	S: —
	(0.006)	(0.098)	H: SMD [23], MMD [92], Flot [7]	H: 1978
SC*	0	15	S: SMD [3], MMD-P [43]	S: —
	(0.000)	(0.088)	H: SMD [17], MMD-F [107]	H: 1974
Total	16	83		
	(0.019)	(0.096)		

(b) 'No Reform' States: states that had no outside intervention

	1970	1980	Type of districts in the 70s [No. of seats]
AR	0	5	S: SMD [35]
	(0.000)	(0.030)	H: SMD [74], MMD [26]
FL	1	4	S: SMD [5], MMD-P [35]
	(0.006)	(0.025)	H: SMD [21], MMD-P [99]
NC*	1	3	S: SMD [9], MMD-F [41]
	(0.006)	(0.018)	H: SMD [10], MMD-F [110]
TX	3	13	S: SMD [31]
	(0.017)	(0.072)	H: SMD [119], MMD-P [31] (-'75); SMD [150] ('76-)
VA*	3	5	S: SMD [37], MMD-F [3]
	(0.021)	(0.036)	H: SMD [20], MMD-F [76], Flot [4]
Total	8	31	
	(0.010)	(0.038)	

SMD: Single-member district, MMD-P: Multimember district with positions, MMD-A: Multimember district (Alternating years), MMD-F: Multimember district (Free-for-all), Flot: Floterial district.

Notes: Panel (a) presents states that introduced single-member districts due to federal intervention, therefore experienced a large increase in black representation during the 1970s. States in panel (b) experienced no outside intervention. States with asterisk were covered under section 5 of the Voting Rights Act. North Carolina was partially (39 counties) covered. Number of African American state legislators is as of February 1970 and July 1981. Numbers in parenthesis are the fraction of state legislative seats (state house and senate combined) occupied by African American legislators. Numbers in brackets are the number of seats for each type of district. Number of seats is as of 1968 for LA, 1970 for AL, GA, NC, and TX, 1971 for MS, VA, 1972 for AR, SC and FL. The majority of the Florida Senate seats is chosen from MMD-A during the 1970s. TN is excluded from the analysis because it employed SMD in both chambers during the period. Sources: U.S. Commission on Civil Rights [1975], Metropolitan Applied Research Center and Voter Education Project [1970], Joint Center for Political and Economic Studies [1971, 1981], various chapters in Hardy, Heslop, and

Anderson [1981], Berry and Carsey [2004] (ICPSR Study No. 3938).

Table 3
Enrollment Weighted Means of State Aid and Total Revenue Per Pupil in Southern States by Type of Reform Status: 1972-1982

		State aid per pupil				Total revenue per pupil			
	N	1972	1982	Change		1972	1982	Change	
(a) "Reform" Southern States									
All Districts	590	1322.657	2158.723	836.066	(63%)	1939.868	2836.917	897.049	(46%)
Low Minority Enrollment Districts	62	1211.618	1856.706	645.087	(53%)	1980.454	2668.018	687.564	(35%)
High Minority Enrollment Districts	191	1404.472	2360.427	955.955	(68%)	1895.474	2965.945	1070.471	(56%)
(b) "No Reform" Southern States									
All Districts	1166	1357.878	2023.645	666.554	(49%)	2247.948	3108.661	859.037	(38%)
Low Minority Enrollment Districts	570	1212.927	1814.722	601.795	(50%)	2154.132	2876.493	722.015	(34%)
High Minority Enrollment Districts	111	1527.919	1925.882	397.963	(26%)	1881.584	2290.683	409.099	(22%)

Notes: All means are weighted by district enrollment in 1970. Total revenue per pupil is calculated as the sum of state aid and local property tax revenue divided by district enrollment and it does not include other local revenues and federal aid. All dollar amounts are in 1990 dollars. Low minority enrollment districts are defined as districts with less than 10 percent black enrollment and high minority enrollment districts are those with more than 50 percent black enrollment. Numbers in parentheses are percentage changes in the amount of state aid per pupil or total revenue per pupil between 1972 and 1982. "Reform" southern states in panel (a) are AL, GA, LA, MS, and SC. They introduced single-member districts due to federal intervention, therefore experienced a large increase in black representation (see Table 2 and text). "No Reform" southern states in panel (b) are AR, FL, NC, TX, and VA. Sources: see Data Appendix.

Table 4
Effect of Minority Representation on Levels of State Aid in Southern States: 1972-1982

Dependent variable: changes in state aid per pupil

	(1)	(2)
% Black * Reform	2.145	1.760
	(0.952)	(0.951)
% Black	3.232	2.790
	(0.703)	(0.743)
Δ % Black		7.112
		(1.643)
Δ Property Tax		-0.658
		(0.078)
Δ Median Income		-7.398
		(2.926)
Δ % Poverty		2.665
		(1.818)
Δ % Urban		-2.007
		(0.662)
Δ 12 yrs+ Schooling		3.143
		(1.643)
Δ 16 yrs+ Schooling		-13.886
		(3.010)
Δ No. of Schools		0.055
		(1.064)
Δ Enrollment		-0.001
		(0.001)
Observations	1756	1751
R-squared	0.67	0.71

Notes: Data represent elementary and secondary public school district observations in the South from 1972 and 1982 after first-difference transformation. The dependent variable is the change in the amount of state aid per pupil between 1972 and 1982. See Data Appendix for data sources. Standard errors in parentheses. All model include state fixed effects and weighted by district enrollment in 1970. *Reform* is a dummy variable that takes a value of 1 if states are "reform" southern states that experienced a large increase in black representation during the 1970s due to federal intervention. They are AL, GA, LA, MS, and SC. "No Reform" southern states are AR, FL, NC, TX, and VA (see Table 2 and text). *% Black* is the percentage of African Americans in district. *Property Tax* is the amount of per capita property tax income revenue and *Median Income* is median household income in thousands. *% Poverty* is the percentage of population living below the poverty line, *% Urban* is the percentage of population living in urban area, *% 12 yrs+ Schooling* and *% 16 yrs+ Schooling* are the percentages of adult population with at least 12 years and 16 years of education, respectively. *Enrollment* is the number of pupils enrolled in public elementary and secondary schools in the district. All dollar amounts are expressed in 1990 dollars.

Table 5
Effect of Minority Representation on Levels of State Aid in 'Reform' Southern States: 1972-1982

Dependent variable: changes in state aid per pupil

	(1)	(2)	(3)	(4)
% Black * Δ BlackRep	0.403	0.423		
	(0.112)	(0.108)		
% Poverty * Δ BlackRep			1.347	1.456
			(0.380)	(0.430)
% Black	1.602	1.293		
	(0.516)	(1.031)		
% Poverty			-4.354	-2.064
			(2.045)	(3.826)
Δ % Black		5.578		3.758
		(4.062)		(4.008)
Δ % Poverty		1.541		10.581
		(5.633)		(5.220)
Δ Property Tax		0.257		0.259
		(0.124)		(0.162)
Δ % Urban		-1.511		-1.280
		(0.985)		(0.932)
Δ Median Income		1.619		7.713
		(4.506)		(4.266)
Δ 12 yrs+ Schooling		-1.036		-2.178
		(2.176)		(1.605)
Δ 16 yrs+ Schooling		-2.604		-0.091
		(1.363)		(3.355)
Δ Enrollment		-0.009		-0.016
		(0.007)		(0.007)
Δ No. of Schools		-0.353		1.077
		(4.474)		(4.315)
Observations		590		
R-squared	0.25	0.27	0.23	0.27

Notes: Data represent elementary and secondary public school district observations in five 'reform' southern states (AL, GA, LA, MS, and SC) from 1972 and 1982 after first-difference transformation. The dependent variable is the change in the amount of state aid per pupil between 1972 and 1982. See Data Appendix for data sources. Robust standard errors in parentheses. All model include state fixed effects and weighted by district enrollment in 1970. *BlackRep* is the percentage of state legislative seats occupied by African American legislators in each state (upper and lower houses combined) and *% Black* is the percentage of African Americans in district. *Property Tax* is the amount of per capita property tax income revenue and *Median Income* is median household income in thousands. *% Poverty* is the percentage of population living below the poverty line, *% Urban* is the percentage of population living in urban area, *% 12 yrs+ Schooling* and *% 16 yrs+ Schooling* are the percentages of adult population with at least 12 years and 16 years of education, respectively. *Enrollment* is the number of pupils enrolled in public elementary and secondary schools in the district. All dollar amounts are expressed in 1990 dollars.

Table 6 Effect of Minority Representation on Levels of State Aid: 1992-1997

	Δ Total State Aid			Δ Formula Assistance		
	(1)	(2)	(3)	(4)	(5)	(6)
% Black * Δ BlackRep	0.651	–	0.292	0.656	–	0.624
	(0.066)		(0.087)	(0.058)		(0.077)
% Poverty * Δ BlackRep	–	1.445	1.425	–	0.502	0.054
		(0.176)	(0.239)		(0.156)	(0.210)
% Black	-3.750	–	-3.898	-5.042	–	-5.844
	(0.332)		(0.365)	(0.292)		(0.320)
% Poverty	–	-1.010	3.212	–	0.009	6.421
		(0.926)	(1.006)		(0.822)	(0.883)
Δ % Black	-5.208	-4.934	-2.614	-2.687	-3.495	-1.025
	(1.592)	(1.581)	(1.611)	(1.396)	(1.403)	(1.414)
Δ % Poverty	3.730	9.653	13.652	0.773	5.894	11.324
	(1.875)	(2.343)	(2.353)	(1.645)	(2.080)	(2.065)
Δ Property Tax	-0.974	-0.970	-0.958	-1.022	-1.032	-1.017
	(0.038)	(0.039)	(0.038)	(0.034)	(0.034)	(0.034)
Δ % Urban	-1.326	-0.873	-1.415	-0.672	-0.027	-0.777
	(0.347)	(0.345)	(0.346)	(0.304)	(0.306)	(0.303)
Δ Median Income	-19.561	-14.501	-13.443	-19.268	-13.631	-12.086
	(1.771)	(2.030)	(2.018)	(1.553)	(1.803)	(1.771)
Δ 12 yrs+ Schooling	-2.402	-0.857	-2.320	-3.345	-1.135	-2.868
	(1.570)	(1.567)	(1.566)	(1.377)	(1.391)	(1.374)
Δ 16 yrs+ Schooling	-8.635	-9.443	-7.870	-7.480	-8.964	-6.896
	(1.605)	(1.605)	(1.600)	(1.407)	(1.425)	(1.404)
Δ % Free Lunch	3.714	1.185	3.568	0.099	-3.209	0.235
	(0.754)	(0.729)	(0.753)	(0.662)	(0.647)	(0.661)
Δ % 65 yrs+ old	-21.552	-13.250	-17.073	-26.479	-15.833	-20.977
	(2.671)	(2.764)	(2.765)	(2.343)	(2.454)	(2.427)
Δ % Hispanic	4.780	5.319	5.395	-1.641	-1.277	-0.798
	(2.141)	(2.146)	(2.135)	(1.878)	(1.905)	(1.874)
Δ Enrollment	-0.003	-0.003	-0.003	-0.002	-0.003	-0.002
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Δ No. of Schools	1.133	0.963	0.792	0.716	0.791	0.603
	(0.448)	(0.450)	(0.448)	(0.393)	(0.400)	(0.393)
Observations	9433	9433	9433	9433	9433	9433
R-squared	0.73	0.73	0.73	0.80	0.80	0.80

Notes: Data represent elementary and secondary public school district observations from 1992-1993 and 1997-1999 after first-difference transformation.

See Data Appendix for data sources. Standard errors in parentheses. All model include state fixed effects and weighted by district enrollment in 1990. The dependent variable in columns (1)-(2) is the change in the amount of total state transfer per pupil, and the dependent variable in columns (3)-(4) is the change in the amount of general aid formula assistance per pupil. *% Black* is the percentage of African American pupils enrolled in elementary and secondary schools in the district. *BlackRep* is the percentage of state legislative seats occupied by African American legislators in each state (upper and lower houses combined). *Property Tax* is the amount of per capita property tax income revenue and *Median Income* is median household income in thousands. *% Poverty* is the percentage of population living below the poverty line, *% Urban* is the percentage of population living in urban area, *% 12 yrs+ Schooling* and *% 16 yrs+ Schooling* are the percentages of adult population with at least 12 years and 16 years of education, respectively. *% Free Lunch* is the percentage of pupils receiving free or reduced-price lunch. *% Hispanic* is the percentage of Hispanic pupils, *% 65 yrs+ old* is the percentage of population that is 65 years or older. *Enrollment* is the number of pupils enrolled in public elementary and secondary schools in the district. *% Black* and *% Poverty* variables are measured in 1990 and held constant over time. All dollar amounts are expressed in 1990 dollars.

Table 7 Effect of Mandated School Finance Reform on Funding Levels of Minority Districts: 1992-1997

	Δ Total State Aid			Δ Formula Assistance		
	(1)	(2)	(3)	(4)	(5)	(6)
(a) States where education system ruled constitutional or no litigation (N=6,027)						
% Black * Δ BlackRep	0.680	–	0.473	0.740	–	0.649
	(0.072)		(0.098)	(0.067)		(0.092)
% Poverty * Δ BlackRep	–	1.310	0.786	–	1.197	0.353
		(0.197)	(0.270)		(0.185)	(0.252)
(b) States where education system ruled unconstitutional (N=3,406)						
% Black * Δ BlackRep	0.216	–	-0.509	0.185	–	0.069
	(0.145)		(0.174)	(0.114)		(0.136)
% Poverty * Δ BlackRep	–	2.075	3.062	–	-0.567	-0.053
		(0.364)	(0.476)		(0.287)	(0.374)

Notes: Data represent elementary and secondary public school district observations from 1992-1993 and 1997-1999 after first-difference transformation. See Data Appendix for data sources. Standard errors in parentheses. All model include state fixed effects and weighted by district enrollment in 1990. The dependent variable in column (1)-(3) is the change in the amount of total state transfer per pupil, and the dependent variable in columns (4)-(6) is the change in the amount of general aid formula assistance per pupil. *BlackRep* is the percentage of state legislative seats occupied by African American legislators in each state (upper and lower houses combined). *% Black* is the percentage of African American pupils enrolled in elementary and secondary schools in the district and *% Poverty* is the percentage of population living below the poverty line. Control variables included in the estimation are: *Property Tax*, *Median Income*, *% Urban*, *% 12 yrs+ Schooling*, *% 16 yrs+ Schooling*, *% Free Lunch*, *% Hispanic*, *% 65 yrs+ old*, and *Enrollment*.

Table 8 Impact of Partisan Factors on Levels of School Funding by Litigation Status and Type of Districts: 1992-1997

	All States		Unconstitutional		Others	
	Total	Formula	Total	Formula	Total	Formula
	(1)	(2)	(3)	(4)	(5)	(6)
% Black*Δ BlackRep	0.359	0.554	0.120	0.198	0.344	0.640
	(0.087)	(0.076)	(0.167)	(0.131)	(0.104)	(0.097)
% Black*Δ Democrats	-0.179	-0.062	-0.131	-0.055	-0.140	-0.054
	(0.038)	(0.033)	(0.059)	(0.046)	(0.052)	(0.049)
R-squared	0.73	0.80	0.51	0.75	0.80	0.84
% Poverty*Δ BlackRep	1.354	0.679	2.289	0.209	0.939	1.037
	(0.222)	(0.197)	(0.412)	(0.330)	(0.271)	(0.254)
% Poverty*Δ Democrats	0.065	-0.087	0.723	0.726	-0.326	-0.275
	(0.099)	(0.088)	(0.150)	(0.120)	(0.139)	(0.130)
R-squared	0.73	0.80	0.54	0.75	0.79	0.83
Observations	9433		3406		6027	

Notes: Data represent elementary and secondary public school district observations from 1992-1993 and 1997-1999 after first-difference transformation. See Data Appendix for data sources. Standard errors in parentheses. All model include state fixed effects and weighted by district enrollment in 1990. The dependent variable in columns (1), (3), and (5) is the change in the amount of total state transfer per pupil, and the dependent variable in columns (2), (4), and (6) is the change in the amount of general aid formula assistance per pupil. *BlackRep* and *Democrats* are the percentages of state legislative seats occupied by African American legislators and Democrats in each state (upper and lower houses combined). Control variables included in the estimation are: an indicator variable Δ *Dem. Governor* that takes a value of 1 if the state has a Democratic governor in both periods, -1 if a Republican governor in both periods, and 0 if there is a switch in the party affiliation of governor. *Property Tax*, *Median Income*, *% Urban*, *% 12 yrs+ Schooling*, *% 16 yrs+ Schooling*, % Free Lunch, *% Hispanic*, *% 65 yrs+ old*, and *Enrollment*.

Data Appendix

This Appendix provides additional information on the data set and variables used in this study. In compiling the data set, Harris [1999] was a particularly useful resource as well as Appendix in Murray, Evans, and Schwab [1998]. In addition, William Evans and Sean Corcoran provided me with valuable advice on data construction.

The Amount of Total State Aid

The Censuses of Governments in 1972 and 1982 do not report district-level financial data for districts in Maryland, Montana, North Carolina, Rhode Island, and Virginia. Financial data for Montana districts are aggregated up to the state level, therefore I did not include Montana in the 1970-1980 data set. There was no black state legislators in Montana during the period. Financial data in three others states are not reported in the Censuses of Governments because school districts in these states are dependent districts. Dependent school districts are districts that do not raise revenues by themselves, but instead rely on a county or municipal government for their financial resources. In order to supplement their financial data, I use *Elementary And Secondary General Information System (ELSEGIS): Survey Of Local Government Finances - School Systems, 1973-1974* and *Elementary and Secondary General Information System, Survey of School District Finances 1979-1980* for the four states.

Median Household Income

Starting from the 1980 Census, the Census bureau reports median household income in each school district. However, the 1970 Census only contains tabulations of fifteen income groups along with the count of families and unrelated individuals for each school district. The lowest income category is the income of less than 1,000 dollars, and the highest category is the income of more than 50,000 dollars. In order to estimate household median income of the district, I find the median income *group* for each district and report the income level of the median income group, assuming that the distribution of income within the category is uniform. Dropping the median household income variable from the regression does not change any substantive results reported in Table 4.

