Strategic Spending in Federal Government: Theory and Evidence from the US

Pablo Garofalo*

University of Houston

November 2013

Abstract

Past research on the allocation of federal resources to localities has failed to take into account the interaction between federal and state governments. I address this gap by modeling the interaction as a sequential move game in which federal and state governments that are politically aligned (i.e., represented by politicians from the same party) have the same preferences over distribution of resources to localities. Instead, when these two levels of government are not aligned, they have different preferences. The main implication of the model is that the federal government increases funds to politically aligned local districts only when they are inside non-aligned states. Using expenditure data from the Census of Governments for 1982-2002, and a difference in differences strategy, I find that the main implications of the model are upheld in the data. Results are robust to many sub-samples, specifications, and alternative estimation methods. My findings have implications for normative studies of decentralization. In particular, the welfare impact of decentralization could depend on the strategic incentives it creates at various levels of government.

*Department of Economics, University of Houston, 202 McElhinney Hall, Houston, TX 77204-5019. Tel.: (832)-549-0669, E-mail: pjgarofa@Central.UH.EDU. I deeply thank my advisor, Gergely Ujhelyi, for his exceptional advice and encouragement through this project. I also thank the members of my committee Chinhui Juhn and Bent Sørensen for very helpful comments, as well as Jorge Streb, Steven Craig, Sine Tepe, Vikram Maheshri, Aimee Chin, participants of Seminario de Analisis Economico at Universidad del CEMA, and participants of University of Houston Graduate workshops. All the errors, if any, are my responsibility.

1 Introduction

Incumbent politicians may have several reasons to sway the distribution of resources away from pure welfare maximization. Electoral competition may induce incumbents to allocate more resources to localities with a high proportion of swing voters - voters who are not specifically attached to any of the parties.[1] By contrast, if politicians are risk averse, they might see a safer investment in targeting partisan localities - localities with many voters loyal to the incumbent's party.[2] Apart from their own policy objectives, incumbents may also want to help other politicians from their party: for example, influencing the composition of Congress can help to enact a greater portion of the executive's legislative agenda when a large number of co-partisans reside within Congress.[3]

Studies on the political allocation of resources tend to treat democracies as if they were unitary systems with only one level of government actively involved in the distribution of resources. In reality, however, multiple levels of government each pursue their own political goals. For example, apart from the US federal government, states also allocate resources to localities.[4] In such a system, governments will have an incentive to act strategically. For example, the central government should consider whether to allocate resources to state governments or to localities taking into account that state governments will also target specific localities. In this paper, I model this type of strategic interaction between different levels of government, and test the model using data on the distribution of federal transfers between states and localities in the US.

Government preferences regarding resource allocation are determined to a large extent by party politics. State and federal governments may be aligned (when they are controlled by politicians from the same party) or non-aligned (when they are controlled by different parties). Because aligned governments have similar preferences regarding resource allocation, they are likely to want to target spending towards the same localities. Non-aligned governments, by contrast, are likely to have different spending priorities. A strategic federal government should take this into account. It should spend more on its preferred localities in non-aligned states, where these localities are likely to be at a disadvantage, than in aligned states, where the same localities are likely to receive state funds as well. Considering federal-to-state rather

[1] Lindbeck and Weibull (1987, 1993), Case (2001), Strömberg (2008), Arulampalam et al. (2009).

[2] Cox and McCubbins (1986), Ansolabehere and Snyder (2006), Larcinese et al. (2006).

[3] Colleman (1999), Howell et al. (2000).

[4] Studies on the political determinants of state-county transfers include Frederickson and Cho (1974), Ansolabehere et al. (2002), and Ansolabehere and Snyder (2006).

than federal-to-local transfers, federal transfers to aligned states should be greater than to non-aligned states, since the former would behave as a political partner and the latter as a political competitor of the federal government.

I formalize this idea by setting up a sequential move game with perfect information in which the federal government is the leader and the states are the followers. States can be aligned or non-aligned with the federal government, and each player chooses the intergovernmental transfers made to lower level governments (federal-to-state, federal-to-local, state-to-local). I show that, in equilibrium, the federal government will not transfer funds to localities that are also the target of state spending. Doing so would simply crowd out similar spending by the state. In aligned states, the optimal federal strategy is to target spending towards the state government. By contrast, the federal government does transfer directly to localities in non-aligned states, since these state governments have different spending priorities. The prediction therefore is that we should observe more federal transfer to politically preferred localities within non-aligned states than within aligned ones.

I estimate the predictions of the model using data on the allocation of US federal government transfers between states and counties. I follow a difference-in-difference strategy to test whether the federal government transfers more resources to politically aligned counties within non-aligned states than within aligned ones.[5] Consistent with the model, I find that the federal government increases transfers to politically aligned counties by around 6 percentage points, or roughly $11.50 per capita when the state government changes from being aligned with the federal government to being non-aligned. There is no evidence for such an increase for non-aligned counties. This demonstrates the importance of controlling for the three-way political alignment between local, state, and federal government when studying the determinants of intergovernmental spending. The finding that these interaction terms matter survives a long list of robustness checks - among others, controlling for unobserved heterogeneity at the state-year level, alternative definitions of political alignment, and an IV estimation to control for state transfers to localities.

My study has three broad implications. First, my results suggest that previous findings on the political determinants of federal transfers to localities may contain biased estimates. For example, some previous studies estimate the effect of local-federal political alignment on the allocation of federal transfers without controlling for state-federal alignment (Levitt and Snyder, 1995, 1997; Berry et al., 2010). If local-federal and state-federal alignment are positively correlated, my findings imply that the effect of local-federal alignment will

[5]Section 3 contains a detailed discussion on the construction of these measures of political alignment.

be underestimated since it represents a weighted average of non-aligned states, where I find strong effects, and aligned states, where I find none.

Second, I show that - once the strategic interaction between governments is taken into account - the data shows evidence of political opportunism in the allocation of US federal transfers. The federal government appears to take advantage of the multi-layered system of government in bringing federal dollars to its constituencies. While some previous studies highlight the political incentives present in a federal system (Dixit and Londregan, 1998; Volden, 2005), to my knowledge this is the first paper to test this empirically.

Third, my results have general implications for normative studies of decentralization. Other scholars have studied the efficiency gains from decentralization, either in the sense of aggregate surplus or in the Pareto sense (Oates, 1972; Lockwood, 2002; Besley and Coate, 2003). However, these studies compare public good provision in a pure central system to pure regional or local provision. My results suggest that a federal system with both central and multiple lower governments behaves differently from these extremes. In this type of decentralized system, the federal government might engage in a sort of competition with non-aligned states for mobilizing voters, while cooperating with states that are politically aligned with it.

The rest of the paper is organized as follows. The next section places this paper in the related literature. In section 3, I explain in detail how I define political alignment based on previous studies. In section 4, I present the model. In section 5, I present the data and econometric specification used to test the theoretical predictions. Section 6 contains the main empirical results, and section 7 the robustness checks. Finally, section 8 concludes.

