Distributive Politics and the Low-Income Housing Tax Credit

Will Labadie*

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Abstract

In this paper, I investigate the possibility of partisan targeting in the administration of the Low-Income Housing Tax Credit program. Through the program, state allocating agencies have discretion over how low-income housing tax credits are distributed, and state governors have a degree of influence over the allocating agency. If the agency is partisan or deferent, subsidies may be targeted to match the governor's political interests. I find limited evidence of partisan targeting. Counties are slightly more likely to receive the tax credit from Democrat governors when they vote 40-80% Democrat than when they vote <40% Democrat, and counties that vote 40-80% Democrat are slightly more likely to receive credits from a Democrat governor than from a Republican governor.

1 Introduction

Through the Low Income Housing Tax Credit (LIHTC) program, a select group of program administrators wield an enormous amount of influence over the U.S. supply of low- to middle-income housing.[1] In general, U.S. state governors have some degree of control over the composition of the state-level agencies tasked with allocating the tax credit. To the extent that allocating agencies (AA's) are willing to distribute goods based on political expediency, LIHTC's may be allocated to some projects based on the project area's political preferences. If AA's allocate LIHTC's to projects for political reasons, the credits aren't going where they are most needed. Misallocated tax credits could create surpluses in markets previously in equilibrium; markets with low-income housing shortages may not receive tax credits despite the need for a supply shock.

I exploit variation in state governing party and local partisanship across time to investigate the role of politics in the allocation of LIHTC's. Based on the universe of

*University of Houston.

[1]Empirical evidence suggests that the LIHTC program significantly crowds out private development of low- to middle-income housing, and may fully crowd it out in some markets (Baum-Snow and Marion, 2009; Malpezzie and Vandell, 2002).

projects financed by LIHTC's, I build a panel dataset including number of LIHTC's allocated, LIHTC funds allocated, gubernatorial election returns, governing party, and demographic estimates by county and year. This dataset facilitates within-county comparison of LIHTC receipts when county vote share and state governing party differ. In particular, I compare LIHTC allocations in a given county in years when the county votes for and against the current governing party, and I compare the difference when the governing party is Democrat vs. when it is Republican.

After conditioning on county population and median household income, time-invariant county-specific shocks, and year-specific shocks, I find limited evidence of partisan allocation. When the average county votes >50% Democrat and the governor is a Democrat, it does not receive a significantly different number of LIHTC's or LIHTC funds than when it votes <50% Democrat and the governor is a Democrat, and it is no more or less likely to receive any LIHTC's. The point estimates of these measures suggest some instances of differential allocation, but no identifiable trend in the aggregate. I find similar results when I allow incremental changes in county Democrat vote share to affect allocation.

In my most flexible specification, I split counties into bins based on Democrat vote share and compare allocations when the governing party is Democrat vs. Republican and when a county votes $\geq$40% vs. <40% Democrat. I find that the average county does not receive significantly more or less LIHTC's or LIHTC funds when it votes >40% Democrat and the governing party is Democrat; however, I find that a county is more likely to receive at least one LIHTC. Voting 50-60% Democrat, for example, increases a county's likelihood of LIHTC receipt by between 1.3 and 3.8 percentage points relative to voting <40% Democrat when the governing party is Democrat. A county voting between 50 and 60% Democrat is 10.8% more likely to receive at least one LIHTC from a Democrat administration than a Republican one in expectation. I also find evidence of differential swing county targeting by Democrat administrations; a swing county is 4.3% more likely to receive at least one LIHTC from a Democrat administration than from a Republican one.

The paper proceeds as follows. In Section 2, I describe the LIHTC program and its administration in detail. In Section 3, I discuss the potential motivations and mechanisms of political allocation of LIHTC's. In Section 4, I describe my baseline empirical specification. In Section 5, I describe my data and provide summary statistics. In Section 6, I discuss the results of my baseline estimation. In Section 7, I augment my baseline model and discuss the results of the augmentations. In Section 8, I conclude.

2 Background

The Low Income Housing Tax Credit (LIHTC) program is the primary supply-side tool available to U.S. policymakers for providing low-income families with access to affordable housing. The program began in 1986 as a decentralized approach to incentivize private development of low-income housing. There are two types of credits

available to developers through the program. One, commonly called the 9% credit, is meant to entitle its holder to a tax credit of roughly 9% of a project's expected development cost each year over 10 years and is typically reserved for new constructions. The actual tax credit available per year is set so that the present value of the 10-year stream of tax credits equals 70% of the project cost. The other tax credit, called the 4% credit, allows a claim of roughly 4% of a project's cost each year for 10 years and is typically claimed by rehabilitative housing projects and new constructions being financed by tax-exempt bonds. The actual tax credit available per year is set so that the present value of the 10-year stream of tax credits equals 30% of the project cost. 4% tax credits are often subject to approval by local governments and allocated to projects through a lottery system. 9% tax credits, on the other hand, are competitively allocated to applicants. This paper focuses on the allocation process of these competitive tax credits, and ignores the 4% tax credit. The 9% tax credit presents a discrete choice problem for state governors through their state AA's and developments applying for the credits are not subject to local government approval. 4% credits aren't allocated by politicians, and involve a messier system of approvals and regulations. Henceforth, LIHTC's refer specifically to 9% tax credits allocated through the LIHTC program. Keightley (2017) includes a useful example illustrating the financial mechanics of LIHTC's that I paraphrase below:

> Consider a new housing complex with development costs of $1 million that applies for a LIHTC. If the project receives the 9% tax credit, it will generate roughly $90,000 (9% of the project cost) of tax credits per year for 10 years, or roughly $900,000 in total. The present value of the 10-year total of the tax credits will be $700,000: 70% of the project cost.

LIHTC funds for the competitive 9% tax credits are allocated by the U.S. Department of Housing and Urban Development (HUD) to states on a per-capita basis. In 2017, states received $2.35 per resident, with a minimum allocation of $2,710,000.[2] Any LIHTC funds not used by a state are offered to other states as additional funds for their own LIHTC programs. Tax credits are matched to proposed projects by state AA'ss, the members of which are often appointed by the state governor in part or in full. Developers submit development proposals to their state allocating agency, and the agency then chooses which projects among the applicants to allocate tax credits to. Upon receiving a tax credit allocation, project developers typically "sell" their tax credits to investors for equity. Developers and investors typically enter into a limited partnership when credits are exchanged in this manner. Typically the developer, as the general partner, retains a very small ownership stake in the project, but maintains development and operation authority, while the investor(s) holds most of the equity in the project as the limited partner. Developers gain from the transaction by receiving a cash infusion from the sale of credits. Investors see the difference in tax credit price - from the mid-$0.80's to the low-$0.90's per $1.00 tax credit - and the value of the tax credit ($1.00) and "tax benefits related to any tax losses generated through the project's operating costs, interest on its debt, and deductions such as depreciation" (Keightley,

[2]LIHTC per-capita allocations have been adjusted each year for inflation since 2003, when the per-capita allocation was $1.75 and the minimum allocation was $2,000,000.

2017). Tax credits can be claimed after projects are completed and low-income units are occupied.

HUD has specified a number of requirements for LIHTC-funded projects to ensure that they serve low-income populations. Properties must either be at least 20% occupied by residents with household income under 50% of the area median (the 20-50 rule) or at least 40% occupied by residents with household income under 60% of the area median (the 40-60 rule). Rents for the units set aside for these low-income families must not exceed 30% the low-income resident income ceiling specified by the rule followed. Project developers can claim LIHTC credits on up to 130% of the project cost if a project is located in a qualified census tract (QCT) or a difficult development area (DDA).

AA's are required by HUD to write Qualified Allocation Plans (QAP's)outlining how the agency intends to allocate tax credits. However, it's not clear that these QAP's are followed by AA's or scrutinized by HUD. Further, the state QAP's I've reviewed all include a notable amount of discretion for the AA, such that a politically motivated agency could easily follow the stipulations of its QAP while allocating tax credits in a partisan manner.

3 Conceptual Framework

The administrative design of the LIHTC program gives state AA's an opportunity to target a potentially valuable good in that they have discretion over which applicants to allocate LIHTC's to. In general, the AA in a given state in a given year doesn't have enough funds to allocate LIHTC's to all applicants. State AA's, then, face a discrete choice problem with a binding budget constraint when allocating LIHTC's each year. If the members of these agencies are either pliable or sympathetic to the political interests of their state's governor, this represents a unique and potentially salient political opportunity for the governor, who has a degree of control over the members of the allocating agency in every state.[3] The question at hand is what kind of utility function the allocating agency attempts to maximize in solving its discrete choice problem: that of a benevolent social planner, or that of a politically motivated bureaucracy. Do AA's solve their discrete choice problem as engineers or as partisan agents?

AA's may allocate LIHTC's to developments based on the development area's partisanship. Agencies may target LIHTC's to promote the state governor's re-election, assuming LIHTC's are perceived as goods. AA's may also target LIHTC's to promote the election of members of the governor's political party to state legislative bodies, to further the governor's legislative agenda. The level at which credits are targeted

[3]In every state in the scope of this project, the governor appoints at least some of the members of the state allocating agency (it's unclear how Massachusetts' agency members are appointed and thus Massachusetts is omitted from my current analysis.). The governor appoints half or more of the members of the state allocating agency in all states but Nevada, North Carolina, Pennsylvania, and Connecticut, and has complete control over the members of the agency in 16 states.

are likely to differ in these two cases. LIHTC's targeted to encourage the election of party-mates to the legislature is more likely to require a finer level of targeting than LIHTC's targeted in the governor's own interest, since gubernatorial races depend on state-wide vote shares and district races depend on district vote shares. However, if a Democrat governor expects more Democrat votes from a given region after the allocation of a tax credit, for example, this is likely to benefit his re-election campaign as well as any Democrats running for office in districts within that region. If AA's target LIHTC's with only the governor's re-election campaign in mind, there are two ways in which they might target them. An agency may differentially allocate LIHTC's to areas of core support, to mobilize the governor's electoral base (core targeting), or they may allocate them to areas of middling support, to convince swing voters of the administration's efficacy (swing targeting).