Table A-1: Definition of Variables and Data Sources

Variable Names	Definition	1970-1972	1980-1982	1990s	2000
School District, Financial					
Total State Transfer	Intergovernmental transfer from state gov., total amount (per pupil)	COG72, ELSE73	COG82, ELSE79	F-33	F-33
General Aid Formula Assistance	Intergovernmental transfer from state gov., general aid formula (per pupil)	–	–	F-33	F-33
Property Tax	Property tax revenue per capita	COG72, ELSE73	COG82, ELSE79	F-33	F-33
School District, Nonfinancial					
Enrollment	District Enrollment (K-12)	Cen70, NIE, ELSE72	COG82	CCD	STP2, CCD
No. of Schools	Number of schools in school district (K-12)	ELSE72	Cen80	CCD	STP2
% Black	% of black pupils enrolled in public K-12 schools	NIE	–	CCD	STP2
% Hispanic	% of Hispanic pupils enrolled in public K-12 schools	–	–		
% Free Lunch	% of pupils receiving free or reduced-price lunch	–	–	CCD	STP2
–	Location of school district (county, metro status)	–	ELSE79	SDDB	STP2
–	Type of school district (operation code)	ELSE72	Cen80	SDDB	STP2
–	Grade span	ELSE72	ELSE79	SDDB	STP2
School District, Demographics					
–	Population in school district	Cen70	Cen80	SDDB	STP2
% Poverty	% of pop. in poverty	Cen70, ELSE	Cen80	SDDB	STP2
% Urban	% of pop. living in urban area	Cen70, ELSE	Cen80	SDDB	STP2
Median Income	Household Median Income in thousands	Cen70	Cen80	SDDB	STP2
12 yrs+ Schooling	% of pop. with more than 12 years of schooling	Cen70, ELSE	Cen80	SDDB	STP2
16 yrs+ Schooling	% of pop. with more than 16 years of schooling	Cen70, ELSE	Cen80	SDDB	STP2
% 65 yrs+ old	% of pop. that is over 65 years of age	–	–	SDDB	STP2
Legislative Information					
BlackRep	% of state legislative seats occupied by black legislators	Roster	Roster	Roster	Roster
% Dem	% of state legislative seats occupied by Democrats	–	–	ICPSR	ICPSR
GovDem	Dummy variable for Democratic governor	–	–	ICPSR	ICPSR

CCD: Common Core of Data, Local Education Agency (School District), 1986-1997 and 1986-1998
Cen70: Census of Population and Housing 1970, Fifth-Count Tallies: Sample Data for School Districts
Cen80: Census of Population and Housing 1980, Summary Tape File 3F, School Districts
COG72: Census of Governments 1972, Government Employment and Finance Files
COG82: Census of Governments 1982, Finance Summary Statistics

ELSE72: Elementary and Secondary General Information System, Public School District Universe Data 1972-1973
ELSE73: Elementary And Secondary General Information System (ELSEGIS): Survey Of Local Government Finances – School Systems, 1973-1974
ELSE76: Elementary and Secondary General Information System, Merged Federal File, 1976-1977
ELSE79: Elementary and Secondary General Information System, Survey of School District Finances 1979-1980
F-33: Public Elementary-Secondary Education Finance Data (F-33)
NIE: National Institute of Education, Special Tabulations and 1970 Census Fifth Count Data File
Roster: Black Elected Officials, A National Roster, various years
SDDB: School District Data Book 1990
STP2: Census 2000 School District Tabulation Data

Chapter 3
The Impact of Race and Ideology on Voting: Does Race Still Matter?

1. Introduction

After years of advancement towards an egalitarian ideal, race still remains a relevant factor in U.S. electoral politics. African-Americans are so seldom elected to the Senate that Barack Obama's election to the Senate generated national attention in 2004. In spite of dramatic improvements over the years, underrepresentation of African-Americans in Congress and in state legislatures across the country remains a fact.[1] Though the continuing role of race in shaping the contours of elections is unambiguous, it is unclear whether we should ascribe the low level of black office-holding to discriminatory racial attitudes or to institutional factors. Arguably, race still provides a strong cue to voters, and it is probably the most controversial of all the informational cues that voters might employ – party label, incumbency status, gender, and race/ethnicity. It is controversial in that it carries the least neutral information; the racial cue, especially for minority candidates, is often claimed to contain negative information and to arouse stereotypes among non-minority voters. Some experimental as well as some empirical studies suggest, albeit with mixed-evidence, that white voters associate black candidates with a less-favorable image (see, e.g. Terkildsen [1993], Sigelman, et. al. [1995], Reeves [1997], McDermott [1998]). Beyond just invoking a negative image, the racial cue can also shape the *behavior* of white voters. Some authors claim that candidate race negatively influences the voting behavior of white voters (Swain [1993], Voss and Lublin [2001]; but also see Citrin, Green and Sears [1990] and Highton [2004]) or that they participate more when minority candidates are on the ballot in order to ensure the victory of white candidates (Washington [2006]).

[1] According to the 2000 Census, African Americans constitute 12.3 percent of the entire U.S. population. As of 2002, there were 37 African American members serving in the U.S. House. Before the election of Barack Obama to the U.S. Senate, there were only two popularly elected African American Senators (Edward William Brooke III (MA, served 1967-1979) and Carol Moseley-Braun (IL, 1993-1999)). In state legislatures, 442 and 142 African Americans are serving in state houses and senates, respectively (accounting for 8.1% and 7.2% of the total membership)(Bositis 2003).

Another side of the story is the role of the racial cue for minority voters. Here race again emerges as a much stronger cue, as if encompassing almost all of what voters need to know. Scholars as well as voting rights activists have long assumed that minority voters prefer to vote for minority candidates. In this case, minority candidates are often treated as a group whom minorities will support regardless of the candidates' other characteristics, such as ideology or experience. This presumption has played a dominant role in a series of legal protection court cases for minorities which sought to protect their right to vote for "candidates of their choice", ultimately providing the rationale for creating majority-minority districts. Thus, the racial cue has been assumed to bear special significance and to provide sufficient information for minority voters. Taking this assumption as given, the past voting literature has examined whether the presence of minority candidates enhances participation among minority voters (e.g., Gay [2001], Washington [2006], Barreto, Segura, and Woods [2004]).

Taken together, this scholarship seems to suggest that race-based voting is still prevalent in the United States. Apparently, candidates' race provides a strong cue in biracial elections, for both minority groups and the majority group. A simple historical fact – namely, that very few black candidates have been elected from majority-white districts (see, e.g. Lublin [1997]) – as well as empirical evidence of the continued existence of racial bloc voting (i.e. white voters and minority voters support different candidates) (e.g. Handley, Grofman, and Arden [1994]) also lend support to the above claim.[2]

However, a question remains: to what extent are racially polarized election outcomes caused exclusively by race? When race and ideology are highly correlated, as is the case in the United States, it is hard to differentiate between the impact of race and the impact of ideology in voting decisions. In other words, if voters and candidates of the same racial group tend to share similar ideological positions, we cannot easily distinguish whether ideology or race is causing racially-distinct voting behavior. Voters of a particular race may support their own-race candidates because of the shared ideological positions or because of their

[2]Note, however, the evidence of racial bloc voting is typically based on aggregate-level data, as opposed to the individual-level data.

racial attitudes against candidates of other races. But without detailed information on the ideological positions of both voters and candidates, disentangling the two factors can prove to be nearly impossible. Faced with such difficulty, past research has largely attributed observed racially-distinct voting patterns to racial factors alone.[3]

But suppose that we know the precise ideological positions of candidates, and we then take a black candidate with a particular ideological position and replace him with a white candidate, giving the latter the exact same ideological position as the former. Also suppose that we leave everything else intact and let him run against the same candidate whom the black candidate was originally pitted against. In other words, what would happen if we could manipulate only the race of candidates while keeping other factors unchanged? Compared to the black candidate, does the white candidate receive more votes from white voters and at the same time lose black votes *just because* he is white? If yes, race clearly matters. If not, ideological considerations are likely to be causing the racially-district voting patterns.

This type of exercise allows us to determine whether race actually shapes voters' behavior, which is, in essence, what I attempt to do in this paper. Using a unique data set that contains information on candidates' ideological positions coupled with extensive individual voting data, I examine whether race matters even after controlling for the effects of ideology. Moreover, I ask in this paper *under what conditions* race matters. According to the spatial model of voting, in which ideological positions of candidates determine vote choice, other factors such as race, should only be relevant when two candidates are similar in their issue positions. The goal of this paper is to identify the relative importance of race and ideology as well as to examine when race exerts a more prominent influence on vote decisions.

To answer these questions, I merge exit poll data from the 1996 and 1998 House elections with a data set containing information on the ideological positions of House candidates. The candidate positioning data set was developed by Ansolabehere, Snyder, and Stewart

[3]A notable exception is Abrajano, Nagler, and Alvarez [2005]. The authors estimate the impact of candidates' ethnicity on voter's voting decisions separately from that of candidates' ideology. However, their focus is on Latino candidates.

([2001a], [2001b]). The authors estimate the policy preferences of congressional candidates using responses to surveys conducted by Project Vote Smart, in which candidates answered a vast array of policy-related questions for the purpose of educating voters. The advantage of their data set lies in its abundant information on non-incumbents. While roll-call records are readily available to measure policy preferences of incumbents, such records are simply not available for those who have never been elected to Congress. As for voters, the number of observations in the two exit polls exceeds 27,000 in total, thus providing us with a large amount of information on their voting behavior.

The identification strategy in this paper is simple. I first select House districts whose candidates had certain ideological positions. For example, I select districts that had contests between an extremely liberal Democratic candidate and a moderately conservative Republican candidate. In these districts, all Democratic candidates had extremely liberal positions and Republican candidates were all moderate. Thus, I have a collection of pairs of an extremely liberal Democrat and a moderate Republican. Among those, some of the Democrat-Republican pairs would consist of two white candidates, and others would be pairs of a black Democratic candidate and a white Republican candidate. I will then make a comparison *across* pairs of different race combination. More specifically, I compare the likelihood of voters casting their votes on the Democratic candidate when (1) candidates are both white and (2) when the Democratic candidate is black.[4] Because the candidates of each party took very similar ideological positions in the sub-sample, the main difference between the two cases is candidate race. If I observe distinct voting patterns across these two types of contests, it suggests that voters change their voting behavior depending on candidate race.[5] The actual method of comparison is described in more detail below.

The main findings in this paper are summarized as follows. First, when candidate ideology is controlled for, there does not seem to be negative reactions against black candidates among white voters. In other words, I find no evidence that white voters are less likely to

[4]Obviously, there are other candidate race combinations, but these two case are the most numerous, as shown below.

[5]At the same time, I control for other factors that can affect voting decisions, such as incumbency status and party identification of voters.

vote for the Democratic candidate just because the candidate is black. The only exception is when white *independent* voters are deciding between a white Republican candidate and a black Democratic candidate *and* when the ideological distance between two candidates is close. In this case, white independent voters are less likely to vote for the Democratic candidate compared to when they are deciding between two white candidates. This suggests that when the party-cue is present, the race cue is largely irrelevant for white voters. Second, the estimated probability of black voters voting for a black Democratic candidate is significantly higher than their probability of voting for a white Democratic candidate who has a similar ideological position as the black Democratic candidate.

The remainder of the paper is organized as follows. The next section describes the data for this study. Section 3 explains research design and specifications. Section 4 presents estimation results and checks the robustness of the main results. The final section offers discussions and concluding remarks.

2. The Data

I merge three sets of data to create the data set for this study: data on candidates' ideological positions, exit polls, and data on the race of candidates. I will explain the details of each of the data sets in this section and provide some descriptive statistics of the sample. The units of analysis are individual voters and the data set covers the House elections of 1996 and 1998.

The candidate positioning data were developed by Ansolabehere, Snyder, and Stewart [2001a, 2001b] and they contain estimated policy positions of House candidates in the elections of 1996 and 1998. The estimation of candidate positions is based on two series of National Political Awareness Test (NPAT) surveys by Project Vote Smart conducted before the general elections in 1996 and 1998. Project Vote Smart asked all congressional candidates more than 200 questions on a wide range of policy areas, ranging from economic issues to social issues such as abortion. Based on their responses to the survey questions, Ansolabehere, *et. al.* constructed measures of their ideological positions using principal

components factor analysis. Ansolabehere, Snyder, and Stewart [2001b] provides a detailed description of the method. The first dimension of the scores (hereafter the NPAT score) corresponds to the 'left-right' ideology and the score is normalized so that it ranges from 0 (most liberal) to 1 (most conservative). The distribution of the NPAT scores across different type of candidates is analyzed below.

The overall response rate for both years was 57 percent. The response rate did not seem to vary across ideological positions of candidates and there was no systematic partisan difference in terms of the response rate. The response rate dropped in 1998 and particularly those who returned the survey in 1996 were less likely to answer the survey in 1998. In this paper, in order to increase the sample size, if the score of a candidate is missing in 1998, I use his or her score in 1996 for 1998. Since candidates' ideological positions remain quite stable over time (the correlation coefficient between the scores in 1996 and 1998 is 0.97), this procedure should be fairly innocuous. In addition, when incumbents failed to respond to the survey, the ideological position of the candidate is imputed by their roll-call votes. The validity of this procedure is discussed in Ansolabehere, *et. al.* [2001a, 2001b].

For the voter side, I use the 1996 and 1998 Voter News Service exit poll data.[6] The data cover 42 states and contain more than 27,000 voters in the sample over the two years. Sampling was done at the precinct level, and the weights are always used in the subsequent analysis. In addition to the question on how respondents voted in House elections, the exit poll data contain information on voters, such as their age, race, educational level, income, party identification, and ideology.

The exit poll data in each year were merged with the NPAT data by Congressional district information. The number of districts originally included in the exit poll data is 228 in 1996 and 184 in 1998. Of those, unopposed races are excluded from the analysis. In addition, cases that involved more than two candidates, those that included a third party candidate, and those in which candidates from the same party ran against each other are omitted. Finally, due to insufficient observations, districts with Hispanic candidates are

[6]There are two types of exit polls: national and state-by-state. Because state-by-state exit polls do not contain the House vote question, only the national data files are used.

also excluded from the analysis.[7] In the end, 152 districts in 1996 and 92 districts in 1998 have complete NPAT scores for both candidates.

As a final step, the information on the candidates' race is added to the merged data set.[8] The final sample with all the necessary information contains 16,383 voters and 244 Congressional districts for the 1996-1998 period. The number of voters in each district ranges from 22 to 211 and the average number of voters is 82.54.

Table 1 reports the distribution of NPAT scores by party. Aside from a clear pattern of nonconvergence in policy positions between the two parties, the table also shows a large variation in the scores across different racial groups of candidates, especially among Democrats. Compared to white Democratic candidates whose average score is 0.298, black Democratic candidates are much more liberal on average with the score of 0.147. This pattern also holds true among Republican candidates, with white Republican candidates locate themselves to more conservative positions that black candidates do.[9]

Table 2 shows different types of contests (categorized by candidate race) and reports the average NPAT scores for each type. When we focus on two major racial groups (white and black), there are four types of contests: (a) white Democrat against white Republican, (b) black Democrat against white Republican, (c) white Democrat against black Republican, (d) black Democrat against black Republican. Of those, type (a) is obviously the most numerous with 207 cases (counting only pairs with NPAT scores). There are 13 cases of a black Democratic candidate running against a white Republican candidate (type (b)). Compared to type (a), voters are presented with much more liberal Democratic candidates and slightly more conservative white Republican candidates in type (b) contests. The analysis below mainly focuses on comparing case (a) and case (b) to see if distinct voting

[7]There are only six Democratic and three Republican Hispanic candidates with complete NPAT data for both candidates.

[8]Ebonya Washington graciously provided me with the data.

[9]Because the VNS exit polls do not cover all Congressional districts, I cannot incorporate some candidates who answered the survey in the analysis. To check the representativeness of the sample, Table A-1 in Appendix compares the distribution of NPAT scores of all candidates who answered the survey and that of the subsample included in the study. The top panel reports the NPAT scores for all candidates who answered the survey and the bottom panel presents the NPAT scores of candidates included in this study. Comparing across the two panels, we see that the sub-sample is representative in terms of both racial compositions and the distribution of ideological positions.

patterns emerge across these two cases.[10]

Before analyzing how voters chose between candidates in different types of contests, I first present basic descriptive statistics on voters in Tables 3 and 4. Table 3 reports the distribution of party identification and voter ideology for each racial/ethnic group. The numbers in each row represent proportions for a particular group. According to the top panel, the vast majority of black voters lean Democratic: 73 percent of black voters call themselves Democrats. However, there are still sizable populations of black voters who are Republican (9.7 percent), which amount to roughly 300 voters in the sample. Among white voters, there are slightly more Republicans (38.9 percent) than Democrats (33 percent).[11]

In terms of voter ideology, a large proportion of voters call themselves moderate (with nearly 50 percent) across all racial/ethnic groups. Again, black voters are more likely to be liberal than white voters, but it is worth pointing out that the size of conservative black voters is quite large (19.5 percent). This means nearly 570 voters classified themselves as conservatives. The discrepancy between the proportion of Republican black voters and conservative black voters indicates that conservative black voters do not necessarily support the Republican party. This is quite in contrast with white Republican/conservative voters, whose party identification and ideological stances match quite tightly.

Table 4 reports the fraction of voters who voted for the Democratic candidate for each racial/ethnic group, broken down by their party identification and ideology. Among white voters, party identification is highly correlated with their vote choice. 84 percent of white

[10]There are not many cases in which a Republican black candidate ran against a white Democratic candidate (case (c) in Table 2, N=6), but it seems that white Democratic candidates take slightly more liberal positions when faced with black Republican candidates compared to when they are running against white Republicans. At the same time, black Republican candidates are on average more liberal than their white counterparts. The last type of contest involves black Democratic candidates against black Republicans (type (d)). Again, there are not many pairs in this category with complete data (N=9), but the nine pairs show a distinct ideological pattern compared to the pairs in other types of contests. Black Republican candidates located themselves closer to the ideological center with the average score of 0.569 than black Republican candidates did who were paired with white Democrats (type (c)). Black Democratic candidates in this group are much more liberal (0.107) than black Democrats who run against white Republicans. Although the number of voters who had case (c) or (d) contests are too few to allow me to conduct detailed individual-level analysis, I present some aggregate-level statistics to see if the patterns of voting and participation vary depending on candidate race.

[11]Hispanic voters are included in Table 3 and Table 4 for illustrative purposes, but they are not included in the main analysis.

Democrats voted for Democratic candidates while only 9 percent of white Republicans voted for Democratic candidates. The denominator used for calculating the fractions is the total number of voters who voted either for the Democratic or Republican candidate, therefore 0.093 in Column (1) of the table means 9 percent of white Republicans actually voted for Democratic candidates. White independent voters in the sample are slightly more likely to vote for Republican candidates with only 45 percent of them supporting Democratic candidates. The same pattern also holds for the relationship between ideology and vote choice among white voters. Liberal white voters are more likely to support Democratic candidates (80 percent) while conservatives are not (15.5 percent). As for black voters, however, a completely different picture emerges. Not only black independent and Democratic voters predominantly supported Democratic candidates, but almost 24 percent of black Republicans voted for them. The rate of cross-party voting is much higher than that of white Republican voters (9 percent) and slightly higher than that of Hispanic Republican voters (22.3 percent). Moreover, approximately 67 percent of black conservative voters voted for Democratic candidates.

To provide an initial look at the impact of candidate race on voting, Table 5 compares the voting patterns of white and black voters across different types of contests, categorized by candidate race. As in Table 4, this table shows the fraction of voters who voted for the Democratic candidate among those who voted either for the Republican or Democratic candidate. Column (1) reports the fraction of voters voted for the Democratic candidate when both candidates are white, and column (2) reports the fraction when a black Democratic candidate is running against a white Republican candidate. There are thirteen contests between a black Democrat and a white Republican (see Table 2) and 388 white voters and 418 black voters cast their ballots in these races. If voting along racial line is prominent, we should see distinct voting patterns across columns (1) and (2). Particularly, we should see white voters vote less for the Democratic candidate when the Democratic candidate is black (therefore smaller fractions in column (2) than in column (1)). The reverse should be true for black voters.