2 Related Literature

There are three types of studies in the literature on the political allocation of governmental resources: some study the allocation of federal resources to state governments, others the allocation of state resources to localities, and still others the distribution of federal resources to localities. None of the studies in the third group control for the interaction between federal and state governments. In this sense, my study brings together these previous papers by including all three effects.

In the first group of papers, on federal transfers to state governments, Grossman (1994) estimates that federal grants increase when the number of public employees and union membership per capita increase. He also finds that federal grants to states increase when the percentage of seats held by Democrats in the House of Representatives increases. Larcinese et al. (2006) show that federal outlays to states are affected mainly by the President. Contrary to the common belief, the Senate and the House of Representatives have much smaller impact on federal outlays. In particular, the authors find that federal transfers are affected mainly by the alignment between the President and the state governor and by the alignment between the former and the majority of the state delegates in the House. By contrast, the governor's alignment with either the House or the Senate has no effect.

In the second group of papers studying the relationship between states and localities, Ansolabehere and Snyder (2006) examine the effect of party control of the state on the allocation of the state budget. They find that the party that controls the state (which is not necessarily the party of the Governor) skews the distribution of funds towards partisan localities. By contrast, they find weak evidence that swing voters are being targeted.

In the third group of papers, on the allocation of the federal budget to localities, Levitt and Snyder (1995) estimate that, over a period of Democratic control of Congress, federal programs with higher variability across districts were biased towards districts with more Democrats.[6] Berry et al. (2010) follow Larcinese et al. (2006) but use federal outlays to localities instead of states. They also find that the president has ample opportunities to influence the allocation of high variability funds to localities, both before and after congressional approval of the budget. Specifically, federal spending to counties increases if the county's House Representative is aligned with the President. In contrast, they do not find evidence that congressional committee assignments influence federal spending.

Bringing these results together, if the federal government transfers more funds to aligned states, and states allocate more resources to aligned localities, then some of the federal-to-state transfers might reflect the ultimate objective of targeting localities aligned with the federal government. At the same time, this also implies that the federal government will have more incentive to directly transfer funds to aligned localities within non-aligned states. This is the starting point of my analysis below. My findings will imply that studies such as Levitt and Snyder (1995) and Berry et al. (2010), which do not control for federal-state alignment, are likely to underestimate the effect of political alignment on federal-to-local transfers.

I know of only two (theoretical) studies that consider strategic interaction between different levels of government. Dixit and Londregan (1998) study a model of political platform

[6] High variability programs are assumed to be more discretionary, and hence more likely to reflect political motivations. See more on this in Appendix B.

competition and compare a centralized government with two levels of political competition, central and state. They predict that the central policy implemented is going to be a function of the policy implemented at the state level, since state politicians compete during the second stage of the game. In Volden's (2005) model, state and federal governments may compete in the provision of public goods, leading to over-taxation and over-provision because both seek credit via public spending and they do not want to be blamed for taxing. My contribution relative to these studies is to focus on the role of political alignment in the strategic interaction between governments, and to provide empirical evidence consistent with my model.

3 Background: Who controls the budget?

This section discusses the concept of political alignment between governments based on which actor is most likely to have control over the allocation of the budget.

At the federal level, both in the construction of budgets and in their implementation, the President has ample opportunities to affect the geographic distribution of federal outlays since the Budget and Accounting Act of 1921. The President has been responsible for composing a complete budget, which is submitted to Congress in February of each year, and which initiates the actual authorization and appropriations processes. Substantial efforts are made to ensure that the president's budget reflects his or her policy priorities (Berry et al., 2010). The Office of Management and Budget (OMB) is an important vehicle of presidential control. Rather than submitting requests directly to Congress, agencies seeking federal funding must submit detailed reports to the OMB. The OMB clears each of these reports to ensure that it reflects the chief's executive's policy priorities. The end product is a proposed budget that closely adheres to the President's policy agenda. This ability of the President to target funds towards desired areas does not imply that the members of Congress cannot make amendments. However, the threat of a presidential veto gives members of Congress an incentive to keep the budget proposal close to the initial form proposed by the President (McCarty, 2000).[7] The President also has substantial influence over the allocation of federal funds once the budget has been approved. For instance, administrative agencies can be

[7] This threat does not apply when a supermajority in Congress would be likely to overturn a presidential veto. In such a case, we might expect the budget to be less representative of the President's priorities. During my period of analysis (1982-2002), there was never a super-majority against the President's party, therefore overturning his veto would have been highly unlikely.

created through executive action; in such a case, they are significantly less isolated from presidential control than are agencies created through legislation (Howell and Lewis, 2002). In addition, the President can reprogram funds within certain budgetary accounts; and with Congress's approval, he can transfer funds between accounts (Berry et al., 2010). In light of these facts, the President's party will be taken in this paper as the party that controls the Federal budget. As discussed in section 2, this is consistent with the empirical findings of Larcinese et al. (2006) and Berry et al. (2010), among others.

Regarding state governments, there are a variety of ways to define party control of the state. One option is to use the governor's party, analogously to the federal level. However, it is important to note that, in contrast with Congress, during my period of study (from 1982 to 2002) there were several instances of a party having a super-majority in both chambers of the state legislature without holding the Governor's seat. In such cases overturning a Governor's veto would have been likely, and this has to be taken account in order to define the state control of the budget accurately. In the main analysis, I will use the measure used by Ansolabehere and Snyder (2006), which accounts for this type of divided government.[8] Based on this measure, the state is under, say, Democratic control if (i) Democrats have a majority in both legislative chambers and the Governor is a Democrat, or (ii) Democrats hold at least two thirds of the seats in both legislative chambers. Republican control is defined analogously. Ansolabehere and Snyder show that, under this definition of party control of the state, state funds are targeted towards localities where the fraction of political supporters is the highest.

4 Theoretical framework

I model the political allocation of government expenditures by two levels of government: federal and state. Both governments can spend directly at the local level (by spending funds in specific districts or counties). In addition, the federal government can make intergovernmental transfers to states, giving them discretion in how these funds are ultimately spent.

Consider two states, $i = 1, 2$, with the same number of counties and assume that the party that controls State 1 is aligned with the President and the party that controls State 2 is not.[9]

[8] I discuss the robustness of my findings using alternative measures in section 7.

[9] As in section 3, a state is aligned if the party that controls the state budget is the same as the President's party.