If AA's engage in core targeting, I would expect to see counties with higher Democratic vote shares receive more LIHTC allocations when the governing party is Democrat, and counties with higher Republican vote share receive more LIHTC allocations when the governing party is Republican. However, different types of voters may perceive LIHTC-funded housing differently. In particular, conservative voters have an ideological aversion to redistributive policies, and may not view subsidized low-income housing as a good (Esarey, Salmon and Barrilleaux, 2012). Higher-income neighborhoods tend to dislike LIHTC-funded housing, as well (see Eligon, Alcindor and Armendariz (2017) describing the local response to a proposed low-income housing development in a high-income neighborhood in Houston, TX). Residents of high-income neighborhoods cite overcrowding of schools, cultural differences, and high costs of living as arguments against local low-income housing development. While some recent empirical studies point to positive spillover effects in low-income neighborhoods, I am aware of no evidence of positive impacts in high- and middle-income neighborhoods Freedman and Owens (2011); Deng (2011). There is, however, evidence of negative effects in these neighborhoods (Woo, Joh and Van Zandt, 2016). Diamond and Mcquade (2015) find that in high-income neighborhoods, LIHTC development negatively affects house prices and attracts lower-income households.

Conservative and high-income voters are likely to be Republicans and live in Republican-voting areas (Karadja, Mollerstrom and Seim, 2017; Pew, 2015). Republican voters are likely to view subsidized low-income housing through the LIHTC program negatively, and partisan core-targeting AA's should avoid allocating LIHTC's to Republican counties when the governing party is Republican, except in very low-income counties where the benefits of subsidized low-income housing are likely to be highest. On the other hand, liberal and low-income voters (who are likely to view LIHTC housing as a good) are more likely to be Democrats and live in Democrat-voting areas: core-targeting Democrat AA's should target Democrat districts. Relative to Republican AA's, I expect to see Democrat AA's allocate more LIHTC's to relatively Democrat-voting counties to the extent that AA's engage in core voter targeting.

If AA's engage in swing voter targeting, AA's of both parties will target counties

near the middle of the Democratic vote share distribution. Based on the above expected preferences of Republican and Democrat voters, I expect that relative to Republican AA's, Democrat AA's will allocate more LIHTC's to relatively Democrat-voting swing districts to the extent that AA's engage in swing voter targeting. Since Republican voters are more likely to view redistributive programs negatively than Democrat voters, Republican AA's have a disincentive to allocate to swing counties. Democrat AA's, on the other hand, may persuade swing voters of Democrat efficacy by encouraging development of low-income housing in a swing county, without the risk of backlash from Democrat voters in the county. As a result, I expect Democrat AA's to target swing counties to a greater extent than Republican AA's.

4 Data

I rely on HUD's Low-Income Housing Tax Credit Database for my outcome variable measures. These include number of developments granted LIHTC's in a county-year and LIHTC dollars allocated to a county-year. I use these measures to construct three outcome variables of interest for county c in year t: LIHTC grants allocated, LIHTC funds allocated in dollars, and a dummy variable equal to 1 if county c received at least 1 LIHTC in year t. I use these three variables because they represent different levels of discretion at the AA level. The database is specified at the project level and includes critical variables for my analysis including project location based on Census FIPS code, type of tax credit allocated, year of tax credit allocation, annual dollar amount of tax credits allocated, and year placed in service. I define year of tax credit *allocation* as year t in equation (1), since this is the year in which the AA allocation decision is made. I use the HUD dataset in conjunction with county-level gubernatorial election returns data obtained from CQ Press U.S. Political Stats Database and state-year governing party data assembled from the Council of State Governments' Book of States series. I rely on these data for my measures of county partisanship and state governing party, respectively. I draw from the Census Bureau's USA Counties database for county-level population and median household income estimates prior to 2010, and on the American Community Survey for annual county-level demographic estimates from 2010-2016.[4] All data spans the period 1987-2016; the LIHTC program began in the year 1987.

Figure 1 presents the relationship between Democrat vote share and number of LIHTC allocations by Democrat and Republican AA's. The data suggest that Republican- and Democrat-appointed AA's allocate LIHTC's slightly differently. Under Democrat governors, the greatest mass of LIHTC's appear to go to counties that voted slightly or strongly for Democrats. 68.2% of LIHTC's allocated by Democrat AA's went to counties that voted more than 50% Democrat. Democrat. Under Republicans, the

[4]For years 1991-1999, median household income is calculated as follows: $Income_{cst} = Income_{cs(t-1)} + \frac{Income_{cs2000} - Income_{cs1990}}{10}$. For years 2000-2009, household income is estimated similarly: $Income_{cst} = Income_{cs(t-1)} + \frac{Income_{cs2010} - Income_{cs2000}}{10}$.

greatest mass of LIHTC's appear to go to counties that voted slightly Republican, or slightly Democrat. In fact, 72.3% of LIHTC's allocated by Republican AA's went to counties that voted less than 50% Democrat. Figure 2 presents the relationship between county-year partisanship and LIHTC funds allocated under Democrat and Republican governors. It reflects similar patterns as Figure 1; the mass of funds allocated to counties by Democrats is clustered between Democratic vote shares of 35 and 75, while the mass of funds allocated by Republicans is clustered between vote shares of 25 and 65. Finally, Figure 3 presents the density of LIHTC recipient Democrat vote share under Democrat and Republican governors using a kernel density plot. The distributions are notably different. When the governor is a Democrat, the median recipient county votes 52.6% Democrat; when the governor is a Republican, the average recipient county votes 40.1% Democrat. I have reproduced Figure 3 by income decile (based on county average median household income from 1987-2016) and by Census division, presented in Figures A.1 and A.2 respectively. The distributions are similar to the distribution shown in Figure 3 in each region and for each income decile.

5 Specification

5.1 Testing for core voter targeting

If the political opportunities discussed in section 3 are salient to AA's, Republican and Democrat AA's will allocate LIHTC's differently. In this section, I test my conceptual framework's prediction that Democrat AA's will allocate more LIHTC's to more Democrat-voting areas. My first test compares within-county LIHTC receipts from Republican and Democrat administrations when a county votes majority Democrat and when it doesn't. My regression specification is as follows:

$$\begin{aligned} Y_{cst} = \alpha + \beta_1 DemGov_{st} + \beta_2 DemWon_{c,t'} + \beta_3 (DemGov_{st} \times DemWon_{c,t'}) \\ + X'_{sct}\Gamma + \gamma_c + \delta_t + \epsilon_{sct}. \end{aligned} \tag{1}$$

In equation (1), Y_{sct} represents an outcome of interest for county c in state s in year t (number of LIHTC's allocated, dollar amount of LIHTC funds allocated, or $\mathbb{1}$(Received at least one LIHTC)); $DemGov_{st}$ is a dummy variable equal to 1 if state s is governed by a Democrat in year t; $DemWon_{c,t'}$ is a dummy variable equal to 1 if county c voted at least 50% Democrat in year t', the year of the most recent gubernatorial election prior to year t; X_{sct} represents a set of time-varying county demographic control variables; and γ_c and δ_t represent county and year fixed effects respectively. I employ this set of fixed effects in all regressions. The county fixed effects will absorb any time-invariant effects within a given county, and the year fixed effects will absorb any effects common to all counties in the sample within a given year. Together, this set of fixed effects is likely to control for variation in outcome variables attributable to structural differences between counties and within-year factors affecting all counties in the sample similarly (e.g. if an increase in program funding increases the average likelihood of allocation to a given county).

β_3 is the coefficient of interest in equation (1): if a county receives more LIHTC's from Democrats relative to Republicans when it votes Democrat relative to when it votes Republican, β_3 will be positive. If equation (1) correctly identifies the "allocation function" for LIHTC's, then conditional on county, year, and county-year population and median household income, a county will receive $\alpha + \beta_1 + \beta_3$ LIHTC's if it votes Democrat and the governor is a Democrat, it will receive $\alpha + \beta_2$ if it votes Democrat and the governor is a Republican, it will receive $\alpha + \beta_1$ if it votes Republican and the governor is a Democrat, and it will receive α if it votes Republican and the governor is a Republican.

It may be that partisan AA's target LIHTC's at counties based on their relative voting behavior. In particular, equation (1) will not identify differential allocation by Democrat AA's to *more* Democrat-voting areas. Democrat AA's engaging in core voter targeting are most likely to reward highly loyal counties. To identify whether or not partisan allocation by Democrat AA's is increasing in Democratic vote share, I follow a methodology similar to the one employed by Gay (2017). In particular, I estimate the following:

$$\begin{aligned} Y_{sct} = \alpha &+ \beta_1 DemGov_{st} + \beta_2 DemVote_{c,t'} + \beta_3 (DemGov_{st} \times DemVote_{c,t'}) \\ &+ X'_{sct}\Gamma + \gamma_c + \delta_t + \epsilon_{sct}. \end{aligned} \tag{2}$$

In Equation (2), $DemVote_{c,t'}$ represents county c's Democratic vote share in year t', the year of the most recent gubernatorial election prior to year t. All other variables and indices are as defined for Equation (1). Equation (2) will identify differences in allocations within a given county when it votes relatively Republican and relatively Democrat under Republican and Democrat governing parties. This specification will have more estimating power than equation (1), because it identifies off of *all* counties for which the governing party changes in the sample period.

This specification differs from that used by Gay (2017) in a number of important ways, though it is similar in concept. My estimation will better identify the discretion of AA's because I restrict attention to the 9% tax credit, while Gay makes no such restriction. AA's only have discretionary power over the allocation of 9% tax credits because of the competitive application process: to the best of my knowledge, AA's have no power over the allocation of 4% LIHTC's, and the process is non-competitive. If the number of qualified 4% tax credit developments in a county-year is correlated with Democrat vote share, inclusion of 4% allocations may lead to the spurious conclusion that Democrat AA's allocate more LIHTC's to counties when they vote relatively more Democrat. I also analyze a different set of outcomes than the outcome analyzed by Gay, the number of LIHTC units allocated to a county per 10,000 residents. This is an interesting outcome to study because the number of units financed by LIHTC's need not all be low-income units and generally are not. If Democrats target Democrat counties, allocating an LIHTC to a project with many units need not only benefit the low-income in that county. However, AA's have discretion over which projects they allocate LIHTC's to, not the number of units in a project. Since this paper studies whether AA's abuse the discretion they have in the allocating process, I

choose not to explore an outcome over which AA's have relatively little discretionary power. Instead I focus on outcomes that AA's are more likely to have some discretion over: number of allocations and amount of funding. Finally, Gay uses at most 5 observations per county, identifying off of LIHTC unit density at the end of each gubernatorial term. I treat each year as a separate observation, estimating off of four observations per term in a state with elections every four years. Gay's coefficient estimates reflect the average differential allocation by Democrat AA's to a given county over a four-year gubernatorial term, while mine reflect the average differential allocation by Democrat AA's to a given county in a given year. My "annual" approach has two significant weaknesses relative to the "election cycle" approach. Since an AA's ability to target LIHTC's in a given year depends on the pool of applicants, election-cycle level observations of county LIHTC receipts are more likely to reflect the true targeting outcome of an administration. If a Democrat AA wants to give LIHTC's to some Democrat-voting county, but receives no qualified applicants in a given year, my estimation strategy would treat that year as a zero, and would attenuate the estimate of β_3. By using observations across the entire administration tenure, Gay is able to better identify administration-specific outcomes. Finally, I omit state-year fixed effects from my specification while Gay includes them. The *DemGov* variable, which does not vary across counties within a state in a given year, is collinear with a set of state-year fixed effects. Inclusion of the fixed effects will cloud the interpretability of the estimated β_1, so I opt to omit them.