Two points are noticeable from the table. First, there does not seem to be much race-based voting among white voters with party affiliation, but candidate race seems to influence white independent voters. On average, the percentage of white Democratic voters who voted for the Democratic candidate (i.e. cross-party voting) remained almost the same regardless of whether they had a white Democratic candidate or a black Democratic candidate running against a white Republican candidate. Similarly, the defection rate for white Republican voters is not much greater when two white candidates are running (9.3 percent) compared to when the black Democratic candidate is running against a white Republican candidate (8.3 percent). In fact, the fraction of white Democratic voters who supported a black Democratic candidate (90.2 percent) is greater than the fraction of those who voted for a white Democratic candidate (84.3 percent), but this probably reflects underlying district characteristics, particularly the fact that the districts with black candidates vote more Democratic compared to districts with no black candidates. I will address this point later in the paper.

On the other hand, white independent voters exhibit different voting patterns depending on candidate race. Comparing columns (1) and (2) of the top panel, white independent voters are less likely to vote for the Democratic candidate when they are presented with a black Democratic candidate (34.2 percent) as compared to when they are deciding between two white candidates (45.7 percent). The difference between columns (1) and (2) is 11.5 percentage points, indicating that white independent voters are much less likely to vote for the Democratic party when a black candidate is running from the party, compared to when a white candidate is on the ballot. However, without information on candidate ideology, it is hard to tell whether we should attribute such voting patterns to their discriminatory attitude against black candidates. Because black Democratic candidates typically take liberal positions (see Table 1 and 2), it could well be that they are simply too liberal for some white independent voters.

The second main point is that black voters are more likely to defect from their party when a candidate of their race is running from the party that they normally do not support.

According to the bottom panel of Table 5, black Republicans are more likely to cross party lines and vote along racial lines when they are presented with a black Democratic candidate (a defection rate of 59.6 percent). By contrast, when they are to choose from two white candidates – when there is no issue of candidate race – black Republicans are more likely to support a candidate of their party with much smaller defection rate of 21.0 percent.

3. Research Design and Specifications

Descriptive statistics in the previous section suggests that candidate race influences vote decisions of some voters. However, voters do not make decisions based on candidates race alone. Other factors, such as incumbency status of candidates and voter characteristics are also prominent determinants of vote choice. In this section, I control for these confounding factors and estimate a more complete model of voting behavior.

As noted at the outset, the fundamental difficulty in detecting race-based voting lies in a high degree of correlation between race and ideology. In order to abstract from the effects of ideology on voting, I explicitly control for candidate positioning and test if distinct voting patterns emerge when an election involve a black candidate. More specifically, I restrict candidate positions to have certain configurations (for example, a liberal Democrat and a moderate Republican) and then compare across districts with different candidate race combinations.

Given that most of the black candidates take relatively liberal positions compared to other Democratic candidates, I limit the analysis only to the pairs that contain a Democratic candidate with a relatively liberal policy position.[12] More specifically, the subsample includes Democratic candidates whose NPAT scores are less than the 40th percentile of the

[12]Out of the thirteen black Democratic candidates in the sample who ran against white Republican candidates, two candidates are excluded from the analysis. They are Carrie Jean Dillard-Trammell who ran in Indiana 6th district (1996) and Charles W. Sanders in Ohio 2nd district (1998). They were both challengers. The two candidates are distinct from other eleven candidates for their relatively moderate positions (their NPAT scores are 0.443 and 0.469, respectively). While this itself does not constitute a reason to exclude them, I conclude that they do not deserve a separate analysis, because their vote shares in the general elections were low (Dillard's vote share was 23.6 percent and that of Sanders was 24.2 percent) and also because the amount of their campaign spending was 2.3 percent and 2.5 percent of that of their opponents, respectively, suggesting that the two candidates were weak or 'token' candidates.

distribution of the Democratic NPAT scores.[13] There are seventy white candidates and eleven black Democratic candidates that satisfy this condition. The mean of the NPAT scores in this subsample is 0.159 for white Democratic candidates and 0.124 for black Democratic candidates.

Depending on the positions of Republican candidates running against these liberal Democratic candidates, there are three types of contests. The first possibility is a contest between a liberal Democratic candidate and a Republican candidate who has an "average" ideological position relative to other Republican candidates. I call this type of contest "Case 1". Republican candidates are said to have "average" positions when their NPAT scores lie between the 40th percentile and the 70th percentile of the Republican NPAT score distribution. The second case ("Case 2") is a contest in which a liberal Democratic candidate is pitted against a conservative Republican candidate. In this case, Republican candidates have NPAT scores of greater than the 80th percentile of the distribution.[14] Finally, the "Case 3" is defined as a case where a moderate Republican candidate is running against a liberal Democratic candidate. In Case 3, the ideological positions of Republican candidates are less than 40th percentile of the distribution.

Table 6 shows the average NPAT scores for each of the three cases. In Case 1, the average NPAT score of Republican candidates is around 0.76. In Case 2, in which Republican candidates are conservative, the average score is closer to 0.9, whereas in Case 3, the average score of Republican candidates is around 0.5-0.6.[15] Figure 1 graphically shows average scores in each of the three cases. For each panel, the comparison will be across the top part (*black D*) and the bottom part (*both white*).

[13]The distribution of the NPAT scores is not defined for the entire pool of candidates, but is defined for each party.

[14]Recall that the NPAT score closer to 1 means more conservative policy positions.

[15]In Case 1 (average R) and Case 3 (moderate R), the average scores of white Democratic candidates and black Democratic slightly differ. In order to make sure that the discrepancies in the NPAT scores between them do not bias my results, I also further restrict the ideological scores of white Democratic candidates in Case 1 and Case 3 so that they have almost identical NPAT scores to those of black Democratic candidates. Table A-3 in Appendix shows the average scores of the Democratic candidates when the NPAT scores of white Democratic candidates are more restricted. After the restriction, the average scores of white and black Democratic candidates are almost equivalent. The substantive results remain the same when I estimate the model for the restricted subset (Case 1(b) and Case 3(b) in Table A-3), therefore in the next section I only present estimation results when the ideological scores are not restricted further.

The specification is as follows. The dependent variable is a dummy variable that takes 1 if a voter voted for the Democratic House candidate and 0 if she voted for the Republican candidate. Those who did not participate in the House elections are not included in the analysis. The main independent variable of interest is a candidate race dummy variable interacted with voter race. If the usual story of racial bloc voting is true, then the probability that black voters support the Democratic candidate should increase if a black Democratic candidate runs against a white Republican candidate, compared to when two white candidates are running. This should hold even after controlling for other factors that may affect their vote decisions. For white voters, if they engage in race-based voting, other things being equal, the probability of their supporting the Democratic candidate should go down if a black Democratic candidate is running against a white Republican candidate, compared to when two white candidates are on the ballot.

To capture these dynamics, the model includes two discrete variables and the interaction term of the two. The first one is a variable that takes 1 if the Democratic candidate is black, 0 if white, and -1 if the Republican candidate is black (*Black Candidate*). In the three cases that I analyze, black Republican candidates only appear in Case 3, in which the Republican candidate takes a moderate position. I also include a dummy variable (*Black Voter*) that equals 1 if a voter is black. Finally, I interact these two variables to create a *Black Voter * Black Candidate* variable. I exclude voters other than white and black voters from the analysis. Thus, the baseline in this model is the vote choice of white voters with no black candidate. The *Black Voter* variable measures whether black voters are likely to vote for the Democratic candidate when they have two white candidates. The *Black Candidate* terms captures whether white voters would vote differently when they are presented with a black candidate. The coefficient on the interaction term estimates whether black voters are more likely to vote for the Democratic candidate if the candidate is black.

To control for the effects of other factors, I include the following standard control variables: party identification, age, income level, gender, and ideology of voters, and the incumbency status of candidates and a variable that measures quality of challengers. The *Income*

variable takes four values and higher values mean higher income level. The *Age* variable equals 1 if a voter is 65 years or older. Ideally, one should control for voters' educational level, but because of the large number of non-reporting, I decide to drop the variable. To make sure that the decision to omit the educational level variable is not biasing my results, I also estimate the model for a subset of voters with education level information. The substantive results remain the same. The *Incumbent* variable is 1 if the Democratic candidate is an incumbent, 0 if no incumbent is running, -1 if the Republican candidate is an incumbent. The *Party Identification* variable takes 1 if a voter is a Democrat, -1 if Republican, 0 if "independent" or "something else". Similarly, the *Liberal* variable is 1 if a voter is liberal, 0 if moderate, -1 if conservative. I also include a dummy variable for the South to capture potentially different voting patterns across regions. Finally, the *Non-Incumbent Candidate Quality* variable takes a value of 1 if the Democratic challenger has previously held a public political office. It also equals 1 in an open election in which Democratic candidate held a public political office, but the Republican candidate did not. The variable equals -1 in an opposite case. The variable equals zero in any other cases.

4. Results

4.1. Basic Results

Table 7 reports the baseline probit estimation results of the model. I estimate the model for each of the three cases described above. Recall that all the Democratic candidates (both white and black) in the subsample take more liberal positions than the typical Democratic candidate. Columns (1)-(2) report estimation results in cases where Republican candidates take "average" positions, in column (3)-(4), the positions of Republican candidates are conservative, in columns (5)-(6), Republican candidates are relatively "moderate".

For each case, I first estimate a simple model only with the *Black Candidate* dummy, the *Black Voter* dummy, and the interaction term of the two. The estimation results of this simple model are reported in columns (1), (3), and (5). Then I estimate a more complete model with a set of control variables. The results with control variables are shown in

columns (2), (4), and (6). The number of voters included in the estimation ranges from around 1,200 to 1,800.

In case (1), where the Republican candidate takes an "average" position (with the mean position of around 0.75), the estimated coefficients on the *Black Candidate* dummy is negative and statistically significantly different from zero in both columns (1) (without controls) and (2) (with controls). This suggests that white voters are less likely to vote for the Democratic candidate if the candidate is black compared to when the candidate is white. Note that in this subsample, the Republican candidate is always white. The positive coefficient on the *Black Voter* variable implies that black voters are more likely to vote for Democratic candidates regardless of their race. They are even more likely to support the Democratic party if a black candidate is running from the party, as indicated by the positive coefficients on the *Black Voter*Black Candidate* term.

When the Republican candidate is conservative (Case 2), therefore the distance between the Democratic and Republican candidates is large, then candidate race does not seem to affect the vote choice of white voters. In both columns (3) and (4), the coefficients on the *Black Candidate* variable is negative, but statistically indistinguishable from zero. This suggests, for example, that if the Republican candidate is too conservative, Democratic voters would not substitute for the Republican candidate anyway *even if* they are averse to a black Democratic candidate.[16] Therefore, when substitution between two candidates is unlikely because of their ideological distance, the role of candidate race diminishes. This point is addressed again later in the section when I estimate the model separately for each party ID.

Finally, when the Republican candidate takes a relatively moderate position (Case 3), the coefficients on the *Black Candidate* term is positive in columns (5)-(6), suggesting that the probability of white voters supporting a black Democratic candidate is estimated to be higher than their probability of voting for a white Democratic candidate who is running against a moderate Republican.

[16]However, one possibility that they do not participate in the House elections when a black candidate is a nominee of the party that they normally support. This possibility is checked in the subsequent section.

This result is possibly due to two factors. The first factor is the nature of white Democratic candidates in this group. Among white Democratic candidates in Case 3 (N=22), 17 of them are challengers and only five ran as incumbents.[17] Of the seventeen challengers, only eight held public political offices in the past and consequently, the average vote share of the fifteen white Democratic challengers who lost to incumbents was 0.372. By contrast, black Democratic candidates in this group are comprised of one incumbent and two open-seat candidates (both of them classified as candidates of "quality"). The vote share of the two open-seat candidates was 0.541 (Julia Carson, see Appendix A-2) and 0.828 (Barbara Lee). Although I control for incumbency status and candidate quality in the model, it is possible that other types of candidate quality that are not captured by these variables are biasing the results.

The second factor is the characteristics of congressional districts. According to Table A-4 in Appendix, districts with black candidates in Case 3 are heavily Democratic and completely urban (the districts are 100 percent urban), whereas districts with two white candidates are 80 percent urban, and leaning less Democratic. Therefore, the districts with black candidates are more likely to vote for Democratic candidates to begin with. Note that this observation on district characteristics holds also true for Case 1, therefore negative coefficients on the *Black Candidate* terms are likely to be underestimated, suggesting that the underlying coefficients could even be more negative.

The previous specification assumes that voters react to candidate race in the same way regardless of their partisanship. However, one would expect that candidate race matters less when voters have party affiliation, therefore when the party cue has a strong meaning to them. To detect different voting patters across different partisan groups, I estimate the same model separately for Democratic voters, Republican voters, and independent voters. As in Table 7, I estimate the model for each of the three cases, but separately for white and black voters. The basic specification remains the same as in Table 7, but because I estimate

[17]In Case 1, among 28 white Democratic candidates, 12 of them were incumbents, 15 of them were challengers and one was in an open-seat race. Four of the black Democratic candidates in this group were incumbents and the rest was an open-seat candidate.

the model separately for each racial group, the *Black Voter* term and the interaction term are dropped from the model.[18]

Table 8 presents estimation results for white voters. The control variables are included in all specifications, but not reported. The top row in Table 8 reports estimated coefficients on the *Black Candidate* dummy in Case 1, in which white Republican candidates with average issue positions run against liberal Democratic candidates. These coefficients reveal the source of the negative reaction against black candidates found in Table 7. The estimated coefficients are negative and statistically different from zero for white independent and Republican voters (the coefficient for Democratic voters is also negative, but statistically indistinguishable from zero). In particular, this suggests that racial factors negatively influence the voting decisions of white independent voters. The estimation result is consistent with the descriptive statistics in Table 5, in which I find that white independent voters are much less likely to vote for a black Democratic candidate than for a white Democratic candidate. However, the negative attitude towards black Democratic candidates by white independent voters can only be found in Case 1. In Case 2, in which Republican candidates are conservative, candidate race is largely irrelevant for white independent voters. In Case 3, white voters in all three groups exhibit positive reactions to black Democratic candidates. Again, this could be due to the factors that are not captured in the model.

Next, I estimate the equivalent model for black voters. In this set of analyses, I am particularly interested in finding out whether black Republican voters are more likely to cross party lines when they are presented with a white Republican candidate and a black Democratic candidate. As in Table 8, estimated coefficients on the *Black Candidate* dummy are reported in Table 9. Because the number of black voters is relatively small, I estimate the model by grouping all three cases into one, instead of estimating it for each of the three cases. Therefore, in Table 9, the ideological positions of Republican candidates are not restricted. In addition, I estimate the model for two sets of samples. In the first set (reported in the first row of Table 9), the ideological positions of Democratic candidates are

[18]In addition, the *Party ID* variable in the model is dropped.

not restricted, therefore the sample includes two relatively conservative black Democratic candidates who are excluded from the previous analysis (see Footnote 10). In the second set (the second row), Democratic candidates are restricted to have "liberal" positions (defined as in the previous section). Again, a set of control variables is included in the estimation, but not reported.

According to Table 9, black Republican voters are more likely to vote for the Democratic candidate when the Democratic candidate is black (column (3)) compared to when candidates are both white. Comparing across the first row and the second row, the probability that they vote for the Democratic candidate is slightly higher when the pool of black Democratic candidates includes relatively conservative candidates. However, the difference between the two rows is trivial. As for independent black voters (column (2)), the estimated coefficients on the *Black Candidate* variable is statistically indistinguishable from zero, but the estimation is based on relatively small number of voters and we cannot draw a strong conclusion from the results. Column (1) shows that black Democratic voters are more likely to vote for the Democratic candidate if the candidate is black. The estimation result in the top row of column (1) suggests that when the candidate positioning of black Democratic candidates is relatively more conservative, the probability of their support is not as high compared to when black Democratic candidates are all liberal (the second row). This suggests that the support for black Democratic candidates by black Democratic voters may not be unconditional: ideological positions of candidates also seem to matter.

Taken together, the estimation results presented in Table 7, 8, and 9 suggest that candidate race influences the voting decision of white voters only when they do not support any of the major parties *and* when the ideological distance between the two candidates is not too far apart. For black voters, their support for black candidates is estimated to be almost unconditional: regardless of voters' ideological positions, they are more likely to support black candidates than white candidates with similar ideological orientations.

4.2. Robustness

Subjective Evaluations of Candidate Positioning

The empirical results presented above uses an objective measure of candidate positioning. The specification is based on the assumption that voters *roughly* know the actual ideological orientations of House candidates.[19] This type of specification should remain valid even if voters make mistakes or vaguely know candidate issue positions, as long as voters are equally likely to make mistakes regardless of the race of candidates. However, it is possible that white voters evaluate black candidates to be more liberal than they actually are.[20] At least some experimental and empirical studies show that candidate gender systematically biases voters' perceptions of candidate positions (Huddy and Terkildsen (1993), Koch (2000, 2002)). This line of research suggests that we should also take into account how voters actually perceive candidates' ideological positions. This subsection utilizes data on voters' subjective evaluation of candidate issue orientations in order to check the robustness of the results presented above.

In addition, I investigate whether race-based voting becomes more prominent when voters do not know candidates' ideological orientations. Given that voters rely more on candidate demographic cues, such as race and gender, in low information elections (Terkildsen (1993), Huddy and Terkidsen (1993), Siegelman, *et.al.* (1995), McDermott (1998)), if voters are uncertain of issue positions of candidates, they may be more likely to rely on a racial cue. The goal of this subsection, then, is two-fold. The first is to test if the estimation results in the previous section are still valid even if I use subjective measures of candidate positions. Second, I examine if voters are more likely to engage in race-based voting when they do not know candidates' ideological positions.

This requires survey data that contain measures of voters' perceptions of candidates' ideological positions. Because the VNS exit polls do not ask voters to evaluate candidate

[19]Note that I put candidates into three broad categories (extremely liberal (or moderate), average, extremely conservative) based on their ideological positions. Therefore, the only requirement for the above specification to be valid is that voters know whether their candidates take extreme positions or average positions.

[20]This is especially a concern when there is a stereotype among white voters that black candidates are liberal and when voters use candidate demographic cues to infer candidate positions (McDermott (1998)).

positions, I use a series of the American National Election Studies (ANES) in this set of analysis. Ten studies of the ANES contain questions on voters' evaluation of candidate ideological positions, in which voters are asked to place each of the major party House candidates on a 7-point liberal-conservative ideology scale (ranging from Extremely Liberal to Extremely Conservative).[21] In addition, voters are asked to place themselves on the same 7-point scale.

For this set of analysis, first I need to find out the race of House candidates for the ten congressional elections between 1978 and 2004. For 2004, the ANES contextual data that contain information on the race of candidates are readily available.[22] For other years, I consult various sources to find out the race of candidates.[23] The race of incumbents are taken from Martin (2001). Because there is no systematic record on the race of House candidates, finding out the race of non-incumbents is particularly challenging. I mainly obtain the information by consulting publications by the Joint Center for Political and Economic Studies as well as various issues of *The Almanac of American Politics*.[24] Then the information on candidate race is merged with the ANES data. Because the sample size for black voters with relevant information is quite small, I focus on white voters in this section.