Counties in both states can be politically preferred by the President (represented by the set F_i) and / or politically preferred by the State i (represented by the set S_i). Following the literature discussed in sections 1 and 2 above, a county may be "politically preferred" because it has many loyal voters, or because it is a swing county. The source of political preference will not matter for the theory, but I will consider each of these possibilities separately in the empirical analysis below. Assume that, in state i, m_i counties are politically preferred by both the President and the party in control of the state ($|F_i \cap S_i| = m_i$), n_i counties are politically preferred by the President only ($|F_i \backslash (F_i \cap S_i)| = n_i$), and r_i counties are politically preferred by the party in control of the state only ($|S_i \backslash (F_i \cap S_i)| = r_i$). This is illustrated in Figure 1. As the figure makes clear, it is not unrealistic to assume that the number of counties that are preferred by both the President and the state government is higher in State 1 than in State 2 ($m_1 > m_2$) since the former is aligned with the President. Similarly, the number of counties that are preferred by one level of government only is higher for State 2 ($n_1 < n_2$ and $r_1 < r_2$).[10]

Each county is represented by an elected congressman who may or may not be from the President's party. Let the sets $f_i \subset \{F_i \backslash (F_i \cap S_i)\}$ and $fs_i \subset (F_i \cap S_i)$ denote the counties whose House Representative is aligned with the President, and $\{(F_i \backslash (F_i \cap S_i)) \backslash f_i\}$ and $\{(F_i \cap S_i) \backslash fs_i\}$ the sets of counties whose House Representative is non-aligned. I assume that $\frac{|f_1|}{|F_1 \backslash (F_1 \cap S_1)|} = \frac{|f_2|}{|F_2 \backslash (F_2 \cap S_2)|} = \frac{|fs_1|}{|F_1 \cap S_1|} = \frac{|fs_2|}{|F_2 \cap S_2|} = \alpha$, i.e., there is a constant share of counties aligned with the President within each group for each state.[11]

The President decides in the first stage of the game how much to transfer to each state (T_1^S and T_2^S) and how much to transfer directly to each county j within each state (T_{j1}^C and T_{j2}^C). In the second stage of the game, both state 1 and 2 decide how much to transfer to each county (t_{1j}^C and t_{2j}^C respectively). I will assume that the government's budget is exogenous in order to avoid dealing with another source of political opportunism, that is raising or lowering taxes. The federal government's budget is $\widetilde{B}^F$and states' budgets are $\widetilde{B}^1$and $\widetilde{B}^2$ respectively.

Assuming that all individuals have the same utility function and the same personal income, the representative individual's utility function of locality j in State $i \in (1, 2)$ is $U^{ij} = H(x^{ij})$, where $H(0) = 0$, $H'(x) > 0$, $H''(x) < 0$, and x^{ij} is the total public spending in the county. Public spending could be financed by either the State i only, State i and the President, or by the President only. Following Oates (1999), I assume that higher level gov-

[10]Intuitively, aligned states have more things in common with the President, hence the preferences over the political allocation of resources are more similar than in the non-aligned state.

[11]One could instead assume that the proportion of aligned localities is higher within the aligned state. The assumption of constant proportion within each state simplifies the algebra without affecting the main result of the model.

ernments are less efficient at spending at the local level than lower level governments that are "closer" to the target of spending.[12] Specifically, I let total public spending be $x^{ij} = \theta T^C_{ij} + t^C_{ij}$, where $\theta \in (0,1)$ represents the relative inefficiency or leakage of President provision compared with the state provision.

The President's payoff is

$$\sum_{i=1}^{2}(\sum_{j\in fs_i}\gamma H\left(\theta T^C_{ij}+t^C_{ij}\right)+\sum_{j\in f_i}\gamma H\left(\theta T^C_{ij}\right)+\sum_{j\in((F_i\cap S_i)\backslash fs_i)}H(\theta T^C_{ij}+t^C_{ij})+\sum_{j\in((F_i\backslash(F_i\cap S_i))\backslash f_i)}H\left(\theta T^C_{ij}\right)),$$

where $\gamma > 1$ represents a relative preference towards spending in localities that have an aligned House Representative.[13] The President faces the following budget constraint:

$$\widetilde{B}^F = \sum_{i=1}^{2}(\sum_{j\in F_i}T^C_{ij} + T^S_i).$$

State i's payoff is

$$\sum_{j\in(F_i\cap S_i)}H\left(\theta T^C_{ij}+t^C_{ij}\right)+\sum_{j\in(S_i\backslash(F_i\cap S_i))}H\left(t^C_{ij}\right),$$

and it faces the budget constraint

$$\widetilde{B}^i + T^S_i = \sum_{j\in S_i}t^C_{ij}.$$

Note that, because each government only cares about counties that are preferred by it, $t^C_{ij} = 0$ for $j \in (F_i\backslash(F_i\cap S_i))$ and $T^C_{ij} = 0$ for $j \in (S_i\backslash(F_i\cap S_i))$.[14]

Solving the model using Backward Induction yields the following:

Proposition 1. *In a Subgame Perfect Nash Equilibrium, (i) federal transfers to counties*

[12]Oates (1999) argued that lower level governments should be more efficient in providing local public goods because they are "closer to the people," possessing knowledge of both local preferences and cost conditions that a central agency is unlikely to have. Such local knowledge could also make the political allocation of resources more effective when lower levels of government take the lead.

[13]Presidents may have various reasons to help members of their own party. For example, based on the discussion in Sections 2 and 3, a president can avoid the potential overturn of a future veto, and thereby keep control of the budget, by ensuring that a certain number of co-partisans are elected into office.

[14]Similarly to the President, I assume that States only care about their preferred counties. This means that a State's payoff is not affected by federal transfers to its non-preferred counties. This assumption could easily be relaxed: as long as the State attaches a higher weight to preferred counties, allowing non-preferred counties to also have a positive weight would not affect the main implications of the model.

that are politically preferred by the President only will be larger when the House Representative is from the President's party ($T^C_{ij} \equiv T^C_a > T^C_{il} \equiv T^C_{\sim a}$ *for* $i = 1, 2$, $j \in f_i$, $l \in ((F_i \backslash (F_i \cap S_i)) \backslash f_i)$*); (ii) federal transfers to counties that are preferred by both the President and the state will be equal to zero regardless of the House representative's party* ($T^C_{ij} = T^C_{il} = 0$ *for* $i = 1, 2$, $j \in fs_i$, $l \in (FS_i \backslash fs_i)$*).*

Proof. See appendix A. ■

Part (i) of Proposition 1 follows simply from the fact that the President puts higher weight on counties with an aligned representative. Part (ii) is more surprising: it says that the President will not transfer funds to counties that are also politically preferred by the state. To interpret this result, consider the states' reaction function from solving their maximization problem in the second stage of the game:

$$t^{C*}_{ij} = \frac{1}{m_i + r_i} \left[\widetilde{B}^i + T^S_i + \theta \sum_{l \in (F_i \cap S_i)} T^C_{il} \right] - \theta T^C_{ij}, \text{ for } i = 1, 2 \text{ and } j \in (F_i \cap S_i) \quad (1)$$

$$t^{C*}_{ij} = \frac{1}{m_i + r_i} \left[\widetilde{B}^i + T^S_i + \theta \sum_{l \in (F_i \cap S_i)} T^C_{il} \right], \text{ for } i = 1, 2 \text{ and } j \in S_i \backslash (F_i \cap S_i) \quad (2)$$