5.2 Testing for swing voter targeting

Partisan AA's may target LIHTC's to swing counties to persuade future voters of their party's efficacy. Democrat AA's in particular face an incentive to allocate LIHTC's to swing counties. Democrat voters exhibit less NIMBYism than Republican voters, on average. LIHTC's allocated to a swing county are more likely to represent goods for Democrat voters and non-partisans. Republican voters, on the other hand, are more likely to perceive subsidized low-income housing as a bad thing, and as a result Republican AA's have less incentive to allocate LIHTC's to swing counties. To test for swing targeting of LIHTC's, I estimate the following:

$$Y_{sct} = \alpha + \beta_1 \mathbb{1}(\text{Swing county})_{c,t'} + \beta_2 DemGov_{st} + \beta_3 \mathbb{1}(\text{Swing County})_{c,t'} \times DemGov_{st} + X'_{sct}\Gamma + \gamma_c + \delta_t + \epsilon_{sct} \tag{3}$$

Here, $\mathbb{1}(\text{Swing county})_{c,t'}$ is equal to 1 if the Democratic vote share of county c was between 40 and 60% in year t', the year of the most recent gubernatorial election prior to year t. This specification will identify differential allocation of LIHTC's by different governing parties to a given county when it votes swing and non-swing. In this specification a positive β_3 indicates preferential allocation of LIHTC's by Democrat AA's to counties that vote swing.

The identification strategies laid out thus far may not identify more nuanced patterns of partisan targeting of LIHTC's. For example, if Democrat AA's target swing counties and highly Democrat-voting counties, my prior specifications would not identify any targeting. To test for such non-linear differential allocating behavior, I compare within-county LIHTC receipts under Democrat and Republican governing parties across different intervals of county Democrat vote share using a set of vote share bin dummy variables. In particular, I estimate the following.

$$Y_{cst} = \alpha + \beta DemGov_{st} + \sum_{i=5}^{10} \{\mu_i \mathbb{1}(DemVoteBin = i)_{c,t'}\} + \sum_{j=5}^{10} \{\delta_j (DemGov_{st} \times \mathbb{1}(DemVoteBin = j)_{c,t'})\} + X'_{sct}\Gamma + \gamma_c + \delta_t + \epsilon_{sct} \quad (4)$$

In equation (4), I allow counties to fall into one of 10 vote share bins, defined at 10-point increments.[5] $\mathbb{1}(DemVoteBin = i)_{c,t'}$ equals 1 if county c's Democratic vote share in the most recent gubernatorial election prior to year t (held in year t'), places it in vote share bin i. This specification will identify any narrow targeting of LIHTCs; δ_5, for example, will identify the differential allocation by Democrat governors to counties when they vote between 40 and 50% Democrat relative to when they vote ,<40% Democrat. I omit vote share bins 1-4 in this specification, so all coefficients are estimated relative to when counties vote <40 % Democrat. These vote share bins are widely defined to ensure a reasonable level of estimating power; however, they may not capture fine non-linearities. Estimation of equation (4) using vote share bins defined at 5-point increments yields a similar pattern of results, with less precision.

6 Results

6.1 Core voter targeting results

In this section, I present the findings of the paper. Table 1 shows no evidence of counties receiving preferential LIHTC allocations for voting in line with the governing party. I report the results of estimating equation (1) in Column (4) of Table 1. I report results that exclude year fixed effects; county and year fixed effects; and county and year fixed effects and demographic controls in columns (3), (2), and (1) respectively. Panel A shows that a Democrat-voting county doesn't receive significantly more LIHTC's from a Democrat administration than it does from a Republican one, and that a county doesn't receive significantly more LIHTC's from a Democrat administration when it votes Democrat than when it doesn't; Panel B shows no significant differential allocation of LIHTC funds, and Panel C shows no significant differential likelihood of receipt. The point estimates of Panels A and C are in line with the type of core voter targeting outlined in section 3, but the magnitudes of the estimates are

[5] e.g. if a county voted 10% Democrat in the most recent gubernatorial election, it would fall into vote share bin 1. If it voted 10.01% Democrat, it would fall into vote share bin 2. If it voted 100% Democrat, it would fall into vote share bin 10.

small; the estimates suggest that a county receives 0.074 (0.06 standard deviations) more LIHTC's from a Democrat AA when it votes Democrat than when it doesn't, and that a Democrat-voting county receives 0.082 (0.07 standard deviations) more LIHTC's from a Democrat AA than from a Republican one. Clean identification here relies on a county voting $\geq$50% Democrat and <50% Democrat under Democrat and Republican administrations. The imprecision of my estimates likely reflects insufficient within-county variation. The point estimates of Panel B point in a different direction - a Democrat-voting county receives $17,250 (0.03 standard deviations) less in LIHTC funds from a Democrat AA than it does from a Republican one. I attribute the inconsistency to a relatively large number of missing observations in the funds data.

The point estimates in Table 1 show slight targeting of LIHTC's by Democrat AA's to Democrat-voting counties. Does targeting intensify as county Democrat vote share increases? Table 2, which shows the results of estimation of equation (2), indicates that it does not. Panel A shows insignificant estimates close to zero on all partisanship measures. Panels B and C show that when a county's Democrat vote share increases by 10% (3/5 of a standard deviation), it is predicted to receive $10,170 (1/50 of a standard deviation) more in funds and is 0.31% (1/100 of a standard deviation) more likely to receive an LIHTC from a governor of either party. However, the panels show no significant evidence of differential allocation by Democrat and Republican AA's. The estimates in Table 2 are generally more precise than those reported in Table 1. Since estimation of equation (2) relies on a continuous measure of county partisanship, there is substantially more within-county variation and parameter estimates are more precise as a result.

6.2 Swing voter targeting results

Thus far, I have found no significant evidence of core voter targeting of LIHTC's. What about swing voter targeting? Table 3, which presents the results of estimating equation (3), suggests that there is no differential targeting of swing voters by Democrats and Republicans, but that there may be some common swing voter targeting behavior between the two governing parties. Based on the statistically insignificant point estimates reported in Panel A, Republican AA's actually allocate more to swing counties than Democrat AA's do (0.037 more LIHTC's, or about 1/25 standard deviations). The (again, insignificant) estimates reported in Panel B show that swing counties receive about $3,000 less in LITHTC funds from Democrat AA's than they do from Republican AA's - 1/200 of a standard deviation. Broadly, these results point in the same direction as the core voter targeting results: more Democrat-voting counties receive more LIHTC's and LIHTC funds from Democrat AA's, but not significantly or practically more. The most interesting result of estimation of equation (3) is reported in the first row of Panel C. AA's of both parties are significantly more likely to allocate at least one LIHTC to a swing county than to a non-swing county: about 1 percentage point more likely, or 9.8% more likely. However, Democrat AA's are no more likely to allocate an LIHTC to a swing county than Republican AA's, despite the differential political incentives they face. About half of all recipient counties have Democrat vote shares

between 40 and 60%; it may be that unobserved factors common to swing counties are biasing the swing county estimate upwards. This is especially plausible given that my model controls only for county population and median household income.

Say Democrat AA's target swing counties and counties with >80% Democrat vote share. The interaction term in the core voter tests would be near zero, as counties with Democrat vote shares between 40 and 50% receive the same differential allocation as counties with Democrat vote shares of 80% and above. Similarly, the interaction term in the swing voter test would be near zero, as counties with >80% Democrat vote share (non-swing counties) receive the same differential allocation as swing counties. In equation (4), I use a set of Democrat vote share bin dummies to test for non-linearities in differential allocation, comparing within-county LIHTC receipts from democrats and Republicans when a county votes <40% Democrat and $\geq$40% Democrat. Figures 4, 5, and 6 show the estimated coefficients on the interaction terms for each vote share bin dummy variable for my three outcomes of interest. These figures show that no non-linearities in differential allocation plague the interpretation of the results of my previous tests; no clear pattern arises in differential allocation, and for the most part, counties do not experience significantly different outcomes under Democrat and Republican governing parties when they vote $\geq$40% Democrat relative to when they vote <40% Democrat. The full set of estimates on my partisanship measures can be found in Tables A.1, A.2, and A.3.

7 Conclusion

The agencies tasked with distributing LIHTC's have a considerable degree of freedom in making allocating decisions. To the extent that allocating agents act as engineers maximizing social utility, this is a good thing. However, in most U.S. states, the state governor has some control over the allocation of tax credits or the composition of the allocating agency. It is well-established that politicians do not necessarily maximize social welfare functions, but rather act on their own private set of incentives when allocating valuable goods to constituents (Persson and Tabellini, 2002; Golden and Min, 2013). In the case of the LIHTC program, state governors are not far removed from the allocation of a valuable good.

In this paper, I explored whether or not LIHTC's are allocated differently based on county voting behavior and state governing party. Democrat and Republican voters are likely to view LIHTC-funded housing differently, and as a result I expect politically-allocated LIHTC's to be allocated differently depending on governing party. In particular, my conceptual framework predicts Democrat AA's will allocate more LIHTC's to more Democrat-voting counties, and that Democrat AA's will target swing counties more than Republican AA's will.

A series of tests consistently fail to reject the null hypothesis that county voting behavior and governing party do not affect the LIHTC receipts of a county. The only evidence I find of partisan targeting is a 10% increase in county likelihood of LIHTC

receipt from an AA of either party when a county votes swing relative to when it votes non-swing. However, this result may be driven by omitted variables bias.