The specification is similar to the one in the previous section. The main difference is that I introduce four voter categories. I categorize voters into four mutually exclusive and exhaustive groups to create dummy variables for each group: ideologically closer to the Democratic candidate, ideologically closer to the Republican candidate, equal distance from two candidates, and no evaluation on candidates' ideological positions.[25] Voters who

[21]The available ANES are those of 1978, 1980, 1982, 1986, 1990, 1994, 1996, 1998, 2000, and 2004.

[22]The 2002 ANES contextual file also contains candidate race information for a subset of congressional districts. Unfortunately, the candidate positioning question is not asked in 2002, but I utilize the 2004 information for other years.

[23]Data for 1996 and 1998 are provided by Ebonya Washington.

[24]Particularly useful sources of information are Bositis (1992, 1994, 1998, 2000) and monthly *Focus* magazines issued by the Joint Center for Political and Economic Studies that contain lists of African American major-party nominees. In some cases, I consult newspaper articles to find out candidate race information. Terkildsen and Damore (1999) contains candidate race information for a subset of biracial elections in 1990 and 1992. For 1982, I also check the accuracy of my coding (for a subset of districts) by candidate race information provided by Professor David Canon at Wisconsin.

[25]Unopposed races and contests that involve a third party candidate are excluded from the analysis. Voters

evaluated only one candidate are later incorporated in the first two categories in the analysis (see below). I am interested in testing if different reactions against black candidates exist across these four different types of voters. To capture this, the previously introduced variable *Black Candidate* is interacted with each of the four categorical variables. *Black Candidate* is 1 if the Democratic candidate is black, 0 if non-black, -1 if the Republican candidate is black.[26]

Table 10 reports the estimation results. *Ideologically Closer to D* is a dummy variable that takes 1 if $|V_i - R_i| - |V_i - D_i|$ is greater than 0, where V_i is voter i's placement of his own ideology on the 7-point liberal-conservative ideological scale (1= Extremely Liberal, 7= Extremely Conservative) and D_i and R_i are voter i's placement of House candidates on the same scale. *Ideologically Closer to R* is similarly defined.

The main independent variable of interest is the interaction term of *Ideologically Closer to D* (also *Ideologically Closer to R*) and *Black Candidate.* If white voters are engaging in race-based voting regardless of candidate issue positions, the estimated coefficient should be negative. If, on the contrary, ideological considerations are more important in voting decisions, candidate race should not matter much once a white voter evaluates a black candidate to be ideologically closer to her than a white candidate. Then the coefficient on the interaction term should be negligible. Other variables of interests are the interaction term of *Ideologically Equal Distance from Both Candidates* and *Black Candidate.* Here, the effect of candidate issue positions is minimal – the voter is ideologically located exactly in the middle of two candidates. The results in the previous section suggest that we expect to see negative reaction to black candidates among this type of voters. Finally, the coefficient on the interaction term of *Did not Scale Candidates * Black Candidate* captures whether the role of race becomes more prominent when voters do not know anything about candidates' issue positions.

In column (1) of Table 10, only voters who placed two major party House candidates

in the fourth category answered "Don't know" to the questions.

[26]In the previous section, I make a distinction between white non-Hispanic and Hispanic candidates. However, mainly due to data limitations, I cannot make such a distinction in this set of analysis.

on the liberal-conservative 7-point scale and those who did not place any candidate are included in the estimation. In column (2), voters who placed only one of the major party candidates are also included in the estimation. Accordingly, in column (2), *Ideologically Closer to D* means either (a) the voter evaluated both candidates and is ideologically closer to the Democratic candidate, or (b) the voter evaluated only the Democratic candidate and $V_i = D_i$. Note that in both cases, voters are categorized into four mutually exclusive and exhaustive groups because voters who evaluate only one candidate are excluded from the analysis in column (1).

According to Table 10, both in columns (1) and (2), there is no evidence that white Democratic voters exhibit different voting patterns depending on candidate race. The estimated coefficients on the interaction terms *Ideologically Closer to D * Black Candidate* and *Ideologically Closer to R * Black Candidate* are negative in both columns, but they are statistically indistinguishable from zero. This suggests that as long as voters perceive candidates to be closer to their ideological positions, the race of candidates does not influence their voting decisions.

In contrast, voters who placed themselves exactly in the middle of two candidates are much less likely to vote for one of the candidates when the candidate is black. The estimated coefficients on *Ideologically Equal Distance from Both Candidates* are almost zero, which imply that voters are equally likely to vote for either of the candidates when voters are ideologically in the same distance from both candidates. The negative interaction term with the *Black Candidate* variable clearly indicates that they change their voting behavior depending on candidate race. Finally, it is interesting to note that there is no evidence that voters who do not know candidate ideological orientations engage in race-based voting. The coefficient on the interaction term *Did not Scale Candidates * Black Candidate* is estimated to be negative, but statistically indistinguishable from zero. Thus, it it not necessarily the case that voters who lack knowledge on candidate positioning cast their ballots based on a simple racial cue.

In this subsection, I examine the influence of candidate race on voting decisions by

explicitly taking into account voters' perceptions of candidates' issue positions. The results in this subsection confirm the previously obtained results. As long as white voters perceive black candidates to be ideologically close to their positions, there is no evidence that they react negatively against black candidates. However, when ideology plays no role – in this case when voters are ideologically indifferent between two candidates – white voters are much less likely to vote for a party with a African American nominee compared to when the party has a white candidate. Thus, the race of candidates negatively affects voting decisions of white voters only when the influence of partisan or ideological factors is minimal.

Selection Bias

Another check is to see if there is any selection bias among the electorate. One may be concerned that white voters who are averse to black candidates would choose not to participate in the House election when a nominee of the party that they normally support is black. In other words, the non-negative reactions found in Table 7 and Table 8 may reflect the tendency that only those who are willing to vote for a black candidate voted in the House elections. If this is the case, the non-negative coefficients found earlier are due to selection bias, instead of neutral racial attitude. To check this possibility, I calculate the frequencies of roll-offs for each type of contests for the elections of 1996 and 1998 using the VNS exit polls, for each of the candidate race combinations. Table 11 reports the results.

The rate of roll-off is defined as the percent of voters who voted in the Presidential election of 1996, but did not vote in the House election of the same year. If the low participation story is true, we should see a significant jump in the rate of roll-offs when a black candidate is on the ballot. The main focus is a comparison between cases (a) where candidates are both white, and cases (b) where only the Democratic candidate is black. According to the first column, there is no evidence that white voters are less likely to participate in congressional elections when they include a black candidate. About 9 percent of white voters who voted in the Presidential election did not participate in the House elections of 1996 (row (a)). By contrast, the roll-off rate is merely 7.5 percent in districts

where black candidates were running (row (b)). Therefore white voters are *more* likely to participate in congressional elections when a black candidate is running.[27] This is opposite of what we would expect under the low participation story. Therefore, it is unlikely that the non-negative reactions among white voters found in Case 2 and Case 3 are due to selection bias.[28]

5. Conclusion

In this chapter, using a unique data set containing information on candidates' ideological positions along with extensive individual voting data, I attempt to distinguish the impact of race from that of ideology on voters' voting decisions. I find that the race of a candidate does not influence voting decisions of white voters *as long as* the voters possess party affiliations. Once the ideological positions of candidates are properly taken into account, there is no empirical evidence that white partisan voters react negatively to black candidates. The only instance in which race plays a prominent role is when white *independent* voters are deciding between a white Republican candidate and a black Democratic candidate *and* when the ideological distance between the two candidates is close. However, this chapter also finds that white voters who are indifferent between the two major parties or those with no party affiliation engage in race-based voting, even after controlling for the fact that some black candidates are too liberal for these voters. The likelihood of non-partisan white voters voting for black candidates with a particular ideological position is estimated to be much lower than their probability of supporting white candidates with a similar issue position. This set of results implies that candidate race is largely irrelevant for white voters in the presence of a party cue. However, absent partisan and ideological cues, a black candidate's

[27] Obviously, in order to fully make a valid comparison, we should take into account other factors, such as the competitiveness of congressional races.

[28] However, note that candidate race affects the participation rate of white voters in different types of contests. According to Table 11, in case (d), where two black voters are running against each other, almost 13 percent of white voters chose not to participate in the House elections. The rate of roll-off is 4 percentage points higher than the cases in which there are two white candidates on the ballot. Therefore, candidate race clearly affects participation patters of white voters in some cases. As for black voters, the participation rate on the House elections is consistently higher when a black candidate (from either party) is running in congressional elections (Table 11, second column).

race negatively affects the voting decisions of this set of voters. Thus, a negative reaction to black candidates still exists among some white voters, suggesting that it may be too early to adopt a completely color-blind approach in designing electoral institutions. At the same time, this chapter also finds that the estimated probability of black voters voting for a black Democratic candidate is significantly higher than their probability of voting for a white Democratic candidate who has a similar ideological position as the black Democratic candidate. In addition, black voters overwhelmingly prefer to vote for candidates of their own race, even if the ideological positions of candidates are not necessarily congruent with the voters' own issue positions.

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Table 1
Descriptive Statistics:
Ideological Positions of House Candidates, 1996-1998
NPAT Scores by Party and Candidate Race

	N	Average	S.D.	Min	Max
Democrats					
Overall	244	0.283	0.146	0.024	0.762
White	215	0.298	0.141	0.029	0.762
Black	22	0.147	0.113	0.024	0.469
Hispanic	6	0.247	0.183	0.054	0.499
Republicans					
Overall	244	0.725	0.142	0.175	1.000
White	226	0.735	0.138	0.175	1.000
Black	15	0.592	0.150	0.258	0.827
Hispanic	3	0.657	0.068	0.606	0.734

Note: The NPAT score data are by Ansolabehere, Snyder, and Stewart (2001). The scores range from 0 (most liberal) to 1 (most conservative). Unopposed races and contests that involve more than two candidates are excluded. The number of Democratic candidates does not add up because of one Native American candidate.

Table 2
Average Ideological Positions of House Candidates
Average NPAT Scores by Type of Contests: 1996-1998

		Democrats		Republicans	
	N	Race	NPAT	Race	NPAT
(a) White D and White R	207	White	0.300	White	0.730
(b) Black D and White R	13	Black	0.175	White	0.758
(c) White D and Black R	6	White	0.247	Black	0.625
(d) Black D and Black R	9	Black	0.107	Black	0.569

Note: Unopposed races and contests that involve more than two candidates are excluded.

Table 3
Distribution of Party Identification and Ideology by Voter Race

Party Identification by Race

	Democrat	Independent	Republican	N
White	0.3318	0.2410	0.3896	20,884
Black	0.7341	0.1352	0.0972	3,031
Hispanic	0.5528	0.1786	0.2332	1,213

Voter Ideology by Race

	Liberal	Moderate	Conservative	N
White	0.1757	0.4811	0.3432	20,669
Black	0.2848	0.5198	0.1954	2,931
Hispanic	0.2589	0.4953	0.2458	1,190

Notes: Row proportions are shown. Those whose party identification is "something else" are excluded.
Sources: Voter News Service National Exit Polls 1996 and 1998.

Table 4
Vote Choice by Race, Party ID, and Ideology

Fraction: Voting for Democratic House Candidate

	White Voters	Black Voters	Hispanic Voters
Overall	0.443	0.840	0.716
Democrat	0.846	0.948	0.936
Independent	0.452	0.718	0.578
Republican	0.091	0.242	0.223
Liberal	0.798	0.906	0.893
Moderate	0.515	0.871	0.756
Conservative	0.155	0.666	0.410

Notes: Weighted sample. N=21,891 for party identification and N=20,392 for voter ideology data. The table reports the fraction of voters who voted for the Democratic candidate. Only voters in districts with a two-party contest are included.
Sources: Voter News Service National Exit Polls 1996 and 1998.

Table 5
Vote Choice by Voter Race, Party ID, and Candidate Race

Fraction: Voting for Democratic House Candidate

	(1) Both White	(2) Black D	Difference (2)-(1)
White Voters			
Overall	0.439	0.476	0.037
Democrats	0.843	0.902	0.059
Independent	0.457	0.342	-0.115
Republicans	0.093	0.083	-0.010
Black Voters			
Overall	0.791	0.914	0.123
Democrats	0.928	0.960	0.032
Independent	0.682	0.791	0.109
Republicans	0.210	0.596	0.386

Notes: Weighted sample. Column (1) reports the fraction of voters who voted for the Democratic House candidate when candidates of both parties are white (corresponds to Case (a) in Table 2). Column (2) reports the fraction when the Democratic candidate is black and the Republican candidate is white (Case (b)). Column (3) reports the difference between columns (2) and (1). The ideological positions of candidates are not restricted.
Sources: Voter News Service National Exit Polls 1996 and 1998.

Table 6
Candidate Ideological Positions by Type of Contests

		N	Democrats	Race	Republicans	Race
Case 1	Liberal D and Average R	28	0.172	White	0.759	White
		5	0.120	Black	0.766	White
Case 2	Liberal D and Conservative R	20	0.158	White	0.860	White
		3	0.158	Black	0.897	White
Case 3	Liberal D and Moderate R	22	0.145	White	0.503	White
		3	0.095	Black	0.596	White

Notes: In all cases listed above, the ideological positions of Democratic candidates are liberal, relative to other Democratic candidates (their ideological score is less than 40th percentile of the distribution of the Democratic candidates ideology). In Case 1, Republican candidates have "average" ideological score (40th to 70th percentile of the distribution within the party). In Case 2, the positions of the Republican candidates are conservative (greater than 80th percentile of the distribution), and in Case 3 their positions are liberal relative to fellow Republican candidates (less than 40th percentile).
Source: NPAT score data by Ansolabehere, Snyder, and Stewart (2001).

Table 7
Probit Estimates of the Impact of Candidate Race on Voting Decisions by Candidate Positions of Republican Candidate: 1996-1998
Sample: Districts with Liberal Democratic Candidates

	Case (1)		**Case (2)**		**Case (3)**	
	Average R		Conservative R		Moderate R	
	(1)	(2)	(3)	(4)	(5)	(6)
Black Candidate	-0.352*	-0.715**	-0.111	-0.169	0.216*	0.825**
	(0.165)	(0.215)	(0.148)	(0.284)	(0.097)	(0.167)
Black Voter	0.979**	0.713**	0.423*	0.606**	0.667**	0.225
	(0.127)	(0.168)	(0.170)	(0.225)	(0.115)	(0.156)
Black Voter* Black Candidate	1.363**	0.852*	0.753**	-0.254	0.677**	0.499
	(0.289)	(0.333)	(0.263)	(0.411)	(0.240)	(0.478)
Income		-0.028		-0.027		-0.065*
		(0.032)		(0.032)		(0.030)
Age		0.046		0.275		0.138
		(0.142)		(0.146)		(0.144)
Female		0.138		0.029		0.115
		(0.094)		(0.098)		(0.084)
Party ID		1.024**		0.916**		0.904**
		(0.059)		(0.062)		(0.057)
Liberal		0.567**		0.569**		0.377**
		(0.071)		(0.073)		(0.068)
Incumbency		0.370**		0.245**		0.576**
		(0.073)		(0.071)		(0.078)
Non-Incumbent Candidate Quality		0.032		-0.046		0.332**
		(0.086)		(0.104)		(0.097)
South		-0.077		-0.049		
		(0.112)		(0.128)		
Constant	-0.226**	0.013	-0.042	0.074	0.131**	0.456**
	(0.038)	(0.138)	(0.043)	(0.151)	(0.035)	(0.135)
Observations	1795	1560	1432	1213	1846	1566

Notes: Weighted sample. Robust standard errors (clustered by state) in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. The sample is limited to cases in which the Democratic candidate is liberal. In columns (1) and (2) (Case 1), the ideological position of the Republican candidate is average of the Republican candidates, in columns (3) and (4) (Case 2), the Republican candidate is conservative, and in columns (5) and (6), the Republican candidate is relatively liberal. See Table 6 for the ideological scores in each case. *Incumbency* is 1 if the Democratic candidate is an

incumbent, -1 if the Republican candidate is an incumbent, 0 if no incumbent is running. *Party ID* is 1 if a voter is Democrat, 0 if independent, -1 if Republican. *Liberal* is 1 if voter is liberal, 0 if moderate, -1 if conservative. *Black Candidate* is 1 if the Democratic candidate is black, 0 if white, -1 if the Republican candidate is black. *Non-Incumbent Candidate Quality* is 1 if the Democratic challenger has previously held a public political office, or when only the Democratic candidate held a public political office in an open election. The variable equals -1 in an opposite case. The variable equals zero in any other cases.
Sources: Voter News Service National Exit Polls 1996 and 1998. The candidate positioning data are by Ansolabehere, Snyder, and Stewart [2001a, 2001b].

Table 8
Probit Estimates of the Impact of Candidate Race on Vote Decisions of White Voters, by Party ID: 1996-1998

		(1)	(2)	(3)
		Democrat	Independent	Republican
Case (1)	Liberal D and Average R	-0.490	-0.963***	-0.775**
		(0.372)	(0.185)	(0.394)
		[416]	[340]	[502]
Case (2)	Liberal D and Conservative R	-0.847**	0.421	0.099
		(0.360)	(0.611)	(0.283)
		[372]	[250]	[422]
Case (3)	Liberal D and Moderate R	1.073***	0.867***	0.794*
		(0.251)	(0.267)	(0.439)
		[597]	[424]	[375]

Notes: Weighted sample. Robust standard errors (clustered by state) in parentheses and the number of observations in square brackets. Estimated coefficients on the black candidate dummy are reported. Control variables listed in Table 7 are included in the estimation, but not reported. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 9
Estimated Impact of Candidate Race on Vote Decisions of Black Voters by Party ID

	(1)	(2)	(3)
	Democrat	Independent	Republican
No Restriction on Candidate Ideological Positions	0.332	-0.195	1.156**
	(0.384)	(0.384)	(0.562)
	[935]	[193]	[116]
Black Candidate Positions Restricted to Liberal	0.764**	0.001	1.032*
	(0.352)	(0.310)	(0.620)
	[485]	[88]	[66]

Notes: Weighted sample. Robust standard errors (clustered by state) in parentheses and the number of observations in square brackets. * significant at 10%; ** significant at 5%; *** significant at 1%. Estimated coefficients on the black candidate dummy are reported. Control variables listed in Table 7 are included in the estimation, but not reported. The ideological positions of the Republican candidate is not restricted. In the top panel, ideological positions of candidates are not restricted, therefore two relatively conservative black Democratic candidates are included in the sample (see footnote 10). In the bottom panel, only relatively liberal black Democratic candidates are included in the estimation. The candidates in the bottom panel are equivalent to the ones included in the main analysis (listed in Table A-2).