Consider the President's choice between transferring an extra dollar to county $j \in (F_i \cap S_i)$ or to State i. In the first case, county j would receive a fraction $\theta < 1$ of that dollar. Moreover, given (1), State i would decrease the transfer to that county j by the amount $\triangle t^{C*}_{ij} = (\frac{1}{m_i + r_i} - 1)\theta$ and given (2), it would increase the transfers to all the other counties in the group $S_i - \{j \in (F_i \cap S_i)\}$ by the amount $\triangle t^{C*}_{ij} = (\frac{1}{m_i + r_i})\theta$ to keep the total public spending in each county that belongs to the state i's preferred group S_i equal. Instead, if the President gave the 1 dollar to State i, then the State would increase the transfers to each county in the group S_i by the same amount $\triangle t^{C*}_{ij} = \frac{1}{m_i + r_i}$. Comparing the two strategies, the president can target "indirectly" each of his preferred counties in the group $F_i \cap S_i$ with an extra amount of $(\frac{1}{m_i + r_i})(1 - \theta)$ dollars if he transfers one extra dollar to states and not directly to the counties in that group. Then, transferring to his preferred counties in the group $F_i \cap S_i$ is dominated by transferring to the state. This property of the equilibrium comes from the fact that the President is comparatively inefficient at allocating political resources, combined with the fact that he knows that each State i can undo anything he does in the first stage, to meet State i's goals in terms of political allocation.

By contrast, the President does transfer to counties that only he prefers ($j \in F_i \backslash (F_i \cap S_i)$), because State i is not allocating any funds to them. Hence, in equilibrium, the President will allocate resources to his own preferred counties only.

Since the number of counties within each of the three groups ($F_i \cap S_i$, $F_i \backslash (F_i \cap S_i)$ and $S_i \backslash (F_i \cap S_i)$) differs between State 1 and 2, we observe, on average, different federal transfers to the President's preferred counties within the non-aligned state 2 and within the aligned state 1. Formally stated, we have:

Corollary 1. *Average federal transfers to the President's preferred counties are greater in the non-aligned State 2 than in the aligned State 1. The difference between the states is greater in the case of counties that have a House Representative aligned with the President. Formally,* $(\frac{n_2}{(n_2+m_2)} - \frac{n_1}{(n_1+m_1)})T^C_a > (\frac{n_2}{(n_2+m_2)} - \frac{n_1}{(n_1+m_1)})T^C_{\sim a} > 0$.

Corollary 1 is the main result of the theoretical model. On average, we observe greater federal transfers to preferred counties within non-aligned states because (1) there are more counties preferred by the President only, and (2) as stated in Proposition 1, those counties are the ones that the President targets. The difference between states is greater when the county is represented by an aligned House Representative, because these counties have a higher weight in the President's objective function.

The model also has implications regarding federal-to-state transfers. As stated in Proposition 1, transferring federal funds to the President's preferred counties in the group $F_i \cap S_i$ is dominated by the strategy of transferring to the State i. Since the number of counties preferred by both the President and the State is greater for the aligned State 1, that state will receive more federal transfers than the non-aligned State 2. Essentially, the President is more willing to delegate the allocation of funds to State 1 with whom he has more in common.[15] This is formalized in the following corollary:

Corollary 2. *Federal transfers to State 1 are greater than to State 2 ($T^S_1 > T^S_2$) if the endowments of both states are equal ($\widetilde{B}^1 = \widetilde{B}^2$).*

Proof. See appendix A. ■

5 Data and econometric specification

5.1 Data

[15] This result is consistent with the findings of Larcinese et al. (2006) in which federal government transfers more funds to aligned states.

The Census of Governments provides reliable and comparable data on the distribution of Federal expenditures. It collects data on Government spending at five year intervals throughout the U.S. I use the years 1982, 1987, 1992, 1997 and 2002, providing county level data for around 3100 counties. The dependent variable for my analysis is the sum of federal transfers to all local governments inside the county, as a percentage of county personal income (from the Census Bureau). Importantly, the data allows me to identify whether federal funds go directly to any local governments inside the county (federal to county transfers), or indirectly through the state (federal to state transfers).[16]

To what extent are federal to county transfers discretionary, as opposed to strictly formula based? In Appendix B, I study this question in detail, using techniques from the literature to measure the extent of discretion. In particular, Levitt and Snyder (1995, 1997) and Berry et al. (2010) argue that variability in spending provides evidence of discretion, and I show that the variable I use displays more variance than even the highly discretionary programs from CFFR. In the Appendix, I also propose an alternative, more stringent test for measuring the variability of federal programs and show that the variable I use appears highly discretionary based on this test as well.

Other data used here include controls that are standard in the public finance literature (see Appendix C for detailed sources). I use county level income per capita, black population, population under 18, population over 65, total population, and presidential elections statistics, all from the Census Bureau. The information about Congressional districts was collected from the Atlas of Congressional Districts, taking into account the changing district boundaries. I also use voting data about Governors, state legislatures, and US House Representatives from multiple sources described in Appendix C.

5.2 Econometric specifications

Based on Corollary 1, I estimate the difference in federal transfers to counties in aligned vs. non-aligned states depending on whether the county is represented by a House Representative from the President's party ("aligned counties"). I present two econometric models. In the

[16]Some previous studies have used data from the Consolidated Federal Fund Report (CFFR hereafter). This data details federal transfers by programs and recipients every year, but one cannot identify whether those funds go directly to a locality through federal agencies, or indirectly through state agencies. This distinction is crucial for my study. Another advantage of using data aggregated across programs is that federal programs from an integrated and complex federal budget are often linked, so using aggregate data controls for this correlation, avoiding the simultaneous equation bias that might arise if specific programs were studied instead.

first one, I do not try to identify which counties are "preferred" by the President, i.e., these could be either partisan or swing counties. In the second one, I explicitly study which of these two groups drives the results.

The first econometric specification is as follows:

$$T^C_{jit} = \alpha + \beta_{FS} FS_{it} + \beta_{FC} FC_{jit} + \beta_{FS\times FC} FS_{it} \times FC_{jit} + \mathbf{X'_{jit}} \mathbf{b} + \beta_{pos} pos_{jit} + \beta_{close} close_{jit} + \mathbf{D_t} + \mathbf{u_j} + e_{jit} \quad (3)$$

Here, T^C_{jit} is federal transfer to county j in State i during year t, $\mathbf{X'_{jit}}$ are various time varying controls (natural log of real income per capita, percentage of blacks, percentage of people under 18, percentage of people over 65 and natural log of population) and FC and FS are political alignment dummy variables. Namely, FS is an indicator that represents federal-state political alignment for the current and the previous two years.[17] Based on the discussion in Section 3, this variable takes a value of 1 if the party that controls the state budget is the same as the President's party. Similarly, FC is an indicator that represents federal-county alignment for the current and the previous two years. It takes a value of 1 if the congressional district in which county j lies has a US House Representative from the same party as the President.[18] The variables *pos* and *close* are indicators of the last presidential election vote margin. The former takes a value of 1 if the vote margin was higher than 0.10, and the latter takes a value of 1 if the margin was between -0.10 and 0.10.[19] These variables are included because of the potential correlation between alignment categories and previous electoral vote margins, in which case excluding them could lead to an omitted variable bias. The specification also includes fixed effects: time fixed effects ($\mathbf{D_t}$) are used to control for country-wide effects, such as the political and economic environment at the federal level, and county fixed effects ($\mathbf{u_j}$) control for time-invariant unobserved heterogeneity at the county level, such as the number of local government units within each county, or urban vs. rural areas where the President might have different political incentives.