This study may be too broad to identify political activity in the allocation of LIHTC's. In this paper, I focus on changes in the state governing party, because the governor may have some influence over the allocation of LIHTC's. However, there is a considerable amount of heterogeneity in the structures of allocating agencies; applying a "one size fits all" approach in analyzing the allocation of LIHTC's may be inappropriate given the differences in program administration across states. In California, for example, every voting member of the LIHTC-allocating board holds elected office - the governor, the treasurer, and the controller. In Alaska, on the other hand, every member of the allocating agency is appointed by the state governor. Further research into the allocation of LIHTC's should account for the considerable differences in AA structure across states.

Figure 1: LIHTC allocations and county Democrat vote share

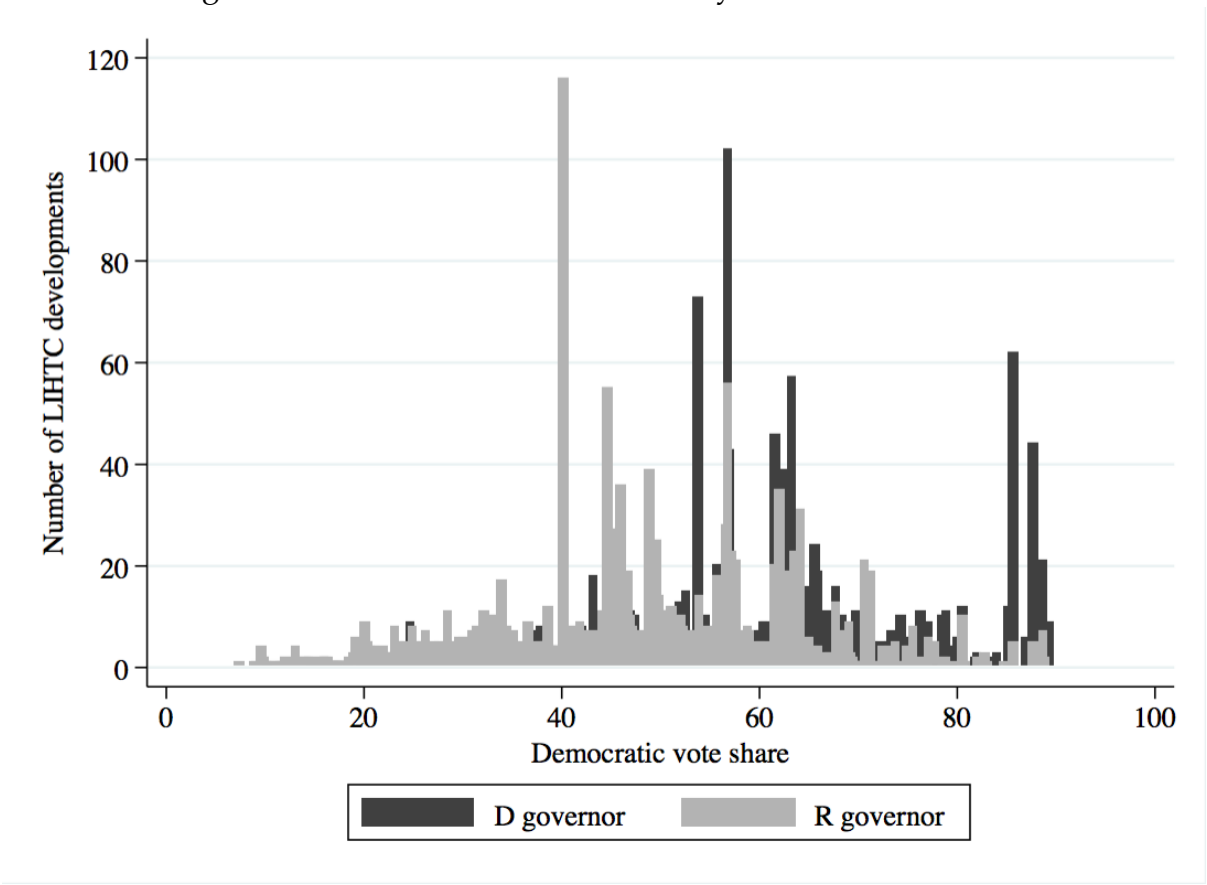


Figure 2: LIHTC fund receipts and county Democrat vote share

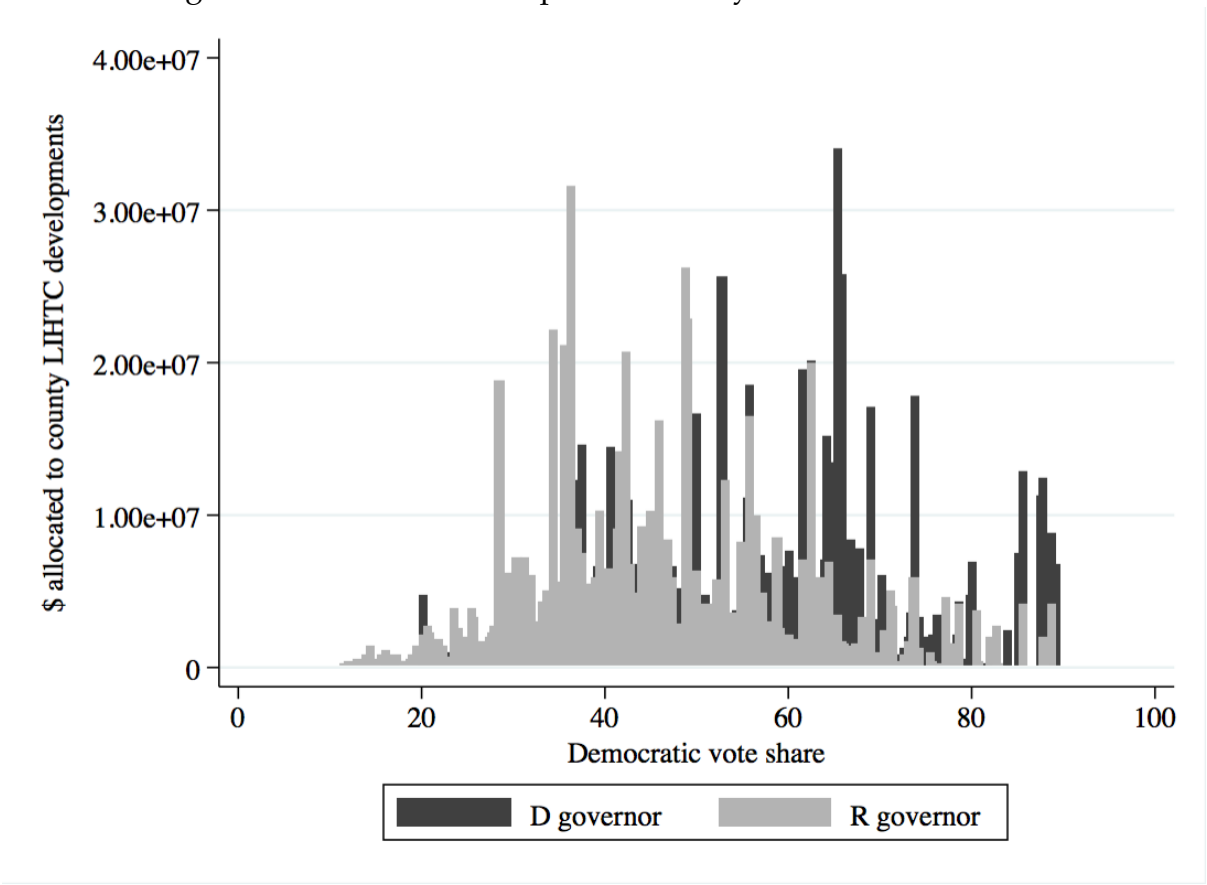


Figure 3: Density of LIHTC recipients by Democrat vote share

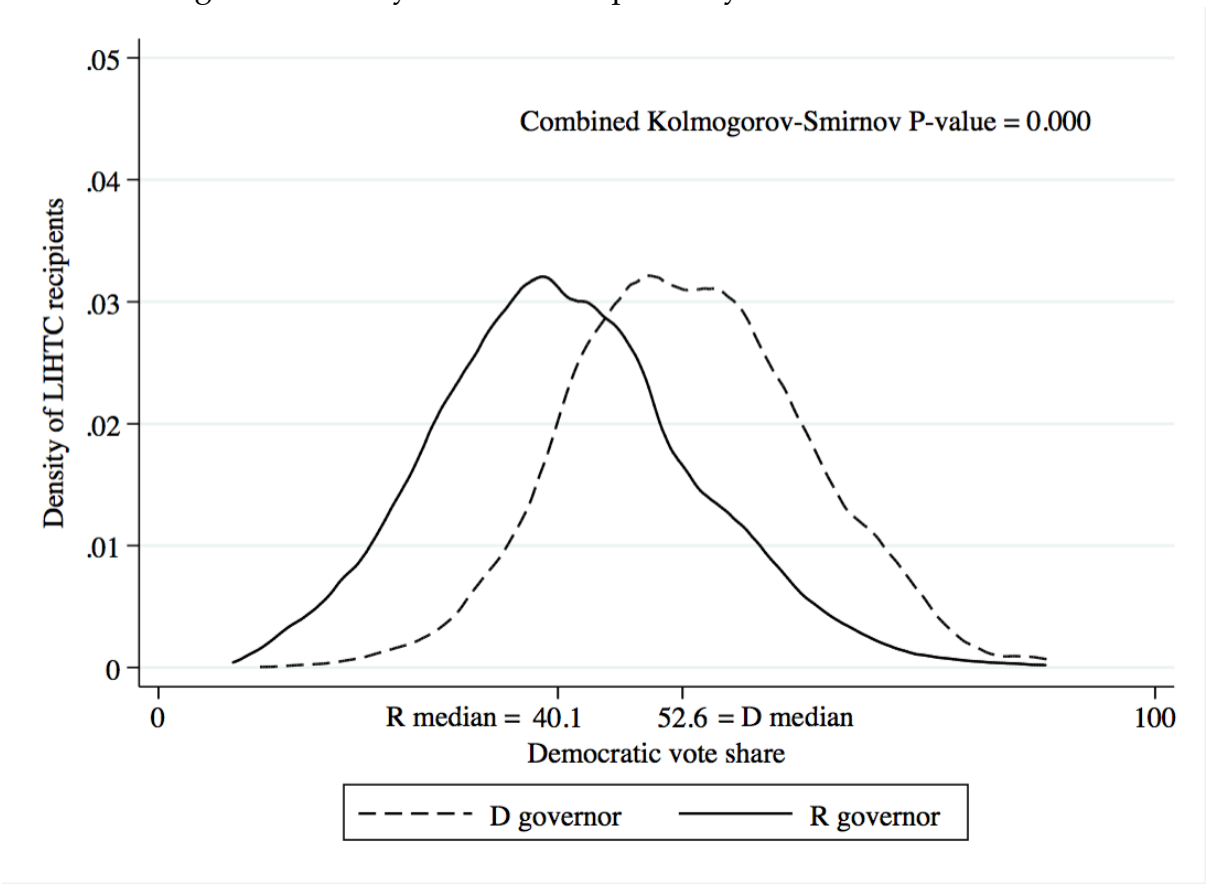
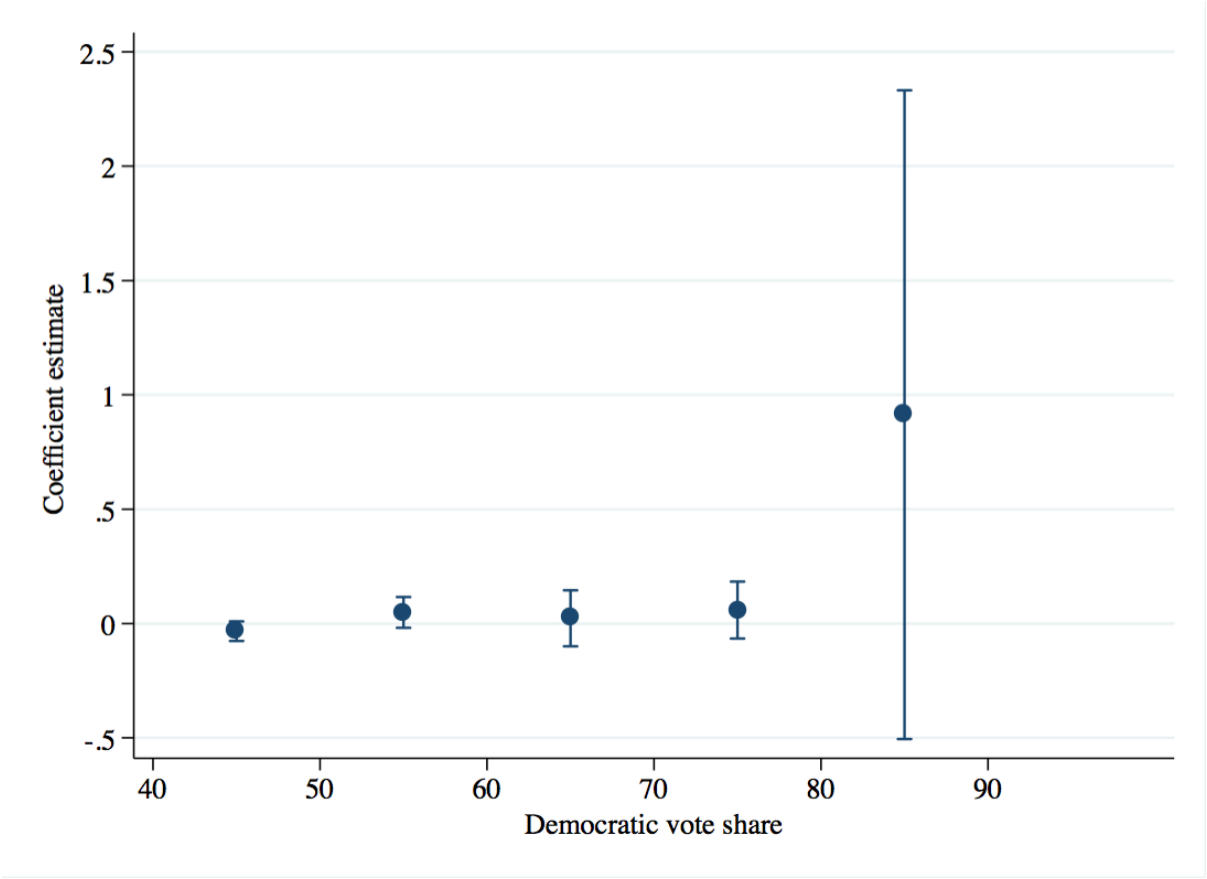
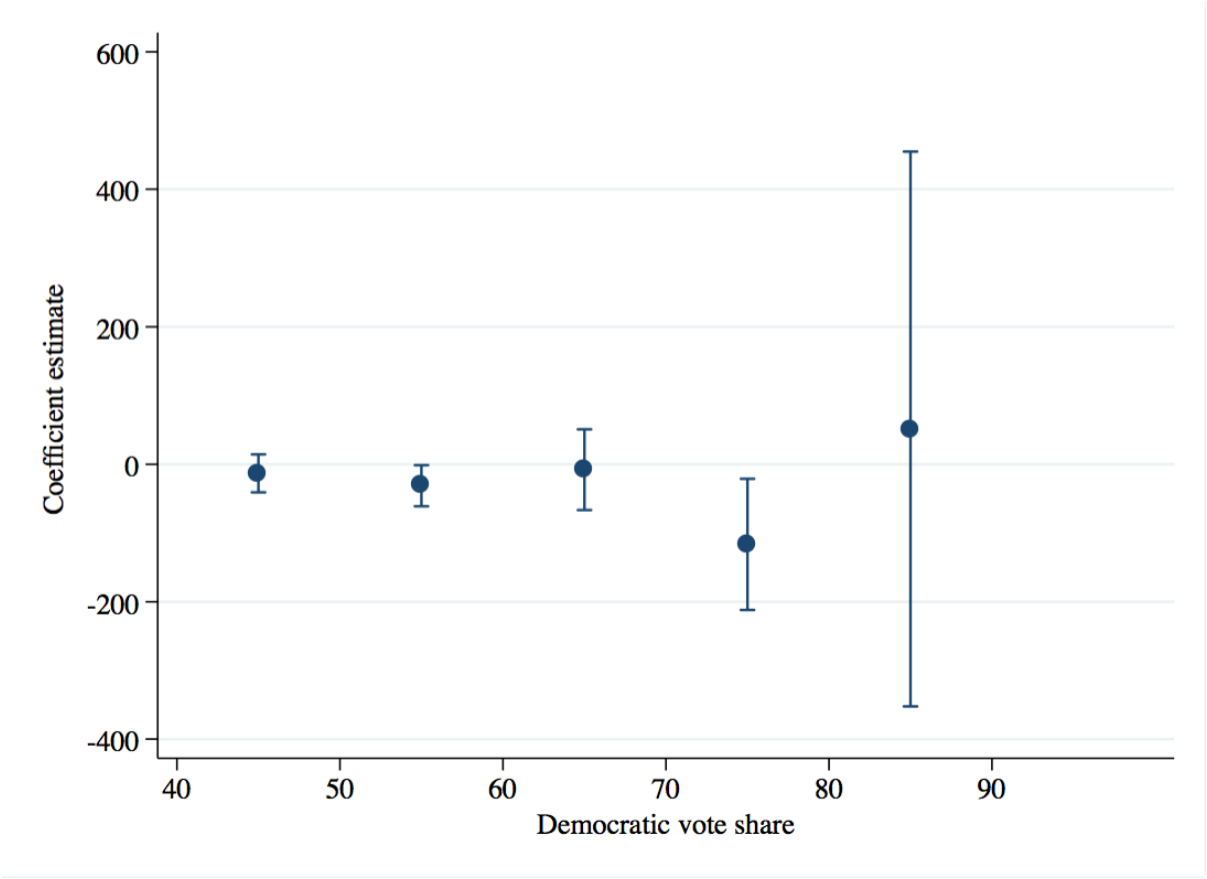


Figure 4: Equation (4) coefficient estimates: dependent var. is number of LIHTC's



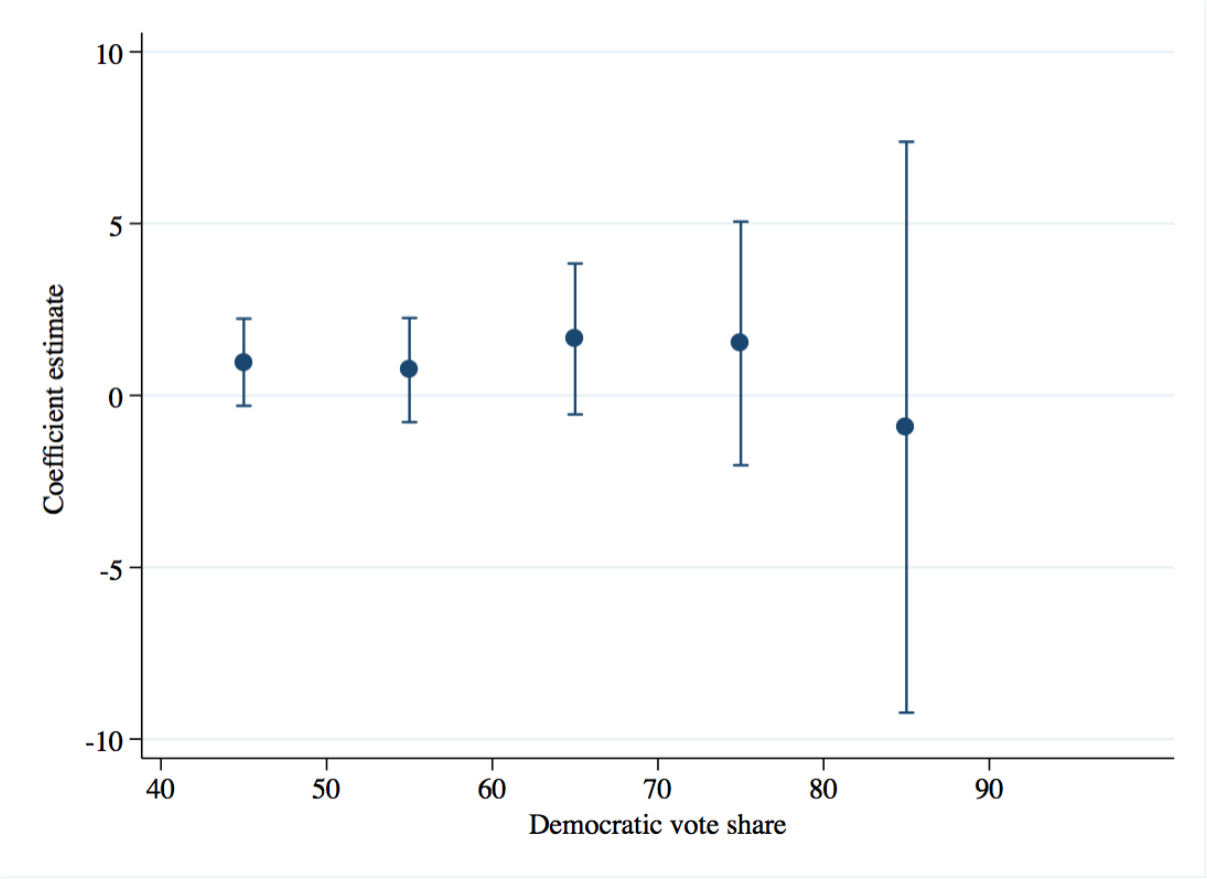
Notes: The bars presented on this graph reflect the 95% confidence interval of the associated coefficient estimate.