Table 10
Estimated Impact of Candidate Race
on Voting Decisions of White Voters: 1978-2004

	(1)	(2)
Ideologically Closer to D	0.610**	0.678**
	(0.091)	(0.067)
Ideologically Closer to R	-0.492**	-0.704**
	(0.085)	(0.065)
Ideologically Closer to D* Black Candidate	-0.570	-0.296
	(0.413)	(0.381)
Ideologically Closer to D* Black Candidate	-0.318	-0.376
	(0.641)	(0.639)
Ideologically Equal Distance from Both Candidates	0.031	0.017
	(0.096)	(0.091)
Ideologically Equal Distance from Both Candidates* Black Candidate	-1.481**	-1.532**
	(0.539)	(0.573)
Did not Scale Candidates* Black Candidate	-0.326	-0.370
	(0.281)	(0.312)
Incumbency Status	0.436**	0.668**
	(0.035)	(0.027)
Party ID	0.692**	0.697**
	(0.037)	(0.029)
Conservative	-0.140**	-0.127**
	(0.029)	(0.022)
Age	0.004*	0.004**
	(0.002)	(0.002)
Female	0.056	-0.022
	(0.064)	(0.050)
Income	-0.005	-0.017
	(0.024)	(0.018)
Education	-0.008	0.030
	(0.036)	(0.027)
South	-0.093	-0.058
	(0.083)	(0.065)
Constant	0.340	0.278
	(0.212)	(0.168)
Observations	2662	4702

Notes: Weighted sample. Probit estimates are reported. * significant at 5%; ** significant at 1%. Data represent white voters who voted in the House

elections of 1978, 1980, 1982, 1986, 1990, 1994, 1996, 1998, 2000, and 2004. Unopposed races and contests that involve a third party candidate are excluded from the analysis. *Ideologically Closer to D* is a dummy variable that takes 1 if $|V_i - R_i| - |V_i - D_i|$ is greater than 0, where V_i is voter i's placement of his own ideology on the 7-point liberal-conservative ideological scale (1= Extremely Liberal, 7= Extremely Conservative) and D_i and R_i are voter i's placement of House candidates on the same scale. *Black Candidate* is 1 if the Democratic candidate is black, 0 if non-black, -1 if the Republican candidate is black. *Ideologically Closer to R* is similarly defined. Contests that involve a black Republican candidate running against a white Democratic candidate is excluded from the analysis. In column (1), only voters who either placed two major-party House candidates on the liberal-conservative 7-point scale, or those who did not place any candidate are included in the estimation. In column (2), voters who placed only one of the major party candidates are also included in the estimation. Accordingly, *Ideologically Closer to D* in column (2) indicates either (a) the voter evaluated both candidates and is ideologically closer to the Democratic candidate, or (b) the voter evaluated only the Democratic candidate and $V_i = D_i$. *Incumbency Status* is 1 if the Democratic candidate is an incumbent, -1 if the Republican candidate is an incumbent, 0 if no incumbent is running. *Party ID* is 1 if a voter is Democrat, 0 if independent, -1 if Republican. *Conservative* measures the voter's liberal-conservative 7-point scale and the higher value means more conservative.
Sources: American National Election Studies, 1978, 1980, 1982, 1986, 1990, 1994, 1996, 1998, 2000, and 2004.

Table 11
Rolloff by Type of Contests and Voter Race: 1996

	White Voters	Black Voters
(a) White D and White R	9.01%	10.46%
(b) Black D and White R	7.44%	7.55%
(c) White D and Black R	10.96%	–
(d) Black D and Black R	12.74%	7.00%

Notes: Weighted sample. Rolloff is defined as the percentage of voters who participated in the Presidential election of 1996, but not voted in the House election of the same year. N=9,832 (8,586 white and 1,246 black voters). The number of black voters in a district with type (c) contest is too small to report (N=17).
Sources: Voter News Service National Exit Polls 1996.

Appendix

Table A-1
Candidate Race and Ideology: 1996-1998

(a) All Candidates with NPAT score

	Democrats			Republicans		
	NPAT	N	Percent	NPAT	N	Percent
Overall	0.286	502	100	0.732	502	100
White	0.299	439	87.45	0.739	475	94.62
Black	0.155	34	6.77	0.592	21	4.18
Hispanic	0.236	25	4.98	0.628	6	1.2

(b) Candidates included in this study

	Democrats			Republicans		
	NPAT	N	Percent	NPAT	N	Percent
Overall	0.283	244	100	0.725	244	100
White	0.298	215	88.11	0.735	226	92.62
Black	0.147	22	9.02	0.592	15	6.15
Hispanic	0.247	6	2.46	0.657	3	1.23

Note: The NPAT score data are by Ansolabehere, Snyder, and Stewart (2001). The scores range from 0 (most liberal) to 1 (most conservative). Panel (a) reports all candidates whose NPAT scores are available and panel (b) shows the NPAT scores of candidates included in this study. Only a subset of candidates is included due to availability of congressional districts covered in the VNS exit poll data. The numbers in the percent columns do not necessarily add up to 100 because of candidates of other races (Asian and native American). Unopposed races and contests that involve more than two candidates are excluded.

Table A-2
List of Black Democratic House Candidates

Year	State	District	Name	NPAT	Incumbent
			Case 1: Average R		
1996	AL	7	Hilliard, Earl	0.201	Yes
1996	FL	3	Brown, Corrine	0.138	Yes
1996	IL	7	Davis, Danny K	0.046	No (Open)
1996	MO	1	Clay, William	0.048	Yes
1998	IN	10	Carson, Julia	0.167	Yes
			Case 2: Conservative R		
1996	CA	32	Dixon, Julian C.	0.134	Yes
1996	NC	1	Clayton, Eva	0.148	Yes
1998	SC	6	Clyburn, James	0.193	Yes
			Case 3: Moderate R		
1996	IN	10	Carson, Julia	0.060	No (Open)
1998	CA	9	Lee, Barbara	0.102	No (Open)
1998	NJ	10	Payne, Donald M.	0.124	Yes

Table A-3
Complete List of Candidate Ideological Positions by Type of Contests

		N	Democrats	Race	Republicans	Race
Case 1	Liberal D and Average R	28	0.172	White	0.759	White
		5	0.120	Black	0.766	White
Case 1 (b)	Liberal D and Average R (More Restricted)	6	0.114	White	0.778	White
		5	0.120	Black	0.766	White
Case 2	Liberal D and Conservative R	20	0.158	White	0.860	White
		3	0.158	Black	0.897	White
Case 3	Liberal D and Moderate R	22	0.145	White	0.503	White
		3	0.095	Black	0.596	White
Case 3 (b)	Liberal D and Moderate R (More Restricted)	18	0.112	White	0.583	White
		3	0.095	Black	0.596	White

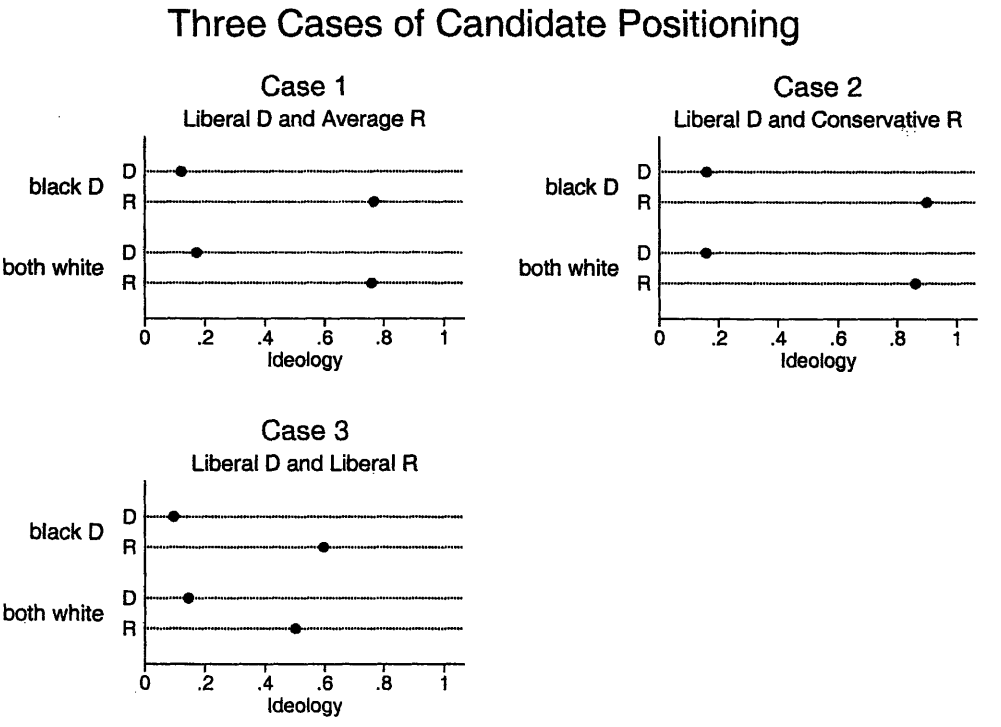
Notes: In all cases listed above, the ideological positions of Democratic candidates are liberal, relative to other Democratic candidates (their ideological score is less than 40th percentile of the distribution of the Democratic candidates ideology). In Case 1, Republican candidates have "average" ideological score (40th to 70th percentile of the distribution within the party). In Case 2, the positions of the Republican candidates are conservative (greater than 80th percentile of the distribution), and in Case 3 their positions are liberal relative to fellow Republican candidates (less than 30th percentile). In Case 1(b) and Case 3(b), the range of ideological positions are more restricted for white candidates so that they have ideological positions closer to those of black candidates.
Source: NPAT score data by Ansolabehere, Snyder, and Stewart (2001).

Table A-4
Comparison of District Characteristics

	(1) Both White	(2) Black D
Case 1: Liberal D and Average R		
Two-Party Vote Share for D Party, Presidential (1992)	50.9	70.4
Two-Party Vote Share for D Party, Presidential (1996)	53.1	72.0
Percent Black	7.5	52.4
Percent Unemployed	2.7	4.1
Percent Urban	56.7	88.6
Percent 65 years and older	14.2	12.4
N	28	5
Case 2: Liberal D and Conservative R		
Two-Party Vote Share for D Party, Presidential (1992)	51.6	73.3
Two-Party Vote Share for D Party, Presidential (1996)	52.3	73.8
Percent Black	5.2	53.2
Percent Unemployed	2.6	3.5
Percent Urban	73.8	51.4
Percent 65 years and older	11.9	12.4
N	20	3
Case 3: Liberal D and Moderate R		
Two-Party Vote Share for D Party, Presidential (1992)	55.0	73.6
Two-Party Vote Share for D Party, Presidential (1996)	58.9	77.1
Percent Black	5.6	40.6
Percent Unemployed	2.4	3.9
Percent Urban	80.2	100.0
Percent 65 years and older	12.4	11.7
N	22	3

Note: Column (1) reports descriptive statistics for districts with two white candidates. Column (2) reports the average numbers for the districts in which a black Democratic candidate was running against a white Republican candidate.

Figure 1:


Three Cases of Candidate Positioning
Case 1
Liberal D and Average R
black D
both white
D
R
0
.2
.4
.6
.8
1
Ideology
Case 2
Liberal D and Conservative R
Case 3
Liberal D and Liberal R

Chapter 4
Are Single-Member Districts Bad for Cities??
(joint with James M. Snyder, Jr.)

1. Introduction

What effects, if any, do electoral institutions have on political representation and policy outcomes? This is a key question in political economy and political science, and it is has been explored both theoretically and empirically by a large number of scholars. For example, one significant body of research explores the differences between plurality-rule and proportional-rule systems. Another studies the effects of malapportionment. A third focuses on the special case of the U.S. presidential electoral college. A fourth analyzes the differences between single-member and multi-member districts.[1]

One of the main hypothesis in the literature on single-member districts (SMDs) vs. multi-member districts (MMDs) is that SMDs lead to closer ties between voters and their representatives, better electoral accountability, and, consequently, better performance by representatives. Consider a large city with, say, fifteen state legislators. If these legislators are all elected from one at-large, fifteen-member district, then they will face a collective action problem. It is difficult for voters to know who to reward for bringing home the bacon, or who to blame when no pork appears. The result is low-powered incentives, and a tendency for each of the city's representatives to shirk. The city may suffer as a result,

[1]The literature is enormous. Here is a sample: On the first topic, see Duverger (1964), Riker (1982), Cox (1990), Myerson (1993a,1993b), Lijphardt (1994,1999), Persson and Tabellini (1999), Austen-Smith (2000), Powell and Vanberg (2000), Lizzeri and Persico (2001,2005), and Persson, Tabellini and Trebbi (2003). On the second, see Atlas et al. (1995), Lee (1998), Lee and Oppenheimer (1999), Ansolabehere, Gerber and Snyder (2002), Rodden (2002), Ansolabehere, Snyder and Ting (2003), and Knight (2004). On the third, see Banzhaf (1968), Brams and Davis (1974), Colantoni, Levesque, and Ordeshook (1975), Merrill (1978), and Stromberg (2002). On the fourth see Dauer (1966), Jewell (1969, 1982), Darcy, Welch, and Clark (1985), Grofman, Migalski, and Nociello (1986), Scholl (1986), Niemi and Winski (1987), Cox (1990), Welch (1990), Welch and Studlar (1990), Niemi, Jackman, and Winski (1991), Moncrief and Thompson (1992), Bowler and Farrell (1993), Bullock and Gaddie (1993), Cox and Morgenstern (1995), Adams (1996), Dow (1998), Gerber, Morton, and Rietz (1998), Carey, Niemi, and Powell (2000), Hogan (2001), King (2002), Richardson, Russell, and Cooper (2004), and Larimer (2005).

and not obtain its fair share of state spending.[2]

There is some empirical work supporting the free-riding hypothesis, but it is not overwhelming. Jewell (1969) and Cooper and Richardson (2006) find that representatives elected from SMDs are more likely to describe their roles as "delegates" while those elected from MMDs are more likely to describe their roles as "trustees." Scholl (1986) finds a similar pattern in his survey of British (SMD) and French (MMD) members of the European Parliament – British members are more likely to emphasize constituency service and regional issues. He also finds some evidence of an actual policy effect, the percentage of regional projects passed. But he does not present any evidence on the sizes of these projects, so it is impossible to draw strong conclusions. Freeman and Richardson (1996) find conflicting results about legislative roles – in fact, in their survey legislators from MMDs claim to spend more time performing constituency service than legislators from SMDs. Finally, a few papers on the incumbency advantage provide indirect evidence about shirking and incentives – a smaller incumbency advantage suggesting a weaker personal link with voters – but even these are mixed.[3]

Moreover, several forces work in the opposite direction. We believe these have been under appreciated in the theoretical and empirical literature, and deserve more attention.

First, if the city is cut up into a number of small districts, then many city-wide projects will entail significant *externalities* from the point of view of each individual representative. Legislators who represent only a small fraction of the city's area and population have little incentive to work hard to obtain state aid for such projects. This will be true for highways that connects different parts of the city, a highway that circles the city, or a city-wide mass transit system. It will also be true for public utilities – electricity, gas, water and sewage – since these tend to be city-wide systems. Even school districts are typically city-wide

[2]Researchers have also examined the effects of other electoral and governmental institutions, such as proportional representation, on the accountability of elected officeholders. See, for example, Powell (1982), Blais and Dion (1990), and Persson, Tabellini and Trebbi (2003).

[3]Niemi and Winski (1987), Moncrief and Thompson (1992), Berry, Berkman, and Schneiderman (2000), and Carey, Niemi, and Powell (2000) find evidence that the incumbency advantage is lower in MMDs, but Niemi, Jackman, and Winski (1991) and Welch and Studlar (1990) do not. Cox and Morgenstern (1995) find that the incumbency advantage has grown in MMDs, but at a slower rate than in SMDs.

or county-wide systems. State aid for education does not go to individual schools, but the school district as a whole; the allocation of the funds within the school district then depends not only on legislative decisions but also by decisions by city or county officials.

Second, districting may introduce collective *choice* problems. What types of projects should a city seek from the state? Alternatively, why not seek tax cuts instead of projects? When all representatives from the city have the same geographic constituency, they will often tend to agree on such questions. This is especially true if they are all members of the same party, a common outcome given the nearly universal use of plurality rule.[4] This problem likely becomes more severe if the city is carved up into small SMDs. The representatives will have different and often conflicting interests. Some will be from poor parts of the city that seek basic services such as housing and health care, others will want more spending for education, others will be more interested in reduced spending and taxes, and so on.

Third, theoretically it is possible that if a city's delegation votes as a bloc then it will wield power in the legislature that is disproportionate to its size. This is a standard prediction of "power indexes" such as the Shapley-Shubik index and the Banzhaf index (Shapley and Shubik, 1954; Banzhaf, 1965).[5] It was also a common fear stated by state representatives from rural areas. Carving the city up into districts reduces the propensity of its delegation to act as a bloc, and may thereby reduce its potential power in the state legislature.

Previous work has found anecdotal support for some of these factors. For example, Dauer (1966) studied attitudes toward Dade county, Florida – where Miami is located – in the mid 1960s. Like all cities in Florida at the time, Dade's entire state legislative delegation was elected at-large. Many state legislators from *rural* areas wanted to divide the delegation: "Reinforcing sentiment for this [dividing Dade county] has been found among the small-county bloc in the Florida Legislature with the aim of diluting the influence of the

[4]Illinois is the one exception. It employed a system with MMDs and cumulative voting.

[5]On the other hand, non-cooperative models of legislative behavior often yield different predictions, in which bloc voting is not rewarded so generously. See, for example, Montero (2003) and Snyder, Ting, and Ansolabehere (2005).

largest metropolitan county... When this program failed, the coalition of small counties then attempted to create districts within the large metropolitan counties, including Dade County, as a means of increasing the possible divisive sentiment of the urban area's representatives, and changing the role of the urban legislator" (pages 622-623). In contrast, "the Dade county delegation, in its role in the legislature, united in opposing this division" (page 622). The delegations from two other large metropolitan areas, Tampa and Jacksonville, had similar views: "All of those questioned from these counties were unanimous in favoring election from the county at large, both for the House and the Senate. The reasons stated were comparable to those stated by the Dade County Delegation: the belief that there is less parochialism and the over-riding necessity for unity in the delegation about matters pertaining to local bills affecting both the county and the cities within the county" (page 635).[6]

Finally, one short-term factor is turnover. The switch in districting may cause a large amount of turnover in a city's delegation. This leads to a short term loss in seniority, which may cause a short-term loss of power in the legislature, and a corresponding short-term loss of funds from the state government.[7]

In this paper we exploit a natural experiment to study the relative impact of MMDs and SMDs on distributive government spending. More specifically, we study the shift from at-large MMDs to SMDs that occurred in a number of U.S. cities in the 1970s and 1980s, due mainly to pressure from federal and state courts. These were large changes, often involving delegations of 10 or more state representatives and in some cases as many as 20 (see Table 2

[6]There are examples from other states as well. Irwin (1962 p.74) describes the situation in Colorado as follows: "The culminating and most significant aspect of this Democratic Party discipline in Denver is its extension into the legislature... It is a matter of common observation in both political parties that the Denver Democrats, with occasional exceptions, tend to vote as a bloc." More generally, Jewell (1982, p. 140) states: "Members of metropolitan county delegations do not always agree on priorities for allocating resources within the county or on specific projects. In several states [among five or six states that he studied] that have shifted from at-large to district representation in metropolitan counties, there has been a resulting decline in the cohesion of the county delegation on matters pertaining to the county. Those representing the suburbs and those from the central cities do not always agree on what needs in the county are most urgent. Obviously the greater the disagreement, the weaker the ability of the county delegation to get administrative support for projects or legislative support for budgetary items and local legislation."