Based on the prediction of the model in Section 4, we expect the difference-in-difference estimator $\beta_{FS\times FC}$ in (3) to be negative. As stated in Corollary 1, $\beta_{FS\times FC} = (\frac{n_2}{(n_2+m_2)} -$

[17] My results below are virtually unchanged if I use the previous two years (ignoring the current year).

[18] If the county is divided into many congressional districts, as it happens with highly populated counties, I categorize the county as being aligned with the President if at least 70% of its House Representatives are from the President's party. In section 7, I show that the results are robust if I exclude these cases from the analysis.

[19] Margin is a continuous variable taking values between [-1,1]. For example, if the president is a Democrat and 55% of the electorate in county j voted for Democrats and 45% for Republicans, the margin will be 0.10. However, if the President were Republican, the margin would have been -0.10.

$\frac{n_1}{(n_1+m_1)})(T^C_{\sim a} - T^C_a) < 0$. This means that the change in federal transfers when the State becomes non-aligned with the President (changing the party that controls the state budget) has to be greater, on average, for aligned counties than for non-aligned ones.

By not conditioning the difference-in-difference estimate $\beta_{FS\times FC}$ on "preferred" counties, equation (3) is likely to provide an underestimate of the true effect. This is the average effect between the President's preferred and non-preferred counties. Based on the theory, the effect should only be present among the preferred counties.

In the second econometric model, I investigate which counties, partisan or swing, are more likely to be preferred. For example, if preferred counties are the partisan counties, we expect the difference-in-difference to be stronger for this group. I incorporate in equation (3) the effect of partisanship on the change of federal to county transfers due to changes in alignments by fully interacting the alignment variables with the presidential vote margin categories: negative partisan (margin below -10%), swing (margin between -10% and 10%) and positive partisan (margin above 10%). I run the following regression:

$$T^C_{jit} = \alpha + \beta_{FS}FS_{it} + \beta_{FC}FC_{jit} + \beta_{FS\times FC}FS_{it}\times FC_{jit} + \beta_{pos}pos_{jit} + \beta_{close}close_{jit} + \beta_{FS\times pos}FS_{it}\times pos_{jit}$$
$$+ \beta_{FS\times close}FS_{it}\times close_{jit} + \beta_{FC\times pos}FC_{jit}\times pos_{jit} + \beta_{FC\times close}FC_{jit}\times close_{jit}$$
$$+ \beta_{FS\times FC\times pos}FS_{it}\times FC_{jit}\times pos_{jit} + \beta_{FS\times FC\times close}FS_{it}\times FC_{jit}\times close_{jit} + \mathbf{X}'_{\mathbf{jit}}\mathbf{b} + \mathbf{D_t} + \mathbf{u_j} + e_{jit}, \tag{4}$$

where pos_{jit} stands for positive partisan, $close_{jit}$ for swing, and the excluded category is negative partisan counties.

6 Main results

In this section I present the main empirical findings of the paper. In Table 1, I regress federal to county transfers on federal-state and federal-county alignment, and the time varying covariates listed under Equation (3). In Column (1) and (2), we see that federal transfers to counties are not significantly affected by the alignment between the President and the party that controls the state (FS) or by the alignment between the President and the House Representative of a county (FC). However, the coefficients in both regressions have the correct sign. Namely, in Column (1) federal transfers to counties are 2.5 percentage points smaller inside aligned states, suggesting that the President has more interests in targeting counties within non-aligned states compared with aligned ones. Transfers are 1 percentage point greater when the county is aligned with the President, as seen in Column (2). The latter result is in line with the findings in Berry et al. (2010), where an aligned Representative with the President receives more federal funds for his district.

The estimation of equation (3), presented in Column (3), controls for the differential effect between aligned and non-aligned states on federal transfers to aligned and non-aligned counties. Consistent with the model, I find that the President targets spending towards counties represented by an aligned Representative more within non-aligned states. The coefficient estimate $\hat{\beta}_{FS}$ is almost zero, which means that the transfer to a non-aligned county does not change if the State changes from non-aligned to aligned with the President. Instead, when this difference is conditional on aligned counties, the transfer decreases by 5.6 percentage points as shown by the linear combination $\hat{\beta}_{FS} + \hat{\beta}_{FS \times FC}$ in panel B. This finding is explained by Proposition 1: There is no incentive to spend in aligned counties within aligned states, since that would simply crowd out similar spending by the State. There is, however, an incentive to spend in aligned counties within non-aligned states.

Based on Corollary 1, the precision of the estimation can be increased by conditioning on counties preferred by the President. For that purpose, Table 2 presents the results from estimating equation (4). The table shows the estimators conditional on positive partisan (in panel A: margin $>$ 0.10), swing (in panel B: margin$\leq |0.10|$) and negative partisan counties (in panel C: margin $<$ -0.10). For each case, I report the estimates for the change in federal transfers to an aligned county when the state changes from non-aligned to aligned with the President (first row in all panels of Table 2), the change in federal transfers to a non-aligned county when the state changes from non-aligned to aligned (second row in all panels of Table 2), and the difference between these two changes (reported in the third row in all panels of Table 2).

In the first row of Panel A, federal transfers to an aligned partisan county are 5.9 percentage points smaller when the state changes from non-aligned to aligned with the President. The second row of the same panel shows the same difference when the county is not aligned with the President. This estimate is close to zero and insignificant, indicating that the President does not change the allocation of resources to non-aligned counties when the state's political alignment changes. As the third row of the panel shows, the two estimates are significantly different from each other, indicating that there is a difference in the President's behavior regarding aligned and non-aligned partisan counties.

As panel B shows, I do not find similar differences for swing counties (although the coefficients have the expected sign). This suggests that, in this context, the President has a preference towards targeting aligned partisan counties rather than swing counties.

In Panel C, the estimate $\hat{\beta}_{FS}$ indicates a significant effect for aligned negative partisan counties. However, as the last row shows, there is no evidence of a difference between aligned and non-aligned counties in this case. Given the small number of aligned negative partisan counties, results for this category should be interpreted with care.[20]

The results in this section are in line with the theoretical model. The President has an incentive to allocate funds strategically to aligned counties only within non-aligned states. This effect appears to be stronger within partisan counties, suggesting that these might be the counties viewed as politically valuable by the President in this setting.

7 Robustness checks

In this section, I explore the robustness of the above results by estimating specifications (3) and (4) on different sub samples, by changing how the dependent or independent variables are measured, and by controlling for various sources of unobserved heterogeneity.