Figure 5: Equation (4) coefficient estimates: dependent var. is LIHTC funds allocated



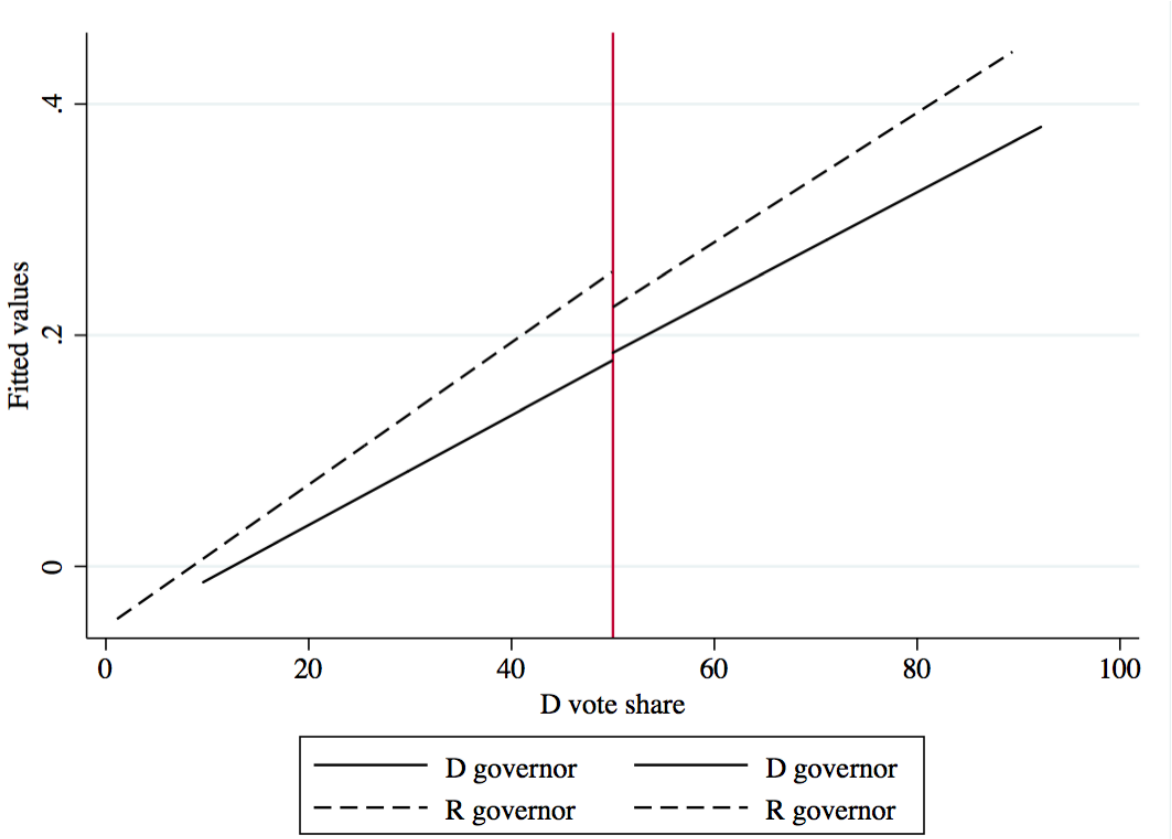
Notes: The bars presented on this graph reflect the 95% confidence interval of the associated coefficient estimate.

Figure 6: Equation (4) coefficient estimates: dependent var. is 𝟙(Received LIHTC)



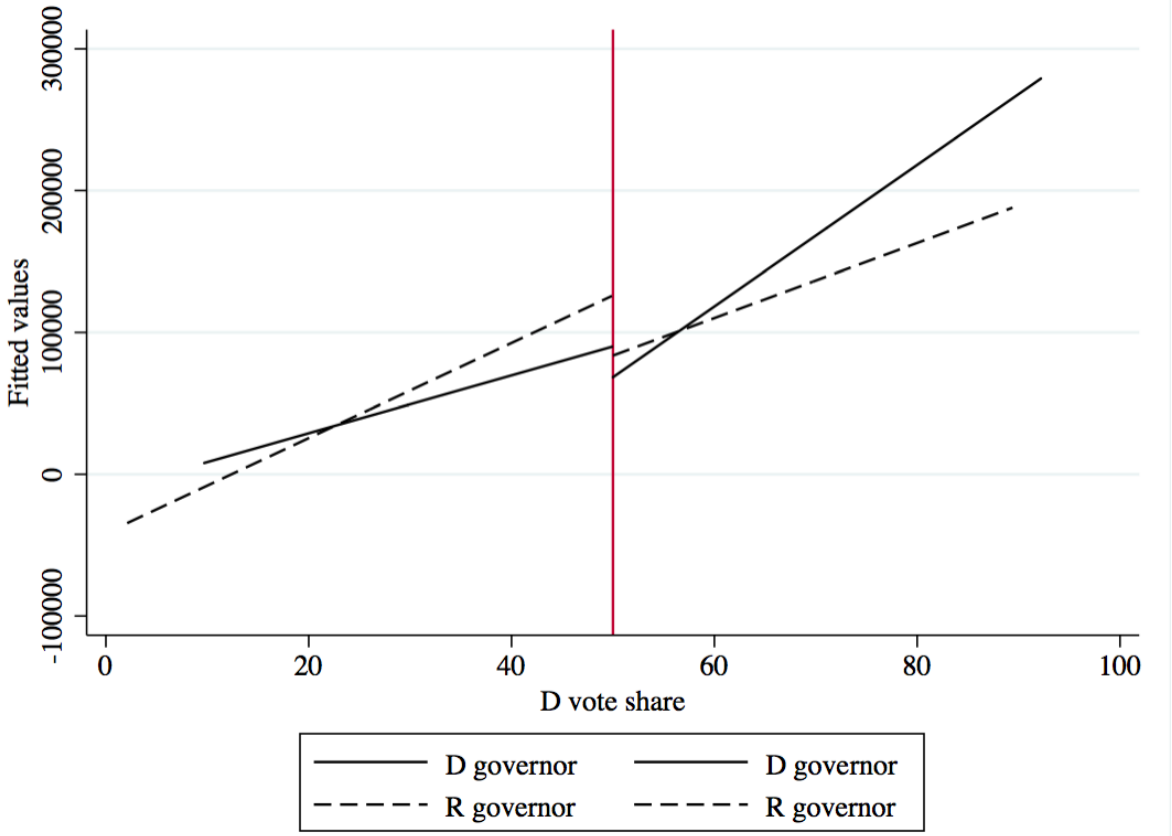
Notes: The bars presented on this graph reflect the 95% confidence interval of the associated coefficient estimate.

Figure 7: Discontinuity: number of allocations



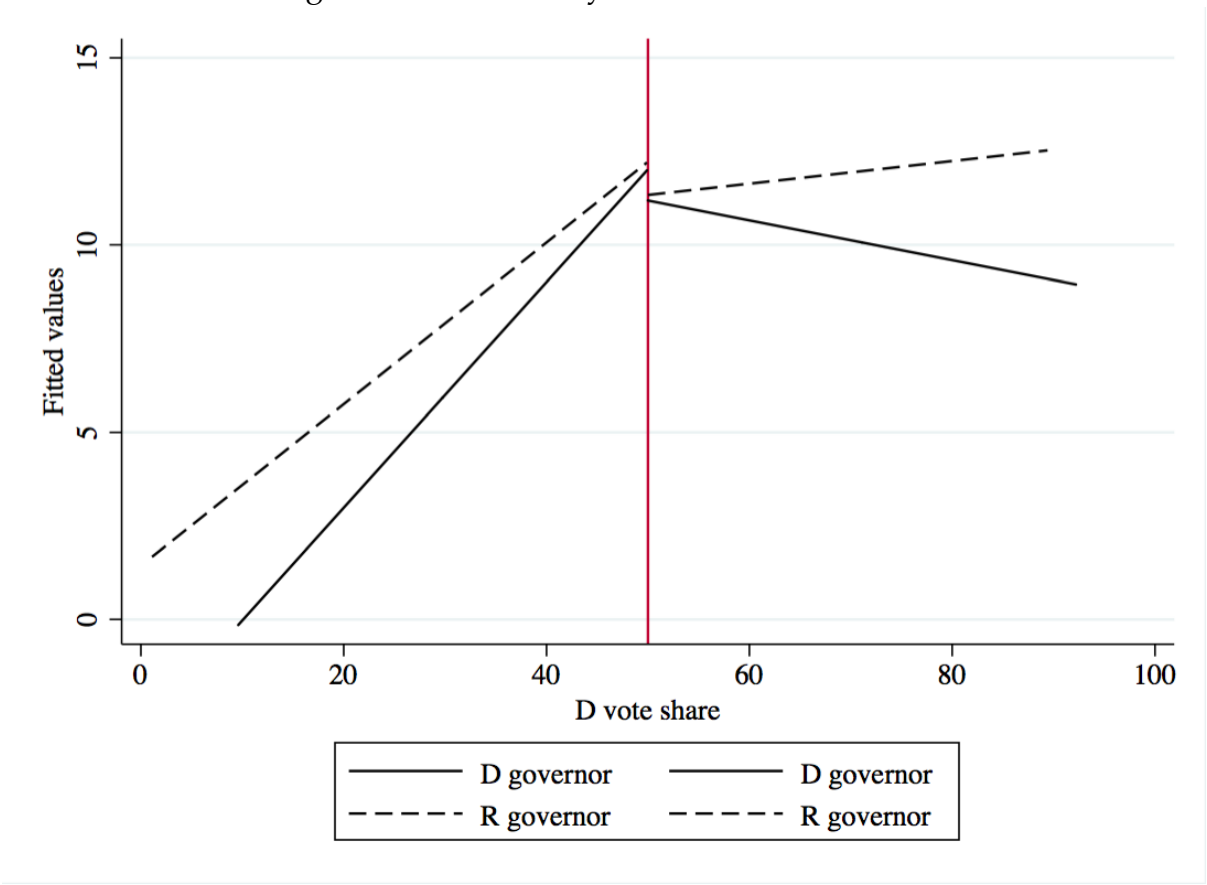
Notes:

Figure 8: Discontinuity: funds



Notes:

Figure 9: Discontinuity: number of allocations



Notes:

Table 1: County majority D vote and governing party

	Panel A Dependent variable: # of LIHTC's allocated			
	(1)	(2)	(3)	(4)
D governor	-0.025	0.002	-0.017	-0.010
	(0.012)	(0.009)	(0.010)	(0.009)
$\mathbb{1}$(D vote share $\geq$ 50)	0.113	0.032	-0.037	-0.028
	(0.026)	(0.020)	(0.016)	(0.016)
$\mathbb{1}$(D vote share $\geq$ 50) $\times$ D governor	-0.004	0.012	0.064	0.064
	(0.056)	(0.042)	(0.038)	(0.039)
	Panel B Dependent variable: (LIHTC funds allocated)*10^3			
	(1)	(2)	(3)	(4)
D governor	4.410	25.363	13.558	16.662
	(8.174)	(7.311)	(8.517)	(7.433)
$\mathbb{1}$(D vote share $\geq$ 50)	46.754	6.041	10.831	9.770
	(12.962)	(16.555)	(7.600)	(9.831)
$\mathbb{1}$(D vote share $\geq$ 50) $\times$ D governor	-23.797	-19.311	-24.589	-24.124
	(26.829)	(17.101)	(14.960)	(13.608)
	Panel C Dependent variable: $\mathbb{1}$(Received LIHTC)			
	(1)	(2)	(3)	(4)
D governor	-0.048	0.261	-0.282	-0.067
	(0.327)	(0.319)	(0.252)	(0.249)
$\mathbb{1}$(D vote share $\geq$ 50)	2.323	2.305	-0.453	0.145
	(0.489)	(0.579)	(0.307)	(0.304)
$\mathbb{1}$(D vote share $\geq$ 50) $\times$ D governor	-1.789	-1.423	0.592	0.352
	(0.832)	(0.816)	(0.625)	(0.619)
Demographic controls?		✓	✓	✓
County fixed effects?			✓	✓
Year fixed effects?				✓

Notes: Standard errors, clustered by county, are in parentheses. Observation occurs at the county-year level. Demographic controls include county-year population and median household income estimates. Interaction terms use demeaned variables (see Balli and Sorensen (2013).)

Table 2: County D vote share and governing party

	Panel A Dependent variable: # of LIHTC's allocated			
	(1)	(2)	(3)	(4)
D vote share	0.005	0.002	-0.001	-0.001
	(0.001)	(0.001)	(0.000)	(0.000)
D governor	-0.056	-0.008	-0.018	-0.011
	(0.018)	(0.012)	(0.012)	(0.011)
D vote share × D governor	-0.001	0.000	0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
	Panel B Dependent variable: (LIHTC funds allocated)*10^3			
	(1)	(2)	(3)	(4)
D vote share	2.579	0.607	1.378	1.017
	(0.630)	(0.641)	(0.282)	(0.382)
D governor	-12.064	19.953	0.810	7.827
	(11.450)	(8.390)	(8.433)	(7.152)
D vote share × D governor	-0.785	-0.664	-1.112	-1.045
	(0.564)	(0.566)	(0.585)	(0.554)
	Panel C Dependent variable: 𝟙(Received LIHTC)			
	(1)	(2)	(3)	(4)
D vote share	0.125	0.126	-0.008	0.031
	(0.016)	(0.022)	(0.010)	(0.011)
D governor	-0.868	-0.583	-0.333	-0.385
	(0.363)	(0.375)	(0.268)	(0.269)
D vote share × D governor	-0.113	-0.079	0.002	-0.015
	(0.027)	(0.026)	(0.022)	(0.022)
Demographic controls?		✓	✓	✓
County fixed effects?			✓	✓
Year fixed effects?				✓

Notes: Standard errors, clustered by county, are in parentheses. Observation occurs at the county-year level. Demographic controls include county-year population and median household income estimates. Interaction terms use demeaned variables (see Balli and Sorensen (2013).)

Table 3: Swing county status and governing party

	Panel A Dependent variable: # of LIHTC's allocated			
	(1)	(2)	(3)	(4)
𝟙(Swing county)	0.054	0.012	0.014	0.012
	(0.020)	(0.016)	(0.008)	(0.008)
D governor	0.009	0.012	-0.031	-0.020
	(0.011)	(0.009)	(0.013)	(0.012)
𝟙(Swing county) × D governor	-0.147	-0.062	-0.011	-0.017
	(0.045)	(0.024)	(0.015)	(0.015)
	Panel B Dependent variable: (LIHTC funds allocated)*10^3			
	(1)	(2)	(3)	(4)
𝟙(Swing county)	10.015	-2.161	13.698	7.445
	(11.539)	(7.909)	(9.234)	(8.189)
D governor	19.488	27.931	14.650	18.613
	(9.522)	(8.843)	(10.350)	(9.536)
𝟙(Swing county) × D governor	-88.396	-30.020	-15.612	-21.542
	(33.372)	(19.126)	(17.171)	(17.201)
	Panel C Dependent variable: 𝟙(Received LIHTC)			
	(1)	(2)	(3)	(4)
𝟙(Swing county)	2.403	2.229	0.544	0.923
	(0.333)	(0.332)	(0.243)	(0.242)
D governor	0.351	0.634	-0.538	-0.191
	(0.309)	(0.286)	(0.236)	(0.233)
𝟙(Swing county) × D governor	-1.698	-1.265	0.425	0.178
	(0.774)	(0.653)	(0.535)	(0.526)
Demographic controls?		✓	✓	✓
County fixed effects?			✓	✓
Year fixed effects?				✓

Notes: Standard errors, clustered by county, are in parentheses. Observation occurs at the county-year level. Demographic controls include county-year population and median household income estimates. Counties are identified as swing if $40 \leq$ Democrat vote share ≤ 60. Interaction terms use demeaned variables (see Balli and Sorensen (2013).)

A Additional tables and figures

Figure A.1: Density of LIHTC recipients by Democrat vote share, by income decile

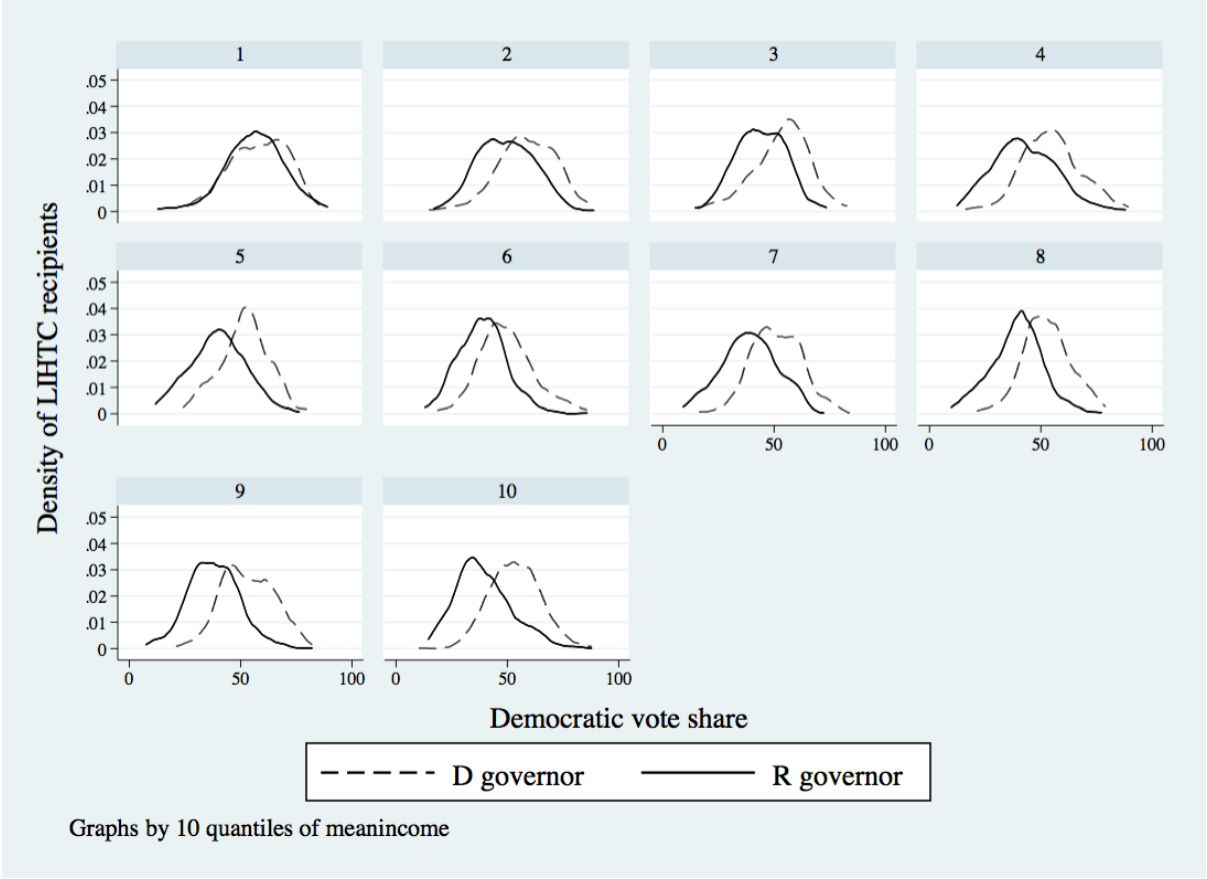


Table 4: Reduced form: discontinuity sample results

	Panel A Dependent variable: number of allocations		
	(1)	(2)	(3)
jump	0.022	0.019	0.021
	(0.013)	(0.013)	(0.013)
HHmedinc	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
pop	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
dembins	0.003	-0.406	7.257
	(0.006)	(0.138)	(3.212)
dembins$_s q$		0.020	-0.717
		(0.007)	(0.308)
dembins$_c u$			0.023
			(0.010)
$_c ons$	0.171	2.284	-24.141
	(0.068)	(0.717)	(11.091)
	Panel B Dependent variable: (LIHTC funds allocated)*10^3		
	(1)	(2)	(3)
jump	6714.051	5217.645	6790.982
	(7591.400)	(7618.384)	(7646.122)
HHmedinc	-1.208	-1.199	-1.201
	(0.315)	(0.315)	(0.315)
pop	0.905	0.905	0.905
	(0.010)	(0.010)	(0.010)
dembins	-1760.835	-183556.397	4169740.597
	(3450.665)	(78867.278)	(1825757.726)
dembins$_s q$		8704.225	-409450.172
		(3772.486)	(175249.445)
dembins$_c u$			13305.414
			(5575.037)
$_c ons$	36068.610	975256.640	-1.404e+07
	(38526.434)	(408871.035)	(6303769.105)
	Panel C Dependent variable: $\mathbb{1}$(Received LIHTC)		
	(1)	(2)	(3)
jump	-0.414	-0.439	-0.343
	(0.320)	(0.321)	(0.322)
HHmedinc	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
pop	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
dembins	0.569	-2.138	249.365
	(0.144)	(3.309)	(76.821)
dembins$_s q$		0.130	-24.030
		(0.158)	(7.374)
dembins$_c u$			0.769
			(0.235)
$_c ons$	-3.285	10.699	-856.582
	(1.617)	(17.155)	(265.217)