[7]The shift to SMDs might lead to an *increase* in seniority in the long term, if the districting process tends to produce relatively homogeneous constituencies that are easy for representatives to serve and hold.

below). We ask what effect these changes had on the ability of metropolitan areas to secure intergovernmental transfers from the state government.[8]

Our main finding is easily stated: During the period under study, metropolitan areas received significantly *more* money from the state government, on average, when represented by at-large delegations than when represented by delegations elected from single-member districts. The effects are quite large. For example, our estimates suggest that switching from MMDs to SMDs in a typical large city would lead to a decline of nearly 10 percent in the amount of state aid.

2. Data and Specifications

Background Information

Until the 1970s, the use of MMDs in state legislative elections was quite common. As of 1962, 41 state houses and 30 state senates employed some form of MMDs (David and Eisenberg, 1962).[9] Table 1 shows the number of MMDs and SMDs in the early 1960s. Nearly half of the members of the lower houses and almost one-sixth of the members of the upper houses were elected from MMDs. The extensive use of MMDs was not a new phenomenon. According to Klain (1955), MMD systems have been historically more common in state legislative elections than SMDs.[10]

Before the mid-1960s, a large number of states failed to redistrict and/or reapportion on the regular bases. For example, as of 1962, Indiana was still using the districting plan adopted in 1921, and Alabama has not reapportioned its legislative districts since 1906 (National Municipal League, 1962). When states actually reapportioned their legislative districts, they often merely added more seats to counties that had a population increase,

[8]We are aware of only one other paper that attempts to show a systematic effect of MMDs on actual policy outcomes – such as the passage of laws or patterns of government spending. Larimer (2005) examining state welfare policy from 1997-2000, and finds that states with higher proportions of upper chamber MMDs tend to have less generous welfare policies.

[9]MMDs were typically used in conjunction with SMDs.

[10]MMDs and statewide at-large districts were also used in some U.S. congressional elections until 1967, when Congress passed a law prohibiting the use of such districts. This law was passed in part – perhaps mainly – to prevent southern states from shifting to at-large elections following the Voting Rights Act as a means of preventing blacks from winning congressional seats.

in many cases because state constitutions prohibited the division of county boundaries in forming districts. The combined result was widespread and extreme population discrepancies across legislative districts as well as the creation of countywide MMDs with a large number of seats, especially in metropolitan and urban areas.

The size of some of the MMDs became increasingly enormous by the mid-1960s. Table 2 shows a list of counties that selected their delegations to the lower houses in a large MMD (they usually employed MMD in the state senates as well). Cuyahoga County (Cleveland), Ohio, elected at large a 17-member delegations to the Ohio lower house, and Marion County (Indianapolis), Indiana, had fifteen members elected at-large. Wayne County (Detroit), Michigan (not included in the Table), had a multi-member district with 21 seats until they abolished it in 1953. Table 2 also lists the membership of the lower houses in each state. The delegations from these "mega" MMDs constituted a large group within the chamber. For example, the 18-member at-large delegations from Denver county in Colorado constituted almost one-third of the lower house seats.

Such extensive use of MMD declined rapidly by the mid-1970s, and a large number of states switched exclusively to SMD plans. The number of states that employed MMDs in their lower houses decreased from 41 in 1962 to 23 in 1974 and to 15 in 1984 (Niemi, Hill, and Grofman, 1985). Table 3 shows the number of counties that employed MMDs between 1968 and 1984, by the size of districts.[11] The number of counties that used MMDs that are larger than 3-member districts was 128 in 1968, but the number declined to 28 by 1987.

The movement toward SMDs was mainly due to two factors. The first factor is a wave of reapportionment triggered by *Baker v.Carr* [1962] – a decision by the Supreme Court that federal courts could assume jurisdiction over state legislative districting – and *Reynolds v.Sims* [1964] in which the Court ruled that districts in both houses of a state legislature must reflect population. The second factor, particularly important in the South, was the

[11]There are mainly three types of MMDs: free-for-all MMDs (under which all candidates run against each other), MMDs with posts or positions (under which candidates specify for which post or position he or she is running and voters cast their votes for each position), and floterial districts (districts superimposed over another). We do not distinguish these different types of MMDs here, since they operate in a similar fashion given our question.

Voting Rights Act of 1965 that prohibited dilution of voting strength of minority voters.

Following the *Baker* decision, a large number of states decided to divide counties and introduce SMD plans in their efforts to comply with the equal-population requirements.[12] By the 1966 elections, almost all states underwent substantial reapportionment processes. By the end of the 1970s round of redistricting, a large number had switched to SMDs.

In the Southern states, the dismantling of at-large or MMDs was largely due to the Voting Rights Act of 1965. Because it is difficult to elect minority candidates in MMDs, such districts have been challenged on the ground that they dilute the voting strength of racial minorities, thereby violating the Voting Rights Act.[13]

The use of MMDs is not unconstitutional. For example, in *Reynolds v. Sims* [1964] the U.S. Supreme Court said in the form of a dictum that "one body could be composed of single-member districts, while the other could have at least some multimember districts" and that "single-member districts may be the rule in one state, while another state might desire to achieve some flexibility by creating multimember or floterial districts." This position was reaffirmed in *Fortson v. Dorsey* [1965]. The Supreme Court repeated its opinion that MMDs *per se* are not unconstitutional even in vote dilution cases (*White v. Regester* [1973], *Whitcomb v. Chavis* [1971]).

However, the courts, including the U.S. Supreme Court, displayed a clear preference for SMD systems. Shortly after *Reynolds*, three federal courts ruled MMDs unconstitutional (*Drew v. Scranton* [1964], *Forstson v. Dorsey* [1965], *Burns v. Richardson* [1965]). Beginning in the early 1970s the Supreme Court discouraged the use of multimember district plans in court-ordered reapportionment plans. In *Connor v. Johnson* [1971] the majority wrote: "We agree that when district courts are forced to fashion apportionment plans,

[12]In the South, the initial reaction to *Baker v. Carr* was to increase the number of MMDs, partly in order to submerge voting strength of African Americans. Such efforts were eventually thwarted by the Voting Rights Act (see below).

[13]This is because voters from the entire county vote for candidates in countywide MMDs. Unless a minority group constitutes a majority in the county – which is typically not the case – it cannot elect the candidate of its choice. Southern states used MMDs with posts system in conjunction with other requirements (such as full-slate voting) to further dilute minority voting power strength. See, for example, U.S. Commission on Civil Rights 1968, 1975. MMDs have been also challenged as violation of the Equal Protection Clause of the Fourteenth Amendment.

single-member districts are preferable to a large multimember districts as a general matter." In that same decision, the Supreme Court ruled that when federal courts draw their districting plan, SMDs should be used unless there were "insurmountable difficulties". Lower federal courts also ruled against the use of MMDs. In 1972, a federal district court invalidated further use of MMDs in Alabama, at least in part to prevent minority vote dilution (*Sims v. Amos* [1972]). In cases in Texas and Georgia, the Supreme Court ruled that the use of MMDs in some state legislative districts dilutes voting strength of minority voters (*White v. Regester* [1973], *Georgia v. United States* [1973]).

In addition, Section 5 of the Voting Rights Act required states and localities in the South with a history of discrimination to obtain prior approval from the Justice Department for any new or changed voting-related statutes, including redistricting plans, before implementing them (the "preclearance" requirement).[14,15] With this unprecedented power, the Justice Department objected to MMD plans submitted by the covered jurisdictions during the 1970s round of redistricting.[16] The persistent intervention by the DOJ as well as substantial litigation brought about by minority plaintiffs eventually led to the elimination of MMDs in the Southern states.

As a result of this pressure, Louisiana switched its lower house entirely to SMDs in 1972, Alabama in 1974, South Carolina in 1975, and Mississippi in 1978. Georgia changed most, but not all, of its lower house to SMDs in 1973. Texas switched most of its lower house to SMDs in 1972, and was forced to switch entirely in 1976.[17] North Carolina divided its at-large MMDs into smaller MMDs or SMDs in 1984. Although Florida is not covered under Section 5, Florida also divided its at-large MMDs into smaller MMDs in 1972, and

[14]The original six states are Alabama, Georgia, Louisiana, Mississippi, South Carolina, and Virginia, together with parts of North Carolina. States that employed a literacy test (or similar device) and had a registration rate of less than 50 percent of the voting age population as of 1964 were subject to the Section 5 preclearance requirement. The covered jurisdictions expanded later.

[15]Full implementation of the Section 5 preclearance provision did not begin until the end of 1971, because it was unclear whether Section 5 applied only to laws governing voter registration or if it also covered minority vote dilution practices (U.S. Commission on Civil Rights 1975: 345). It was ruled in *Allen v. State Board of Elections* [1969] that any practice or laws that cause minority vote dilution is also subject to the Section 5 preclearance provision, and then active intervention by the Justice Department began. This is the reason why the switch to SMD plans did not happen until the 1970s in the South.

[16]See, for example, Davidson (1984, 1992).

[17]Texas was covered under Section 5 of the VRA in 1975.

then to all SMDs in 1982.[18] Oklahoma had switched to SMDs even earlier, in 1963, under court order.

Outside the south the situation is more complicated, but the reapportionments forced on states by *Baker*, *Reynolds*, and other court decisions were clearly among the main drivers. For example, the Iowa Supreme Court ruled in 1966 that subdistricting MMDs was necessary to comply with the federal rulings (*Kruidenier v. McCulloch* [1966]) – thus, in 1967 the state Assembly was forces to divide 18 MMDs in the lower house and 9 in the senate, including large MMDs in Polk County (Des Moines) and elsewhere. Another factor, it appears, was partisanship. In most states the change to one-person-one-vote increased the legislative representation of metropolitan counties. If elected at-large, these extra metropolitan seats would typically go to Democrats (at least outside the South). Indiana, Ohio, and Oregon, all changed from at-large MMDs to SMDs in the late 1960s and early 1970s – sometimes with an intervening step of cutting metropolitan counties into a number of small or medium-sized MMDs. In all cases, Republican legislator and judges supported the use of SMDs, while Democratic legislators, usually including those representing the affected urban areas, opposed the change. One of the Republicans' main goals was to create some suburban districts that Republican candidates could win. The alternative was a large, solidly Democratic delegation.[19]

These three factors – *Baker* and the subsequent court decisions, the Voting Rights Act, and partisan battles – contributed to the decline in the number of counties that used MMDs (see also Table 3). Notably, the "mega" MMDs have been abolished and split into either SMDs or small-member MMDs (see Table 2). The last column in the table shows the year of first election under new districting plans. The 17-member MMD in Cuyahoga County, Ohio was split into seventeen SMDs starting in the 1968 election. Polk County, Iowa, was split into eleven SMDs in 1968. In many cases, the number of delegations remained the same, and they are simply subdistricted into the same number of SMDs or small MMDs.

[18]Florida's use of MMDs in the 1970s was challenged, unsuccessfully, by the NAACP.

[19]Michigan switched earlier, in similar circumstances. We do not include that change in our sample since it was an isolated case.

This provides us with an ideal change: a switch in districting system, but no change in the number of delegations. We exploit these changes in the subsequent analysis.

Data

We merge legislative and financial data to create a data set for this study. As for the legislative data, we use state legislative election returns data by ICPSR. The data set reports state legislative election results in all states (except for Vermont) between 1968 and 1989 at the legislative district level. The unit of analysis in this study is county, so we aggregate the data up to the county level. The details of this procedure is described below. We only examine legislative districts in the lower House mainly because MMDs were used more extensively in the lower houses (see Table 1) and also because MMDs with staggered terms, that are used extensively in the state senate, are similar to SMDs in nature. The time period in this study is from 1968 to 1984. Most of the changes from at-large elections to SMDs happened during this period.[20] Note that the analysis is post-*Baker*, so we can mostly ignore the issue of reapportionment.[21] We also consult legislative manuals of various states to find out district information before 1968.

The county-level financial data are taken from the Censuses of Governments. The Censuses are conducted every five years and the Censuses available for this study are 1972, 1977, 1982, and 1987. We examine the amount of intergovernmental transfers from the state government to all of the local governments inside a given county. This includes the county government itself, municipal governments, school districts, and special districts (such as water and sewer districts or transportation districts).[22] The dependent variable in this study is the relative amount of per-capita transfers from the state government to counties. For each year, the relative amount of transfers are calculated as the amount of per capita transfers divided by the average amount of per capita transfers in each state.

To account for lags in budgeting processes, we merge the 1968 election data (therefore

[20]Relatively few switches to SMD happened during the 1990s round of redistricting.

[21]Note that almost all states finished their reapportionment/redistricting processes by the elections of 1966.

[22]This is the same variable studied by Brady and Edmunds (1967), Ansolabehere, Gerber and Snyder (2002), and others.

1969 assembly data) with the 1972 Census of Governments data. Similarly, each of the legislative data in 1974, 1978, and 1983 is merged with each of the Census of Governments data in 1977, 1982, and 1987 respectively.[23]

Specifications

We exploit the panel structure of the data, as follows. Let S_{it} be per-capita intergovernmental transfers to county i in year t, relative to the state-wide average in year t. Let M_{it} be the average district magnitude (representatives per district) in county i in year t (described in more detail below). And, let $\mathbf{x}_{it}$ be a vector of control variables, including partisan composition of the county delegation, per-capita income, percent living in poverty, percent of the population that is school-age, percent of the population that is elderly, population density, and total population. The typical specification we estimate is then:

$$S_{it} = \alpha_i + \theta_t + \beta M_{it} + \gamma' \mathbf{x}_{it} + \epsilon_{it} \ .$$

Note that we use county fixed-effects to control for unobserved heterogeneity across counties, and year fixed-effects to control for aggregate shocks, such as economic fluctuations and changes in national policy towards cities.

To measure the degree of "multi-memberness", we calculate the magnitude of legislative districts for each county. It is defined as the number of legislators representing a county divided by the number of state legislative seats in the county.[24] For example, if a county has seven representatives and if it elects all of them in single member districts, then the number of districts is seven, so the magnitude score equals one. In contrast, if a county has seven members all elected at-large in a countywide district, then it has one district, making the magnitude seven. This variable measure how many legislators a county has that *collectively* advocates their interests. Note that counties that employ SMDs have the magnitude score

[23]For those states that have state legislative elections in odd-numbered years, we subtract one year from the election year. For example, the legislative elections of 1983 in Virginia and New Jersey are treated as the elections of 1982.

[24]This measure is similar to the "district magnitude" measure commonly used in the electoral system literature, but it is slightly different in that it is calculated at the political unit-level, instead of at the electoral district level.

of 1 and those that employ MMDs have the score greater than 1. Therefore the higher score implies more members are working on its behalf.[25] We call this variable *Magnitude.*

A more complicated situation arises when a county shares a district with one or more counties. As Table 1 indicates, a large number of multi-county districts existed. In the case of multi-county districts, we use county populations as weights to calculate the number of representatives as well as the number of districts. For example, suppose that two counties A and B share a two-member district (i.e. two members elected at-large). If county A has population 90,000 and county B has population 10,000, then county A is calculated to have $2*(9/10)$ representative and county B has $2*(1/10)$ member representing it. The number of districts for each county is also calculated in a similar way. Continuing the same example, county A is assigned $1*(9/10)$ district, and county B gets $1*(1/10)$ district.

The calculations are done at the district level, and the number of representatives and the number of districts are aggregated up to the county level. If county A in the previous example shares another two-member district with another relatively small county C (with the same population size),[26] then county A has $2*(9/10)+2*(9/10)$ representatives and $1*(9/10)+1*(9/10)$ districts. We employ no weighting across districts when we add up districts to calculate the total number of representatives and districts for each county.

4. Results

Table 5 reports our main estimation results. In all cases, the dependent variable is the amount of per-capita intergovernmental transfers to each county in each year, relative to the state-wide average in the same year. The top panel of the table shows the results when the magnitude score (defined above) is used as the main independent variable. The

[25]A potential problem of this measure is that we cannot distinguish the following two cases: a county with 4 members electing them all at-large and a county with two four-member districts members (therefore a county is split into two). In both cases the magnitude score is four (4/1 and 8/2), but one may argue that in the latter case, the legislators do not necessarily work for the county as a whole, but instead they would work for each of their districts. The latter type of MMDs were actually employed in Multnomah County, Oregon. During the 1960s, it had five geographically defined MMDs and each district had three to four members elected at-large. To deal with this issue, we also use a different measure – see below.

[26]The Florida lower house employed this type of arrangement for some of its large counties.

bottom panel shows the results when we use a simple indicator variable for MMDs. This variable, *MMD Dummy*, takes a value of 1 when a county uses a countywide MMD to elect its representatives and 0 otherwise. Therefore, if a county has moved from an at-large MMD to small-sized MMDs, for example, then the magnitude score would be greater than 1 in both periods, but *MMD Dummy* would be 1 only in the first period.[27]

We are interested in the impact of a large shift in districting system, so we include only counties that had the magnitude score of three or above (during the period of our study) in the estimation. This implies, for example, counties that only had a small-sized (such as two-member) MMD and then switched to SMDs are not included in the analysis.[28] It also implies that states that adopted SMDs before the mid-1960s are excluded from the analysis.[29] We also excluded counties that used MMDs throughout the period.[30] All specifications include year and county fixed effects to account for unobserved heterogeneity across counties and year effects.

We estimate simple bivariate models as well as models with a set of control variables (both with year and county fixed-effects). The demographical control variables included in the specifications are population, population density, median household income, percent of school age children (age 5-17), percent black, percent of persons under poverty, percent of persons who are 65 years and older. They are taken from the county-level decennial Census data of 1970, 1980, and 1990.[31] All the county characteristics variables are measured in the relative terms (relative to state mean) for each year and logged.

In addition, in order to abstract from confounding effects of partisan changes that often followed the switch to SMDs, we include political variables in the estimation. The relevant control variables are the fraction of Democrats in the county delegation, an indicator variable

[27]Recall that the magnitude score is 1 for SMDs, but greater than 1 for MMDs.

[28]We also excluded states in New England from the analysis because of their unit of representation is typically towns, not counties. Including New England states does not change the substantive results.

[29]There is no legislative districts that switched back to MMDs from SMDs.

[30]Most of them are in Wyoming and West Virginia.

[31]The legislative data of 1968 (therefore 1972 financial data) are merged with the 1970 Census data. Similarly, each of the legislative data of 1978 (with the 1982 *COG* data) and of 1984 (with the 1987 *COG* data) is merged with each of the 1980 and 1990 Censuses, respectively. As for variables to be merged with the 1974 legislative data, we use values for 1975 (taken from the 1977 version of *County and City Data Book*) when available, and we linearly interpolate values for other variables using the 1970 and 1980 Census data.

that measures the party control of the lower house, and an interaction term of the two. The indicator variable for the party control equals 1 if the state house is under solid Democratic control, -1 if it is under solid Republican control, and 0 otherwise.[32] The estimation results with control variables are reported in columns (2) and (4). To keep the table simple, we report only the estimated coefficients on the *Log(Magnitude)* and on the *MMD Dummy* in Table 5. See Table A-1 through Table A-4 in Appendix for full estimation results.