7.1 Redefining the dependent variable: federal transfers in per capita terms

The dependent variable throughout this study is federal-county transfers as a percentage of county personal income. If income can also fluctuate due to political cycles, the dependent variable might have an unclear interpretation because every time the federal government changes transfers due to political alignment, both the numerator and the denominator will be moving in the same direction. As a robustness check, I use real federal transfers (prices of 2000) in per capita terms as the dependent variable.[21]

The results can be seen in Column (2) of Tables 3 and 4. In Column (2) of Table 3, we see that the main results do not change, although the difference in difference became non-

[20] For aligned states (i.e., $FS = 1$), we have 190 negative partisan counties, compared with 360 swing and 990 positive partisan counties. For aligned counties (i.e., $FC = 1$), we have 250 negative partisan counties, compared with 760 swing and 2400 positive partisan counties. For aligned counties inside aligned states (i.e., $FS \times FC = 1$) we have 31 negative partisan counties, compared with 100 swing and 570 positive partisan counties.

[21] The drawback of this variable compared to income is that people can move due to public good provision as in the Tiebout sorting model.

significant.[22] Column (2) of Table 4 separates partisan and swing counties, and shows that the results are qualitatively the same as above. I find a significant and negative difference-in-difference for partisan counties but not for swing counties.

7.2 Alternative party control of the state definition

The party in control of the state can be defined in alternative ways (see Section 3). Above, I have used the measure proposed by Ansolabehere and Snyder (2006). In this section, I change that definition slightly to show that the main results are not sensitive to changes in the way of defining party control of the state.

A governor's veto power is an important element of control over the state budget. However, a veto can in some cases be overturned by two thirds of the legislators. The greater the share of co-partisan legislators, the smaller the probability of overturning a Governor's veto, and the more likely that the governor's preferences will determine the budget. To capture this, I use the following definition of party control: if the Governor's party has a simple majority in one of the legislative chambers and holds at least one third of the seats in the other chamber, then the state is controlled by the Governor's party. Intuitively, a veto overturn is unlikely in this case since the legislature needs more than two thirds in both chambers for overturning a Governor's veto. I use this new definition to construct the federal-state alignment variable, and re-estimate equations (3) and (4).

The results can be seen in Column (3) of Table 3 and 4. As we can see in Table 3, the results change little, with the difference in difference increasing somewhat in absolute value for this new definition of party control of the state. Column (3) of Table 4 shows a similar pattern: the finding of a differential effect for partisan counties is reinforced compared to the measure used earlier.

7.3 Addressing unobserved heterogeneity at state level

The results could be subject to an omitted variable bias if federal transfers to counties were correlated with unobserved state-time varying covariates. One example of this is federal to state transfers. Since these are potentially endogenous, controlling for them would not be

[22] This could be explained by Tiebout sorting. It could also be due to an attenuation bias because a linear extrapolation was used to get population at 5 year intervals from the decennial census.

appropriate. Using state-time fixed effects will address this and other potential state-time level heterogeneity.

In Column (4) of Table 3 and 4, we can see the estimation of equations (3) and (4), respectively, once these fixed effects are included. In Column (4) of Table 3, as before, aligned counties receive significantly higher transfers only in non-aligned states. In aligned states, the effect of federal-county alignment is negative and not statistically significant.[23] In Column (4) of Table 4, the estimates change little, and the difference in difference for partisan counties is still significant. Note that there is a considerable loss in degrees of freedom in these regressions due to the inclusion of around 250 new fixed effects. Based on these results, state level heterogeneity does not appear to affect the main findings of the paper.

7.4 Elected council-executive counties

There are three basic forms of county government: Commission, Administrator and Council-Executive. The last one differs from the others in that the executive is independently elected by county voters instead of being appointed by a council or commission board. The county board remains the legislative body, but in this case the executive can veto ordinances enacted by the commission. The county executive has as much power as a mayor-council in a strong municipality or city. For counties with such a strong executives the President might care about the party of the executive more than about the party of the House Representative.

I am not aware of any dataset that would contain the party affiliation of the county executives or the date this form of governments was first introduced in each county. However, the National Association of Counties (NACO) identifies which counties currently have this form of government. In Column (5) of Table 3, I drop these 400 counties and re-estimate the model. The estimator $\hat{\beta}_{FS\times FC}$ is still negative but not significant. Nevertheless, the linear combination $\hat{\beta}_{FS} + \hat{\beta}_{FS\times FC}$ is significant and negative, and $\hat{\beta}_{FS}$ is close to zero, just like in Column (1). When we control for partisan and swing counties as shown in Column (5) of Table 4, the results are very similar to the ones shown in Column (1). These results reinforce the main findings of the paper. They also suggest that either the organizational form of the counties and the party affiliation of their executives are not correlated with the party affiliation of the House Representative, or that, even council-executive counties, the President cares more about the party of the House Representative.

[23] Although not significant, the sign of $\hat{\beta}_{FS\times FC}$ remains unchanged.

7.5 States with only one congressional district

If a state has only one congressional district, this increases the correlation between the federal-state and the federal-county alignment measures. If we assume the extreme case in which all the states have only one congressional district as large as themselves, then neither the model of equation (3) nor equation (4) would be identified. Even though the situation is away from this extreme case, there are states with one congressional district that increases the correlation between those two measures of alignment. This could reduce the significance of the individual parameter estimates, while still resulting in significant linear combinations like in panel B of Table 1 and Table 2. In order to see whether the results are affected by the correlation between FS and FC, I drop from the sample the states with only one congressional district (Alaska, Delaware, North Dakota, Vermont, Wyoming and South Dakota). These results are in Column (6) of Table 3 and 4, and the estimates are very similar to the ones obtained earlier. Hence, we can conclude that states with only one congressional district are not driving the results found above.

7.6 Multi congressional districts counties

The most populous counties are divided into many congressional districts. Since the unit of observation is the county, federal-county alignment could be measured in different ways in these cases. For the estimates above, I defined a multi-district county as being aligned if at least 70% of the House Representatives were aligned with the President. To check whether these counties are biasing the results I drop them from the sample. The result of re-estimating the specifications in this manner are in Column (7) of Tables 3 and 4. In Table 3, the difference-in-difference estimate is significant at 10% as in the main estimation of Column (1) with an increase in absolute value. In Table 4, the results change very little compared with estimation in Column (1) of the same table. The definition of alignment for counties with multiple congressional districts does not drive the findings above.

7.7 Controlling for state transfers to localities

Since state-county transfers are endogenous based on the model, an instrument is required in order to include them in the regression. Here I instrument state transfers to county j with the average transfer inside the congressional district where county j lies, but without county j. Formally, for a congressional district l, I estimate

$$t^C_{jlit} = a + \phi\left(\frac{1}{R^l-1}\sum_{k\neq j}^{R^l} t^C_{klit}\right) + \mathbf{W}'_{\mathbf{jlit}}\mathbf{c}+\mathbf{D_t} + \mathbf{u_j} + \varepsilon_{jlit} \quad (5)$$

$$T^C_{jlit} = \alpha + \eta t^C_{jlit} + \mathbf{W}'_{\mathbf{jlit}}\mathbf{d} + \mathbf{D_t} + \mathbf{u_j} + e_{jlit} \quad (6)$$

where $\mathbf{W_{jlit}} = (FS_{it}, FC_{lit}, FS_{it}\times FC_{lit}, \mathbf{X_{jlit}}, pos_{jlit}, close_{jlit})'$, $\mathbf{d} = (\beta_{FS}, \beta_{FC}, \beta_{FS\times FC}, \mathbf{b}, \beta_{pos}, \beta_{close})'$, and t^C_{jlit} represents the state transfer to county j, which lies within congressional district l, inside state i, during year t. Equation (5) represents the first stage of a just identified system of equations composed by (5) and (6), where the excluded instrument for state to county j transfers is $\left(\frac{1}{R^l-1}\sum_{k\neq j}^{R^l} t^C_{klit}\right)$ because it is less likely that e_{jlit} is correlated with $\left(\frac{1}{R^l-1}\sum_{k\neq j}^{R^l} t^C_{klit}\right)$ than with t^C_{jlit}. Equation (4) can be instrumented in a similar manner.