Notes:

Figure A.2: Density of LIHTC recipients by Democrat vote share, by region

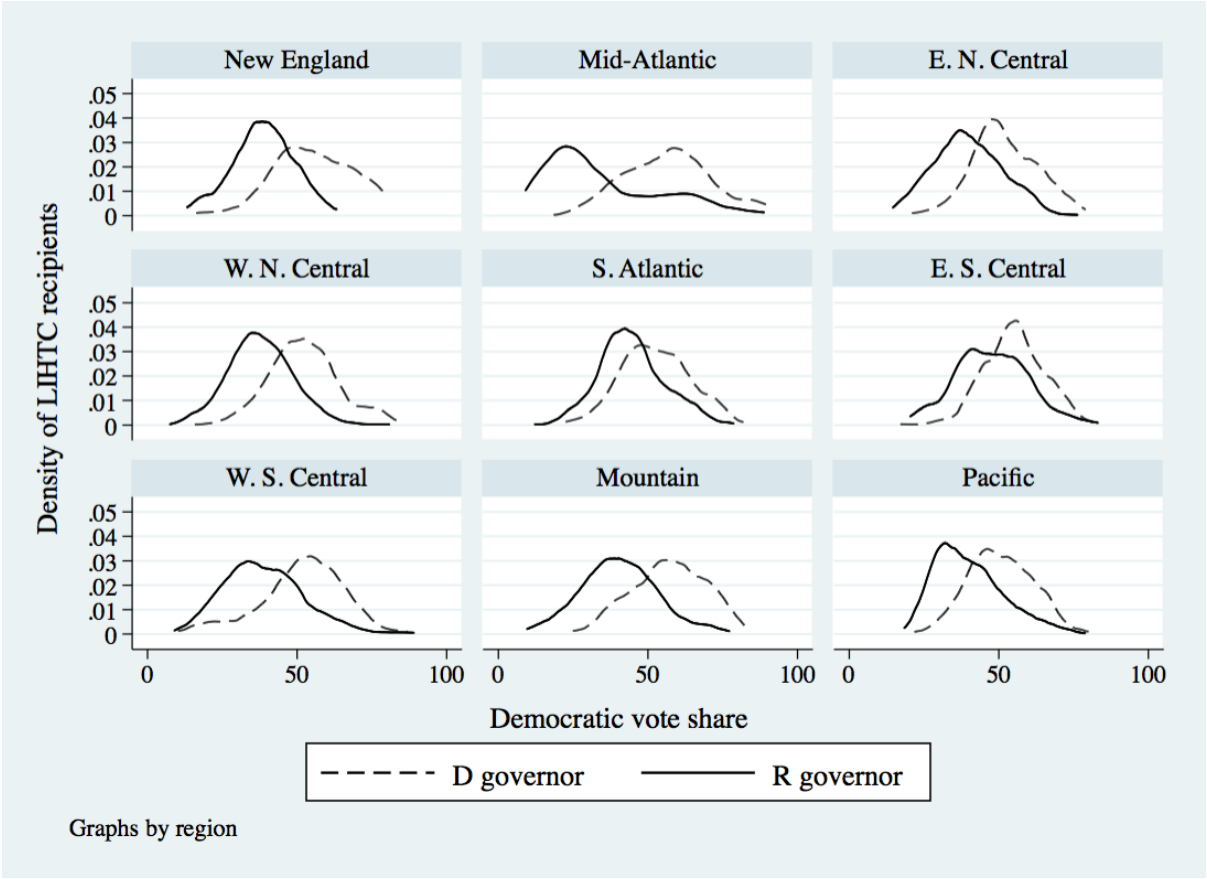


Table A.1: County vote share bin and governing party: allocations

	Dependent variable: # of LIHTC's allocated			
	(1)	(2)	(3)	(4)
D governor	-0.044	-0.001	-0.015	-0.008
	(0.014)	(0.009)	(0.011)	(0.009)
40 < D vote share $\leq$ 50	0.102	0.030	0.022	0.021
	(0.021)	(0.012)	(0.010)	(0.009)
50 < D vote share $\leq$ 60	0.123	0.024	-0.027	-0.022
	(0.022)	(0.020)	(0.014)	(0.013)
60 < D vote share $\leq$ 70	0.206	0.074	0.001	0.012
	(0.046)	(0.037)	(0.025)	(0.031)
70 < D vote share $\leq$ 80	0.144	0.027	-0.101	-0.083
	(0.057)	(0.042)	(0.045)	(0.035)
80 < D vote share $\leq$ 90	0.283	0.090	-0.341	-0.286
	(0.163)	(0.130)	(0.155)	(0.111)
δ_5	-0.080	-0.069	-0.020	-0.033
	(0.049)	(0.037)	(0.020)	(0.022)
δ_6	-0.030	-0.006	0.053	0.049
	(0.037)	(0.030)	(0.035)	(0.034)
δ_7	-0.065	-0.081	0.041	0.023
	(0.099)	(0.077)	(0.059)	(0.063)
δ_8	-0.068	-0.030	0.082	0.059
	(0.104)	(0.087)	(0.067)	(0.064)
δ_9	0.516	0.853	0.921	0.913
	(0.565)	(0.667)	(0.742)	(0.724)
Demographic controls?		✓	✓	✓
County fixed effects?			✓	✓
Year fixed effects?				✓

Notes: Standard errors, clustered by county, are in parentheses. Observation occurs at the county-year level. Demographic controls include county-year population and median household income estimates. Vote share bins are defined at 10-point increments.

Table A.2: County vote share bin and governing party: funds

	Dependent variable: (LIHTC funds allocated)*10^3			
	(1)	(2)	(3)	(4)
D governor	-3.203	24.747	6.446	12.327
	(9.731)	(7.992)	(9.039)	(7.560)
40 < D vote share $\leq$ 50	42.298	8.070	26.641	18.819
	(15.256)	(7.895)	(8.145)	(6.950)
50 < D vote share $\leq$ 60	38.262	-3.319	21.912	12.425
	(11.405)	(14.010)	(10.002)	(9.666)
60 < D vote share $\leq$ 70	94.016	21.425	33.975	28.590
	(26.206)	(28.280)	(14.150)	(18.404)
70 < D vote share $\leq$ 80	55.594	-2.860	19.395	12.734
	(31.112)	(36.639)	(26.215)	(26.224)
80 < D vote share $\leq$ 90	306.448	143.034	226.954	201.559
	(155.647)	(129.609)	(124.771)	(120.668)
δ_5	-38.473	-25.479	-3.258	-13.119
	(26.461)	(14.932)	(15.449)	(14.108)
δ_6	-51.635	-34.345	-26.175	-31.147
	(18.258)	(17.172)	(15.302)	(15.275)
δ_7	-0.844	-16.498	1.924	-7.826
	(51.631)	(33.004)	(33.444)	(30.012)
δ_8	-68.639	-76.160	-125.628	-116.514
	(48.888)	(55.938)	(51.642)	(48.715)
δ_9	185.428	192.345	-7.078	51.211
	(209.769)	(187.375)	(220.629)	(205.935)
Demographic controls?		✓	✓	✓
County fixed effects?			✓	✓
Year fixed effects?				✓

Notes: Standard errors, clustered by county, are in parentheses. Observation occurs at the county-year level. Demographic controls include county-year population and median household income estimates. Vote share bins are defined at 10-point increments.

Table A.3: County vote share bin and governing party: LIHTC receipt

	Dependent variable: 𝟙(Received LIHTC)			
	(1)	(2)	(3)	(4)
D governor	-0.726	-0.409	-0.360	-0.311
	(0.346)	(0.363)	(0.265)	(0.264)
40 < D vote share $\leq$ 50	3.423	3.151	0.633	1.257
	(0.366)	(0.429)	(0.305)	(0.306)
50 < D vote share $\leq$ 60	3.968	3.839	0.079	1.012
	(0.515)	(0.665)	(0.374)	(0.380)
60 < D vote share $\leq$ 70	4.392	4.055	-0.275	0.853
	(0.757)	(0.882)	(0.530)	(0.519)
70 < D vote share $\leq$ 80	2.872	3.655	-1.398	-0.192
	(1.234)	(1.311)	(0.804)	(0.780)
80 < D vote share $\leq$ 90	2.414	1.625	-2.629	-1.802
	(2.698)	(2.457)	(1.611)	(1.617)
δ_5	0.847	0.942	0.989	0.966
	(0.807)	(0.775)	(0.653)	(0.648)
δ_6	-1.302	-0.703	0.909	0.743
	(1.009)	(0.912)	(0.785)	(0.772)
δ_7	-0.859	-1.005	2.142	1.644
	(1.493)	(1.380)	(1.130)	(1.118)
δ_8	-0.873	-0.827	1.963	1.515
	(2.428)	(2.131)	(1.841)	(1.806)
δ_9	-6.415	-3.447	-0.372	-0.925
	(4.578)	(4.226)	(4.289)	(4.238)
Demographic controls?		✓	✓	✓
County fixed effects?			✓	✓
Year fixed effects?				✓

Notes: Standard errors, clustered by county, are in parentheses. Observation occurs at the county-year level. Demographic controls include county-year population and median household income estimates. Vote share bins are defined at 10-point increments.

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