We run two sets of regressions, both with the same specification, for two time periods. The first time period covers four legislative elections between 1968 and 1984, matched with financial data between 1972 and 1987. The second period covers 1968-1978, focusing more on the 1970s redistricting period during which a large number of counties switched to SMDs. The estimation results for the first period are shown in columns (1)-(2) and columns (3)-(4) contain results for the period 1968-1978.

According to the top panel in Table 5, the coefficients on the *Log(Magnitude)* are all positive and statistically different from zero (at the 1 percent significance level) in both time periods. The positive coefficients indicate that counties that switched from MMDs to SMDs received *less* state aid after the switch. The magnitude of the effect is not trivial. For example, the estimated coefficient of around 0.04 on the *Log(Magnitude)* variable (the top panel) suggests that a change from a five-member at-large MMD to SMD is associated with a 6 percent decrease in state aid (relative to the state mean). The results are similar when we use the *MMD Dummy* in the specification. A switch from a countywide MMD to SMDs would lead to approximately a 10 percent reduction in state transfers. The effects are estimated to be larger when we look at the district changes between 1968 up to 1978 (columns (3)-(4)). In both cases, the estimated effects are robust to the inclusion of control variables.

One may argue that during the same time period, the amount of state aid to big cities

[32]To be more precise, for each time period, we look at the party control of the past several years. For example, for the 1972 data, we examine which party controlled the lower chamber between 1968 and 1972 in each state and assign 1 if the Democratic party controlled the chamber during the entire period, 0 if the party control switched, -1 if the it was under the Republican party control. We also included the variable that measures the partisanship of governors, but it has no significant effect, therefore we drop the variable from the analysis.

has declined everywhere, not just in cities that changed their districting system. Because counties that switched to SMDs typically contain big cities (see Table 2), we may be picking up the general declining trend in distributing funds to cities, instead of the effects of districting. To rule out this possibility, we estimate the same model only for counties that contain big cities. The sample now includes large counties that exclusively used SMDs during the period (such examples include counties in CA and NY). Therefore, the comparison is between counties that experienced a switch from MMDs to SMDs and those that used SMDs throughout the period. Again, counties that used MMDs throughout the periods are excluded from the analysis. We select counties in the sample by the following criteria: the average population during the period studied was more than 50,000 and the average number of representatives was greater than five.[33]

The bottom panel of Table 5 reports the estimation results for large cities. Again, the estimated coefficients on the *MMD Dummy* are all positive and statistically significantly different from zero, in both periods. Compared to counties that had SMDs during the period, counties that switched from a countywide MMD to SMDs experienced around a 9-10 percent decrease in the amount of state aid. This suggests that only counties that were subdistricted into small districts experienced a substantial cut in state aid.

One may also argue that the decline in state aid to the area that switched to SMDs is not surprising because the subdistricting of large MMDs was politically motivated in some states. As discussed in the previous section, while some states switched to SMDs due to exogenous shocks (such as court-rulings or the VRA-related reasons), in some states political considerations were clearly at play. In order to obtain cleaner estimates of the effects of districting, we also estimate the model using an instrumental variable. The instrument for the *MMD Dummy* variable is an interaction term of the following two variables: (1) a dummy variable that takes a value of 1 if a county is covered under Section 5 of the VRA or is in a state that switched to SMDs due to court-rulings or pressures from outside forces (such as federal court or Attorney General) (see Table 4) and (2) an indicator variable that

[33]Increasing the population threshold to 100,000 does not change any substantive results.

equals 1 if a county has a population greater than 50,000.[34,35]

Because whether a state switched to SMDs due to outside intervention is subject to interpretation (except for the Section 5 covered jurisdictions), we use two sets of instruments in the following analysis. In the first set, we narrowly define the "outside intervention" and only the clear cases of exogenous changes are coded as 1. In the second set, we relax the definition to include court-rulings that were not directed at districting system itself (however they lead to the dismantling of MMDs).[36]

For this set of analysis, we focus on the change between 1968 and 1984. Because we have two time periods, the data are first-differenced and we use the instrument variables for a variable that measures the change in the district system (Δ *MMD Dummy*). The estimation results are presented in Table 6. Again, we estimate the model for all large counties that switched from MMDs to SMDs and for metropolitan counties separately. The second group contains counties that exclusively used SMDs during the period as well as comparable counties that switched to SMDs. Columns (1)-(3) contain the estimation results for counties that previously employed large MMD system, which subsequently districted. To facilitate comparison, the estimation result of the first-differenced model by OLS is presented in column (1), and then the IV estimates are presented in the second and third columns. According to Table 6, the estimated coefficients on the Δ *MMD Dummy* variable are all positive regardless of the way we estimate the coefficient. As expected, the standard errors of the IV estimators are larger than those of OLS, but still the estimated coefficients are statistically significantly different from zero. We obtain a similar set of results for large metropolitan counties (columns (4)-(6)): the counties that were districted into SMDs

[34]States that are covered under Section 5 as a whole and employed MMDs as of 1968 are Alabama, Georgia, Louisiana, Mississippi, South Carolina, Virginia, and Texas. North Carolina is partially covered, but because its legislative data for 1968 are not included in the ICPSR data set, North Carolina is excluded from this set of analysis. We also change the population threshold to 100,000, but the substantive results remain the same.

[35]We conduct the Hausman test for endogeneity of the *MMD dummy* variable. For the set of large cities, the null that the *MMD dummy* is exogenous is rejected at the 1 percent significance level. For the sample that includes all counties, we cannot reject the null, suggesting that the switch is not entirely endogenous. We present the instrumental variable estimation results for this set of counties for comparison purposes.

[36]In *IV(1)*, relevant counties in the VRA covered jurisdictions, Arkansas, Indiana are coded as 1. In *IV(2)*, counties in Minnesota, Nevada, Oregon, and Tennessee are also coded as 1 in addition to the counties in *IV(1)*.

experienced a large decline in the amount of state transfers compared to those that used SMDs throughout the period.

Taken together, the estimation results in Table 5 and 6 indicate that the change from MMDs to SMDs had a negative impact on their ability to secure funding from the state government. The estimated effects are robust to the effects of other confounding factors as well as the choice of estimators.

The analyses above do not allow us to determine why switching to SMDs hurts metropolitan counties. We can, however, point out a few suggestive facts. First, in almost all of the counties that switched to SMDs from large MMDs, the partisan composition of the delegations changed dramatically after the switch. Under the "mega" at-large MMD system, one-party sweeps were very common because voters, faced with impossibly long ballots, typically voted straight party tickets (Hamilton, 1967). With the dismantling of large MMDs, split delegations became much more common. For example, in Polk County, Iowa, the Democratic candidates won all eleven seats during the three legislative sessions 1962-1966 (before the switch), but they occupied only 63% of the seats after they were carved up into eleven SMDs.[37] Second, and relatedly, the switch to SMDs often resulted in lower cohesion in legislative roll call voting among the metropolitan county's representatives, largely because of the change in partisan composition. For example, Jewell (1969) reports noticeable reductions in cohesion in the Cuyahoga (Cleveland) and Hamilton (Cincinnati) delegations after they adopted SMD plans.

5. Discussion

We draw two conclusions from the analysis above. First, dividing large "natural economic communities" into many single-member districts may reduce the effectiveness of these communities' legislative delegations, providing an argument for the use of multi-member districts. Naturally, we hesitate to give policy advice on the basis of one, limited, study. But if future studies yield similar findings, then those involved in the districting process –

[37]Calculated by the authors using election returns reported in Legislative Manuals.

legislatures, districting commissions, and courts – might ultimately want to reconsider the current preference for SMDs.

Second, theoretical models that focus overwhelmingly on the free-rider issues of MMDs may be in need of revision. Our results suggest that countervailing factors, such as externalities and the power of similar preferences and bloc voting, may outweigh free-riding. We cannot identify precisely which countervailing factors are most important, but this may be a fruitful question for future research.

Finally, we should point out that MMDs are widespread. They are used in all proportional-representation systems, of course. Most European countries also use MMDs (and P-R) to elect their European Parliament members, although the U.K. does not. At-large MMDs are the most common form of electoral system in U.S. cities with populations 5,000 and 1,000,000, and mixed systems that combine MMDs and SMDs are the second most common form (*Municipal Year Book*, 1998). They are also used in a variety of other local governments in the U.S., such as school boards and county commissions.

Today, there are even proposals in the U.S. Congress to allow the use of MMDs in congressional elections. Several members of congress, including Mel Watt, Eva M. Clayton, Loretta Sanchez, Stephanie Tubbs Jones, Barbara Lee, Alcee Hastings, and Cynthia McKinney have supported legislation in recent congresses that would allow states to use MMDs, proportional voting, instant runoff voting, and other alternatives in electing their congressional delegations. So far these proposals have gone nowhere. But someday they might. The ban against MMDs was passed by an ordinary law (in 1967), and an ordinary law could change it again.

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Table 1

State Legislative Districts (1962)

	No. of Districts		No. of Reps.		Total No. of	
Size of District	SMD	MMD	SMD	MMD	Districts	Reps.
Lower Houses in 49 States						
Smaller than County	1,411	451	1,411	1,129	1,862	2,540
Identical to County	1,480	468	1,480	1,436	1,948	2,916
Multi-County	288	53	288	139	341	427
Totals	3,179	972	3,179	2,704	4,151	5,883
Upper Houses in 50 States (including Nebraska Unicameral)						
Smaller than County	365	0	365	0	365	365
Identical to County	578	65	578	180	643	758
Multi-County	655	62	655	125	717	780
Totals	1,598	127	1,598	305	1,725	1,903

Notes: Taken from David and Eisenberg (1962), p.20.

Table 2
List of "Mega" Multi-Member State House Districts that Switched to SMDs or small MMDs

State	County	City	Size of House	No. of Rep (MMD)	No. of Dist. (MMD)	No. of Rep. (After)	No. of Dist. (After)	Year of Change
AL	Jefferson	Birmingham	105	20	1	18.8	21	1974
AL	Mobile	Mobile	105	10	1	10	11	1974
AR	Pulaski	Little Rock	100	13	1	15	3	1972
CO	Denver	Denver	65	18	1	18	18	1968
FL	Broward	Fort Lauderdale	120	8	1	12	12	1982
FL	Dade	Miami	120	22	1*	20	20	1982
FL	Duval	Jacksonville	120	11	1	7	7	1982
FL	Hillsborough	Tampa	120	8.95	1*	8	8	1982
FL	Pinellas	St. Petersburg	120	9	1	8	8	1982
IN	Lake	Gary, Hammond	100	10	1	11	6	1972
IN	Marion	Indianapolis	100	15	1	16	5*	1972
IA	Polk	Des Moines	100	11	1	11	11	1968
MS	Hinds	Jackson	122	12	1	12	12	1975
MT	Cascade	Great Falls	100	12	1	11.8	13	1974
MT	Yellowstone	Billings	100	12	1	12.5	13	1974
NC	Mecklenburg	Charlotte	120	8	1	7	7	1984
NJ	Essex	Newark	60*	12	1	12	6	1966
NJ	Hudson	Jersey City	60*	8	1	8	4	1966
NV	Clark	Las Vegas	42	16	*	22	22	1972
NV	Washoe	Reno	42	12	1*	10	10	1972
OH	Cuyahoga	Cleveland	99	17	1	17	17	1968
OH	Hamilton	Cincinatti	99	9	1	9	9	1968
OR	Multnomah	Portland	60	17	5	16	16	1972
SC	Charleston	Charleston	124	11	1	12	12	1974
SC	Greenville	Greenville	124	11	1	12	12	1974
SC	Richland	Columbia	124	10	1	11	11	1974
SC	Spartanburg	Spartanburg	124	8	1	8.8	8.8	1974
SD	Minnehaha	Sioux Falls	70	10	1	14	7	1984
TX	Bexar	San Antonio	150	10	1	12	11.1	1972
TX	Dallas	Dallas	150	15	1	18	18	1972
TX	Harris	Houston	150	19	3	24	23.3	1972
TX	Tarrant	Fort Worth	150	8	1	10	10	1972

Notes: Counties with more than eight representatives are listed. The size of the NJ General Assembly increased to 80 in 1966. Under the old plan, Washoe County, NV, shared a MMD with a small-sized Storey County and Clark County, NV, had five districts (three geographically defined districts electing five members and two countywide districts with eleven members). Multnomah County, OR, had five geographically defined districts during the 1960s (one at-large and five geographically defined districts after 1964). Marion County, IN, had five three-member MMDs and one SMD after 1974. Florida adopted a plan with small MMDs during the 1970s before switching to SMDS in 1982.
Notes: Legislative Manuals (various years), Hardy, Heslop, and Anderson (1981), ICPSR Study No. 8907, National Municipal League (1967).

Table 3

The Number of Counties with MMDs by the Size of Districts (State House)

Year	2-Member	3-Member	4, 5, or 6	7 or greater
1968	145	41	57	30
1974	91	28	38	7
1978	88	24	28	7
1984	78	6	19	3

Notes: *Year* refers to the year of state legislative elections. Source: ICPSR Study No. 8907

Table 4
List of Changes from MMD to SMDs or small MMDs in State House Districts: 1960-1985

State	Type of Change	Year	Reasons	Partisan?
AL	MMD to SMD	1974	VRA	No
AZ	At-large to small MMD	1966	*Klahr v. Goddard* (1965)	Yes (Republican)
AR	At-large to small MMD	1972	*Yancey v. Faubus* (reapp. case), AG's preference to SMD	No
CO	MMD to SMD	1968	Constitutional amendment, *Lucas v. Co. Gen. Assembly* (1965)	No
FL	MMD to SMD	1982	Decennial reapportionment	
GA	MMD to SMD*	1974	VRA	No
IL	MMD to SMD	1982	Decennial reapportionment	
IN	At-Large to small MMD	1972	*Chavis v. Whitcomb* (1971)	Not too much
IA	MMD to SMD	1968	*Kruidenier v. McCulloch* (1966)	No
LA	MMD to SMD	1972	VRA	No
MI	MMD to SMD	1964	*Scholle v. Hare* (1962, 1964) (reapportionment case)	No
MN	MMD to SMD	1972	*Beens v. Erdahl* (1972) (reapportionment case)	No (court-drawn)
MS	MMD to SMD	1979	VRA	No
MT	MMD to SMD	1974	Decision of constitutional convention	No
NV	MMD to SMD	1972	Decennial reapportionment	No
NJ	At-large to small MMD	1966	*Jackman v. Bodine* (1964) (reapportionment case)	No
NM	MMD to SMD	1966	Reapportionment following *Baker v. Carr*	
NC	MMD to SMD/small MMD	1984	VRA, *Gingles v. Edmisten* (1984)	
OH	MMD to SMD	1966	*Nolan v. Rhodes* (1964, 1966)	Yes (Republican)
OK	MMD to SMD	1964	*Moss v. Burkhart* (1963), *Williams v. Burkhart* (1964)	No (AG plan)
OR	MMD to SMD	1972	Decennial reapportionment	
PA	MMD to SMD	1966	Court intervention after *Butcher v. Bloom* (1964) (reapp. case)	No
SC	MMD to SMD	1974	VRA	No
TN	MMD to SMD	1972	Decennial reapportionment	
TX	MMD to SMD	1976	*White v. Regester* (1973), VRA (Sec 5 coverage in 1975)	No
VA	MMD to SMD	1984	VRA	

Notes: New England states and states that have used only SMDs or MMDs (with no district magnitude change) since 1960 are excluded. The *Year* column shows the year of the first legislative elections under new district plans. The last column reports whether the change was highly partisan. The party name in brackets shows which party was benefited by the change. VRA stands for the Voting Rights Act of 1965. Georgia's 1974 plan contained some small MMDs, but largely SMDs.
Sources: Davidson and Grofman (1994), Dixon (1968), Hardy, Heslop, and Anderson (1981), National Municipal League (1967), Niemi, Hill, and Grofman (1985)

Table 5

Estimated Effects of Multimember Districts on the Amount of Intergovernmental Transfers

Dependent Variable:
Log(Relative Per Capita Transfers to County)

	1968-1984		1968-1978	
	(1)	(2)	(3)	(4)
All Counties				
MMD Dummy	0.061**	0.058**	0.083**	0.070**
	(0.019)	(0.018)	(0.025)	(0.025)
Controls	No	Yes	No	Yes
Log(Magnitude)	0.031*	0.032*	0.041*	0.035*
	(0.014)	(0.013)	(0.017)	(0.017)
Controls	No	Yes	No	Yes
N	515	512	388	385
Large Cities				
MMD Dummy	0.067*	0.090**	0.119**	0.137**
	(0.029)	(0.029)	(0.043)	(0.047)
Controls	No	Yes	No	Yes
Log(Magnitude)	0.023	0.034*	0.041	0.041
	(0.018)	(0.017)	(0.022)	(0.023)
Controls	No	Yes	No	Yes
N	438	430	331	323

Notes: Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. Year and county fixed effects are included in all specifications. The dependent variable is the relative amount of per capita transfers from the state government to county. In the first two panels, data represent counties that had the magnitude score greater than three. The magnitude score roughly equals the number of representatives divided by the number of legislative districts in the county. The top panel reports estimation results when the main independent variable is *Log(Magnitude)*. In the second panel, an indicator variable that takes 1 if a county uses a countywide MMD to elect its delegations is used as the main explanatory variable. In the bottom panel, data represent counties with the number of representatives greater than 5 and population greater than 50,000 (both on average). In all panels, counties that used MMDs throughout the period are excluded. In the top panel, counties that used only SMDs are excluded. In columns (2) and (4), a set of control variables is included in the estimation. The control variables included in the estimation are: Population, Population Density, Median Income, % School Age, % Black, % Poverty, % 65 Years (all measured in relative terms and logged) and % Democrat, Dem. Majority, % Democrat × Dem. Majority. For full estimation results, see Table A-1 through A-4 in Appendix.