The results are in Column (8) of Table 3 and 4. Since the instrument cannot be constructed if the county is divided in multiple congressional districts, I exclude these counties from the regression.[24] As we can see, the instrument is fairly strong. In the bottom panel of Table 3 and Table 4, the F-statistic of the first stage is higher than 55 in both cases, the adjusted R^2 of the first stage regression is around 0.36, and the coefficient of the instrument is significant at 1%.

The estimated coefficient on state-county transfers is close to zero, while comparing Column (7) and (8) in both tables shows little change in the coefficient estimates $\hat{\beta}_{FS}$, $\hat{\beta}_{FC}$ and $\hat{\beta}_{FS\times FC}$. This reinforces the validity of the OLS estimates presented above.

8 Conclusion

To this point, scholars have been studying the political allocation of federal resources without considering the involvement of state governments. Because state governments allocate resources based on some of the same considerations, a strategic federal government should take this into account. Controlling for this fact using party alignment between these two layers of governments, I have found that the President skews the distribution of funds towards counties whose House Representatives are from the President's party, but only within

[24] The IV estimates from Column (8) can be compared with the OLS estimates of Column (7) because the sub-samples are the same.

non-aligned states. Specifically, federal transfers to such counties decrease by around 6 percentage points when the party that controls the state becomes aligned with the President. Consistent with my model, no effect has been found for counties whose House Representatives are not from the President's party. This demonstrates the importance of controlling for the three-way political alignment between county, state, and federal government when studying the determinants of intergovernmental spending. The finding that these interaction terms matter survives a long list of robustness checks, as shown in Section 7 above.

This paper has important implications for normative studies of decentralization. My results suggest that in a highly decentralized federal system such as the US, the federal government might engage in a sort of competition with non-aligned states for mobilizing voters, while cooperating with states that are politically aligned with it. Understanding the welfare impact of the strategic interaction between different layers of governments is outside the scope of this paper, but my findings do imply that taking this interaction into account is important for welfare analysis.

The standard view of decentralization is that it removes political power from the center. The findings in this paper indicate the presence of an offsetting effect. After decentralization, a strategic central government may be able to rely on some local governments to further his political goals, and could concentrate more direct spending on those areas where his power has declined. The ultimate impact on the central government's de facto power may be ambiguous.

References

[1] Akai, Nobuo and Masayo Sakata. 2002. "Fiscal decentralization contributes to economic growth: evidence from state-level cross-sectional data for the United States." Journal of Urban Economics, Vol 52, No 1, pp. 93-108.

[2] Ansolabehere, Stephen, Alan Gerber and Jim Snyder. 2002. "Equal votes, equal money: court-ordered redistricting and public expenditures in the American states." American Political Science Review, Vol 96, No 4, pp. 767-777.

[3] Ansolabehere, Stephen and James M. Snyder, Jr. 2006. "Party control of state government and the distribution of public expenditures." Scandinavian Journal of Economics, Vol 108, No 4, pp. 547-569.

[4] Albouy, David. 2013. "Partisan representation in congress and the geographic distribution of federal funds." Review of Economics and Statistics, Vol 95, No 1, pp. 127-141.

[5] Arulampalam, Wiji, Sugato Dasgupta and Amrita Dhillon. 2009. "Electoral goals and center-state transfers: A theoretical model and empirical evidence from India." Journal of Development Economics, Vol 88, No 1, pp. 103-119.

[6] Baicker , Katherine, Jeffrey Clemens and Monica Singhal. 2012. "The rise of the states: U.S. fiscal decentralization in the postwar period." Journal of Public Economics, Vol 96, pp. 1079-1091.

[7] Berry Christopher R, Barry C Burden and William G. Howell. 2010. "The president and the distribution of federal spending." American Political Science Review, Vol 104, No 4, pp. 783-799.

[8] Besley, Timothy and Stephen Coate. 2003. "Centralized versus decentralized provision of local public goods: a political economy approach." Journal of Public Economics, Vol 87, No 12, pp. 2611-2637.

[9] Case, Anne. 2001. "Election goals and income redistribution: recent evidence from Albania." European Economic Review, Vol 45, No 3, pp. 405-423.

[10] Coleman, John J. 1999. "Unified government, divided government, and party responsiveness." American Political Science Review, Vol 93, No 4, pp. 299-309.

[11] Cox, Gary and Mathew McCubbins. 1986. "Electoral politics as a redistributive game". The Journal of Politics, Vol 48, No 2, pp. 370-389.

[12] Craig, Steven and Robert Inman. 1982. "Aid and public education: an empirical look at the new fiscal federalism." Review of Economics and Statistics, Vol 64 No 4, pp. 541-552.

[13] Davoodi, Hamid. and Hens-fu Zou. 1998. "Fiscal decentralization and economic growth: a cross-country study." Journal of Urban Economics, Vol 43, No 2, pp. 244-257.

[14] Dixit, Avinash and John Londregan. 1996. "The determinants of success of special interests in redistributive politics." The Journal of Politics, Vol 58 No 4, pp. 1132-1155.

[15] Dixit, Avinash and John Londregan. 1998. "Fiscal federalism and redistributive politics." Journal of Public Economics, Vol 68, No 2, pp. 153-180.

[16] Frederickson, Gerorge and Yong Cho. 1974. "Legislative reapportionment and fiscal policy in the American states." Western Political Quarterly, Vol 27, No 1, pp. 5-37.

[17] Grossman, Philip. 1994. "A political theory of intergovernmental grants." Public Choice, Vol 78, No 3-4, pp. 295-303.

[18] Howell, William, Scott Adler, Charles Cameron and Charles Riemann. 2000. "Divided government and the legislative productivity of Congress, 1945-1994." Legislative Studies Quarterly, Vol 25, pp. 285-312.

[19] Howell, William and David Lewis. 2002. "Agencies by presidential design." The Journal of Politics, Vol 64, No 4, pp. 1095-1114.

[20] Iimi, Atsushi. 2005. "Decentralization and economic growth revisited: an empirical note." Journal of Urban Economics, Vol 57, No 3, pp. 449-461.