Table 6
Instrumental Variable Estimation of the Effects of Multimember Districts on the Amount of Intergovernmental Transfers: 1968-1984
Dependent Variable: Log(Relative Per Capita Transfers to County)

	All Counties			Large Cities		
	(1)	(2)	(3)	(4)	(5)	(6)
	FD	FD/IV(1)	FD/IV(2)	FD	FD/IV(1)	FD/IV(2)
Δ MMD dummy	0.177**	0.293*	0.382*	0.135**	0.376*	0.476*
	(0.041)	(0.128)	(0.159)	(0.047)	(0.172)	(0.195)
Δ % Democrat	-0.120	-0.177	-0.221	-0.173	-0.104	-0.075
	(0.143)	(0.141)	(0.145)	(0.106)	(0.100)	(0.106)
Δ Dem. Majority	-0.025	-0.020	-0.017	0.017	0.088	0.118
	(0.045)	(0.044)	(0.046)	(0.042)	(0.064)	(0.073)
Δ % Democrat × Δ Dem. Majority	0.148	0.189	0.221	0.327**	0.225	0.182
	(0.142)	(0.132)	(0.132)	(0.117)	(0.123)	(0.131)
Δ Population	0.518**	0.585**	0.636**	0.329*	0.616*	0.735*
	(0.123)	(0.155)	(0.181)	(0.165)	(0.287)	(0.296)
Δ Pop. Density	-0.528**	-0.592**	-0.641**	-0.265*	-0.472*	-0.557*
	(0.106)	(0.137)	(0.145)	(0.133)	(0.222)	(0.237)
Δ Median Income	1.194**	1.392**	1.543**	0.138	0.354	0.444
	(0.352)	(0.464)	(0.474)	(0.416)	(0.475)	(0.492)
Δ % School Age	1.256**	1.400**	1.509**	1.210*	1.692*	1.891**
	(0.315)	(0.349)	(0.375)	(0.527)	(0.658)	(0.660)
Δ % Black	0.032	0.049	0.062	0.058	0.145	0.181
	(0.046)	(0.048)	(0.055)	(0.054)	(0.086)	(0.098)
Δ % Poverty	0.480**	0.521**	0.552**	0.270*	0.257	0.253
	(0.110)	(0.134)	(0.138)	(0.124)	(0.132)	(0.143)
Δ % 65 Years+	0.313**	0.388*	0.446**	0.143	0.224	0.257
	(0.119)	(0.152)	(0.153)	(0.172)	(0.198)	(0.204)
Constant	0.065	0.129	0.178	0.008	0.033	0.043
	(0.050)	(0.086)	(0.095)	(0.033)	(0.040)	(0.045)
Observations		120			100	

Notes: Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. The dependent variable is the change in relative amount of per capita transfers from the state government to county between 1972 and 1987. District system and legislative information are as of 1968 and 1984. In columns (1)-(3), data represent counties that had the magnitude score greater than three. The magnitude score roughly equals the number of

representatives divided by the number of legislative districts in the county. In columns (4)-(6), data represent counties with the number of representatives greater than 5 and population greater than 50,000 (both on average). Columns (2), (3), (5), and (6) report estimation results when Δ *MMD Dummy* is instrumented. The instrumental variable is a indicator variable that equals 1 if a county is covered under Section 5 of the VRA or had a court ruling that mandated the use of SMD *and* if the county has a population size greater than 50,000. Counties that used MMDs throughout the period are excluded. In columns (1)-(3), counties that used only SMDs throughout the period are excluded. All control variables (except for *% Democrat* and *Dem. Majority*) are measured relative the state average and logged. *% Democrat* measures the fraction of Democrats in the county delegation. Δ *Dem. Majority* equals 1 if the lower house was under solid Democratic control between 1968 and 1984, -1, if opposite, and 0 if the party control switched from Republican to Democratic.

Appendix

Table A-1
Estimated Effects of Multimember Districts
on the Amount of Intergovernmental Transfers
Dependent Variable: Log(Relative Per Capita Transfers to County)
Main Independent Variable: MMD Dummy

	1968-1984		1968-1978	
	(1)	(2)	(3)	(4)
MMD dummy	0.061**	0.058**	0.083**	0.070**
	(0.019)	(0.018)	(0.025)	(0.025)
% Democrat		-0.015		0.017
		(0.044)		(0.050)
Dem. Majority		0.005		0.013
		(0.028)		(0.034)
% Democrat × Dem. Majority		-0.008		-0.022
		(0.045)		(0.053)
Population		0.267**		0.383**
		(0.095)		(0.147)
Pop. Density		-0.243**		-0.359**
		(0.072)		(0.107)
Median Income		0.169		0.270
		(0.226)		(0.281)
% School Age		0.760**		1.275**
		(0.223)		(0.355)
% Black		-0.007		-0.019
		(0.032)		(0.044)
% Poverty		0.225**		0.338**
		(0.083)		(0.102)
% 65 Years+		0.072		0.130
		(0.080)		(0.131)
Constant	-0.094**	-3.013**	-0.121**	-4.257*
	(0.010)	(1.093)	(0.012)	(1.670)
Observations	515	512	388	385
R-squared	0.80	0.82	0.81	0.83

Notes: Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. Year and county fixed effects are included in all specifications. Data represent counties that had the magnitude score greater than three. Counties that used MMDs throughout the period are excluded. *MMD Dummy* is an indicator variable that takes 1 if a county uses a countywide MMD to elect its representatives. All control variables (except for *% Democrat* and *Dem. Majority*) are measured relative the state average and logged.

Table A-2
Estimated Effects of Multimember Districts
on the Amount of Intergovernmental Transfers
Dependent Variable: Log(Relative Per Capita Transfers to County)
Main Independent Variable: Log(Magnitude)

	1968-1984		1968-1978	
	(1)	(2)	(3)	(4)
Log(Magnitude)	0.031*	0.032*	0.041*	0.035*
	(0.014)	(0.013)	(0.017)	(0.017)
% Democrat		-0.016		0.016
		(0.045)		(0.052)
Dem. Majority		-0.001		0.005
		(0.028)		(0.034)
% Democrat × Dem. Majority		0.001		-0.007
		(0.046)		(0.054)
Population		0.281**		0.424**
		(0.095)		(0.149)
Pop. Density		-0.250**		-0.360**
		(0.072)		(0.109)
Median Income		0.139		0.217
		(0.223)		(0.273)
% School Age		0.730**		1.287**
		(0.226)		(0.358)
% Black		-0.006		-0.018
		(0.032)		(0.044)
% Poverty		0.225**		0.346**
		(0.082)		(0.100)
% 65 Years+		0.058		0.146
		(0.082)		(0.133)
Constant	-0.093**	-3.154**	-0.112**	-4.712**
	(0.010)	(1.097)	(0.011)	(1.694)
Observations	515	512	388	385
R-squared	0.79	0.82	0.80	0.83

Notes: Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. Year and county fixed effects are included in all specifications. Data represent counties that had the magnitude score greater than three. Counties that used MMDs throughout the period are excluded. All control variables (except for *% Democrat* and *Dem. Majority*) are measured relative the state average and logged.

Table A-3
Estimated Effects of Multimember Districts on Large Cities
Dependent Variable: Log(Relative Per Capita Transfers to County)

	1968-1984		1968-1978	
	(1)	(2)	(3)	(4)
MMD dummy	0.067*	0.090**	0.119**	0.137**
	(0.029)	(0.029)	(0.043)	(0.047)
% Democrat		0.037		0.073
		(0.044)		(0.054)
Dem. Majority		0.010		0.050
		(0.023)		(0.031)
% Democrat × Dem. Majority		-0.001		-0.075
		(0.040)		(0.047)
Population		0.154		0.091
		(0.120)		(0.194)
Pop. Density		-0.136		-0.224
		(0.074)		(0.142)
Median Income		-0.225		-0.097
		(0.251)		(0.345)
% School Age		1.056**		1.374**
		(0.263)		(0.423)
% Black		0.030		0.060
		(0.035)		(0.052)
% Poverty		0.045		0.082
		(0.091)		(0.141)
% 65 Years+		0.119		0.112
		(0.107)		(0.189)
Constant	-0.130**	-1.829	-0.204**	-0.932
	(0.011)	(1.500)	(0.023)	(2.404)
Observations	438	430	331	323
R-squared	0.88	0.89	0.89	0.90

Notes: Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. Year and county fixed effects are included in all specifications. Data represent counties that had the number of representatives greater than 5 and population greater than 50,000 (both on average). *MMD Dummy* is an indicator variable that takes 1 if a county uses a countywide MMD to select is representatives. Counties that used MMDs throughout the period are excluded. The dependent variable is the relative amount of per capita transfers from the state government to each county. All control variables (except for *% Democrat* and *Dem. Majority*) are measured relative the state average and logged.

Table A-4
Estimated Effects of Multimember Districts on Large Cities
Dependent Variable: Log(Relative Per Capita Transfers to County)
Main Independent Variable: Log(Magnitude)

	1968-1984		1968-1978	
	(1)	(2)	(3)	(4)
Log(Magnitude)	0.023	0.034*	0.041	0.041
	(0.018)	(0.017)	(0.022)	(0.023)
% Democrat		0.026		0.065
		(0.044)		(0.057)
Dem. Majority		0.006		0.040
		(0.024)		(0.032)
% Democrat × Dem. Majority		0.003		-0.067
		(0.041)		(0.049)
Population		0.130		0.038
		(0.121)		(0.206)
Pop. Density		-0.120		-0.203
		(0.073)		(0.151)
Median Income		-0.240		-0.079
		(0.250)		(0.338)
% School Age		1.047**		1.374**
		(0.265)		(0.421)
% Black		0.023		0.053
		(0.036)		(0.056)
% Poverty		0.049		0.114
		(0.093)		(0.146)
% 65 Years+		0.129		0.123
		(0.108)		(0.195)
Constant	-0.130**	-1.567	-0.186**	-0.224
	(0.011)	(1.506)	(0.020)	(2.533)
Observations	438	430	331	323
R-squared	0.87	0.89	0.89	0.90

Notes: Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. Year and county fixed effects are included in all specifications. Data represent counties that had the number of representatives greater than 5 and population greater than 50,000 (both on average). *MMD Dummy* is an indicator variable that takes 1 if a county uses a countywide MMD to select is representatives. Counties that used MMDs throughout the period are excluded. The dependent variable is the relative amount of per capita transfers from the state government to each county. All control variables (except for *% Democrat* and *Dem. Majority*) are measured relative to the state average and logged.

Table A-5
First Stage Regression of IV estimator (Table 6)
Dependent Variable: Δ MMD Dummy

	All Counties		Large Cities	
	(1)	(2)	(3)	(4)
Outside Intervention Dummy	-0.365**	-0.277**	-0.425**	-0.336**
	(0.083)	(0.087)	(0.108)	(0.099)
Δ % Democrat	0.145	0.215	-0.293	-0.234
	(0.392)	(0.403)	(0.263)	(0.263)
Δ Dem. Majority	0.010	0.014	-0.223**	-0.207**
	(0.094)	(0.098)	(0.052)	(0.049)
Δ % Democrat × Δ Dem. Majority	-0.268	-0.180	0.230	0.327
	(0.354)	(0.375)	(0.276)	(0.272)
Δ Population	-0.617*	-0.593*	-0.974**	-0.948**
	(0.259)	(0.261)	(0.244)	(0.218)
Δ Pop. Density	0.786**	0.765**	0.746**	0.767**
	(0.247)	(0.249)	(0.177)	(0.175)
Δ Median Income	-1.910*	-2.182**	-1.015	-1.263*
	(0.778)	(0.770)	(0.587)	(0.548)
Δ % School Age	-1.180	-1.455*	-1.560*	-2.083**
	(0.658)	(0.684)	(0.695)	(0.690)
Δ % Black	-0.159*	-0.110	-0.347**	-0.313**
	(0.080)	(0.073)	(0.093)	(0.088)
Δ % Poverty	-0.256	-0.417	0.088	-0.018
	(0.267)	(0.263)	(0.201)	(0.208)
Δ % 65 Years+	-0.511	-0.645*	-0.151	-0.336
	(0.268)	(0.265)	(0.322)	(0.297)
Constant	-0.520**	-0.520**	-0.100	-0.112
	(0.102)	(0.105)	(0.071)	(0.064)
Observations	120	120	106	106
R-squared	0.24	0.22	0.56	0.54

Notes: Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. The dependent variable is the change in districting system, which equals -1 if county switched from MMD to SMDs, 0 if no change. In columns (1) and (2), data represent counties that had the magnitude score greater than three. In columns (3) and (4), data represent counties that had the number of representatives greater than 5 and population greater than 50,000 (both on average). Counties that used MMDs throughout the period are excluded. The instrumental variable is a indicator variable that equals 1 if a county is covered under Section 5 of the VRA or had a court ruling that mandated the use of SMD *and* if the county has a population size greater than 50,000. In columns (1) and (3), *IV(1)* is used as an instrumental variable and in columns (2) and (4), *IV(2)* is used. See text for the difference between the two.

Chapter 5
Conclusion

This dissertation explored three broad questions related to political representation. In Chapter 2, I provided empirical evidence that legislative representation of traditionally underrepresented racial minorities can have a direct impact on public policies. Exploiting large and exogenous variations in the level of minority representation in state legislatures, I showed in Chapter 2 that that representation of minority groups can lead to tangible changes in policy outcomes. The data set compiled for this study also reveals that the presence of racial minorities in the legislature seems to have positively affected minorities in general and not just those residing in districts represented by African American state legislators.[1] During the 1970s, high minority enrollment districts in the South experienced a similarly large increase in aid from the state government regardless of whether they were actually represented by a black legislator or not.[2] This implies that black state legislators try to advocate on behalf of the broader interests of African Americans, rather than to merely bring back goods to their own districts. Thus, the benefit of group's gaining access to the legislative arena can be broad and general.

From this empirical analysis, I do not seek to draw any inferences regarding the merit of racial redistricting or that of federal intervention. Such claims are simply beyond the scope

[1]The specification in Chapter 2 assumes the effect of minority representation to be the same across districts (as long as the fraction of minority students is the same), regardless of whether a high minority enrollment district is represented by a black legislator or not. While this assumption seems plausible given the large fraction of school funding distributed through aid formulas, discretionary spending exists, for instance, in the form of facility improvement funds.

[2]There are 28 high minority enrollment (more than 50 percent black pupils) school districts in the 'reform' southern states that are represented by black legislators and 163 high minority districts that are not. The average increase in state aid for the former is 1,016.074 (s.d.=338.185), while the increase for the latter is 901.546 (s.d.=393.887). In order to conduct this analysis, I first recorded which state legislative districts were represented by black legislators (as of 1980) by consulting *Roster* (1981). I then matched school districts and state legislative districts by county names. Some counties (especially in the urban area) are represented by multiple legislators. I treated those counties represented by at least one black state legislator as being represented by black legislators. This type of analysis was possible because Southern school district boundaries often coincide with county or city boundaries (except for Texas and Arkansas). In general, however, it is impossible to match state legislative districts to school districts, meaning that a similar analysis could not be conducted for the later period under consideration.

of this dissertation. Furthermore, the empirical results of my study should not be interpreted as suggesting that white legislators cannot adequately represent minority interests. Rather, the main message of this study is that legislatures that incorporate members of society's minority groups are more likely to adopt policies that reflect the interests of traditionally underrepresented groups. This by no means rules out the possibility of the advancement of minority interests by like-minded members of the majority group. In addition, as some authors argue, under certain circumstances it may be better for black voters to remain an influential constituency within a district represented by a white legislator, rather to be packed in a majority-minority district. But the empirical results in this study suggest that the *overall* effect of actual minority representation is positive and not at all trivial. The voices of minority groups are more likely to be heard when members of these groups are actually present in the legislature to advocate on behalf of their group's interests. Thus, the racial composition of legislatures does matter, not only in a symbolic sense, but also for policy outcomes that reflect society's diverse interests.

However, the empirical results presented in Chapter 3 suggest that achieving the political representation of racial minorities in the United States may still require some form of race-conscious institutional arrangements, such as the creation of racially homogeneous districts. On the one hand, I find that the race of a candidate does not influence voting decisions of white voters *as long as* the voters possess party affiliations. On the other hand, white voters who are indifferent between the two major parties seem to engage in race-based voting, even after controlling for the fact that some black candidates are too liberal for these voters. The likelihood of non-partisan white voters voting for black candidates with a particular ideological position is much lower than their probability of supporting white candidates with a similar issue position. This set of results implies that candidate race is largely irrelevant for white voters in the presence of a party cue. However, absent partisan and ideological cues, a black candidate's race negatively affects the voting decisions of this set of voters. Thus, a negative reaction to black candidates still exists among some white voters, suggesting that it may be too early to adopt a completely color-blind approach in designing electoral

institutions. At the same time, I find in Chapter 3 that black voters overwhelmingly prefer to vote for candidates of their own race, even if the ideological positions of candidates are not necessarily congruent with the voters' own issue positions. A consistent story emerges when the results of Chapter 3 are coupled with the results of Chapter 2. Minority legislators bring substantive policy benefits to racial minorities – in addition to descriptive benefits – which likely explains minority groups' preference for candidates of their own racial group.

Finally, Chapter 4 examined how electoral systems affect policy outcomes by determining the relative bargaining power of a political unit within the legislature as well as by shaping the incentives of legislators. We find that during the period under consideration, metropolitan areas received significantly *more* money from the state government, on average, when represented by at-large delegations than when represented by delegations elected from single-member districts. Thus, when the quality of a district's representation is measured by the total amount of financial resources secured for the district, then political units are better represented under a multimember district system than under a single-member district system.

However, I should emphasize that the finding in Chapter 4 does *not* imply that the multimember district system is intrinsically better than the single-member district system. Certain types of multimember districts (such as at-large system) tend to suppress representation of minority groups (racial/ethnic and partisan minorities) to a considerable degree. The legislative representation of African Americans in state legislatures was virtually zero under the multimember district system in the 1960s, and it was after the switch to the single-member district system that they gained access to legislatures. The data set complied for Chapter 4 also reveals that a single party typically dominated county delegations under the multimember district system. A majority group within a particular jurisdiction has no reason to consider the interests of minority groups under such a system. Thus, while political units may be better off under the multimember district system, the benefits of the multimember district system may well be enjoyed disproportionately by the dominant group, at the expense of minority groups.

Switching to a single-member district system would likely reduce this type of majority group domination. After the switch, the representation of diverse groups is much more common than it once was, and this added representation introduces more divergent and often conflicting interests into a legislative delegation. As a result, one potential consequence of the switch to single-member districts is a change in the way that resources are allocated among groups. The results presented in Chapter 2 strongly suggest that this is the case. After the switch to single-member districts, and the associated increase in the level of minority representation, groups whose interests had largely been ignored by the dominant group received a greater and fairer share of resources. Thus, while switching to single-member districts may decrease the *overall* amount of resources available to a particular political unit, it is likely to bring benefits to previously underrepresented minority groups within the jurisdiction. Examining how the allocation of resources is affected by the switch to the single-member district system and gauging the relative drawbacks and merits of the two different electoral systems is a fertile area of future research.

Another future area of research along the lines of the analysis in this dissertation is to further investigate the links between legislative representation of minority groups and policy outcomes. One possibility is to ask whether mandated representation of minority groups (*e.g.*, through reserved legislative seats) can result in tokenism. Such an outcome arises, for example, when parties with no genuine interest in promoting the interests of minority groups field 'weak' minority candidates in an effort to increase the party's seat share without increasing the substantive representation of minorities. Answering this question will allow us to understand under what conditions descriptive representation becomes substantive and under what conditions descriptive representation remains purely symbolic. A second potential project, closely related to Chapter 2 of the dissertation, is to investigate in more depth whether the identity of representatives is relevant in determining the conditions of minority communities. Chapter 2 demonstrated that the *overall* level of minority representation in the legislature matters for policy outcomes, but it is yet to be understood whether there are additional benefits for minority communities when they have a minority legislator in their

district. I believe these projects will contribute to our understanding of the link between political representation and legislative outcomes, which will ultimately elucidate the effects of political institutions on policy outcomes.