[21] Knight, Brian. 2002. "Endogenous Federal grants and crowd-out of state government spending: Theory and evidence from the Federal Highway Aid Program." American Economic Review, Vol 92 No 1, pp. 71-91.

[22] Larcinese, Valentino, Leonzio Rizzo and Cecilia Testa. 2006. "Allocating the U.S. Federal budget to the states: the impact of the President." The Journal of Politics, Vol 68, No 2, May 2006, pp. 447-456.

[23] Levitt, Steven D. and James M. Snyder, Jr. 1995. "Political parties and the distribution of Federal outlays." The American Journal of Political Science, Vol 39, No 4, pp. 958-980.

[24] Levitt, Steven D. and James M. Snyder, Jr. 1997. "The impact of Federal spending on House election outcomes." Journal of Political Economy, Vol 105, No 1, pp. 30-52.

[25] Lindbeck, Assar and Jörgen W. Weibull. 1987. "Balanced-budget redistribution as the outcome of political competition." Public choice, Vol 52, No 3, pp. 273-297.

[26] Lindbeck, Assar and Jörgen W. Weibull. 1993. "A model of political equilibrium in a representative democracy." Journal of Public Economics, Vol 51, No 2, pp. 195–209.

[27] Lockwood, Ben. 2002. "Distributive politics and the costs of centralization." Review of Economic Studies, Vol 69, No 2, pp. 313-337.

[28] McCarty, Nolan. 2000. "Presidential pork: executive veto power and distributive politics." American Political Science Review, Vol. 94, No. 1, pp. 117-129.

[29] Musgrave, Richard A. 1959. "The theory of public finance." New York: McGraw-Hill.

[30] Oates, Wallace E. 1972. "Fiscal Federalism." New York: Harcourt Brace Jovanovich.

[31] Oates, Wallace E. 1999. "An essay on fiscal federalism." Journal of Economic Literature, Vol 37, No 3, pp. 1120-1149.

[32] Oates, Wallace E. 2005. "Toward a second-generation theory of fiscal federalism." International Tax and Public Finance, Vol 12, No 4, pp. 349-373.

[33] Strömberg, David. 2008. "How the electoral college influences campaigns and policy: The probability of being Florida." American Economic Review, Vol 98, No 3, pp. 769-807.

[34] Ujhelyi, Gergely. 2013. "Civil service rules and policy choices: evidence from US state governments." American Economic Journal: Economic Policy, forthcoming.

[35] Volden, Craig. 2005. "Intergovernmental political competition in American Federalism." American Journal of Political Science, Vol 49, No 2, pp. 327-342.

[36] Wildasin, David E. "Intergovernmental transfers to local government." Institute for Federalism and Intergovernmental Relations. No. 2009-11, August 2009.

[37] World Bank, World Development Report 1999/2000, Oxford Univ. Press, New York, 2000.

[38] Xie, Danyang and Heng-fu Zou. 1999. "Fiscal decentralization and economic growth in the United States." Journal of Urban Economics, Vol 45, No 2, pp. 228-239.

Appendix A. Proof of propositions of section 4.

I solve the model using Backward Induction. In the second stage, each State $i = 1, 2$ maximizes the following Lagrangian:

$$L_i = \sum_{j\in(F_i\cap S_i)} H\left(\theta T_{ij}^C + t_{ij}^C\right) + \sum_{j\in(S_i\setminus(F_i\cap S_i))} H\left(t_{ij}^C\right) + \mu_i(\tilde{B}^i + T_i^S - \sum_{j\in S_i} t_{ij}^C), \text{ for } i = 1, 2$$

The first order conditions are:

$$H'(\theta T_{ij}^C + t_{ij}^C) = \mu_i, \text{ for all } j \in (F_i \cap S_i) \quad (1)$$

$$H'(t_{ij}^C) = \mu_i, \text{ for all } j \in (S_i\setminus(F_i \cap S_i)) \quad (2)$$

$$\tilde{B}^i + T_i^S = \sum_{j\in S_i} t_{ij}^C \quad (3)$$

working with (1), (2) and (3) yields state i's reaction functions:

$$t_{ij}^{C*} = \tfrac{1}{m_i+r_i}\left[\widetilde{B}^i + T_i^S + \theta \sum_{l\in(F_i\cap S_i)} T_{il}^C\right] - \theta T_{ij}^C, \text{ for all } i = 1, 2 \text{ and } j \in (F_i \cap S_i) \quad (4)$$

$$t_{ij}^{C*} = \tfrac{1}{m_i+r_i}\left[\widetilde{B}^i + T_i^S + \theta \sum_{l\in(F_i\cap S_i)} T_{il}^C\right], \text{ for all } i = 1, 2 \text{ and } j \in S_i\setminus(F_i \cap S_i) \quad (5)$$

Given this, the Lagrangian for the President's maximization problem in the first stage is given by

$$L^P = \textstyle\sum_{i=1}^2 \left(\sum_{j\in fs_i} \gamma H\left(\theta T_{ij}^C + t_{ij}^{C*}\right) + \sum_{j\in f_i} \gamma H\left(\theta T_{ij}^C\right) + \sum_{j\in((F_i\cap S_i)\setminus fs_i)} H\left(\theta T_{ij}^C + t_{ij}^{C*}\right) + \right.$$

$$\left. \sum_{j\in\{((F_i\setminus(F_i\cap S_i))\setminus f_i\}} H\left(\theta T_{ij}^C\right)\right) + \textstyle\sum_{i=1}^2 \left(\sum_{j\in F_i} v_{ij} T_{ij}^C + v_i T_i^S\right) +$$

$$\lambda\left(\widetilde{B}^F - \textstyle\sum_{i=1}^2 (\sum_{j\in F_i} T_{ij}^C + T_i^S)\right),$$

The first order conditions for maximization are,

$$L^P{}_{T_{ij}^C} = 0: \; H'(\theta T_{ij}^C + t_{ij}^{C*})\left(\tfrac{\theta}{m_i+r_i} - \theta\right) + \sum_{l\in((F_i\cap S_i)\setminus fs_i),\, l\neq j} H'(\theta T_{il}^C + t_{il}^{C*})\tfrac{\theta}{m_i+r_i} + \sum_{l\in fs_i} H'(\theta T_{il}^C + t_{il}^{C*})\tfrac{\gamma\theta}{m_i+r_i} - \lambda + v_{ij} = 0, \text{ for all } i = 1, 2 \text{ and } j \in ((F_i \cap S_i)\setminus fs_i) \quad (6)$$

$$L^P{}_{T_{ij}^C} = 0: \; H'(\theta T_{ij}^C + t_{ij}^{C*})\left(\tfrac{\gamma\theta}{m_i+r_i} - \gamma\theta\right) + \sum_{l\in fs_i,\, l\neq j} H'(\theta T_{il}^C + t_{il}^{C*})\tfrac{\gamma\theta}{m_i+r_i} + \sum_{l\in((F_i\cap S_i)\setminus fs_i)} H'(\theta T_{il}^C + t_{il}^{C*})\tfrac{\theta}{m_i+r_i} - \lambda + v_{ij} = 0, \text{ for all } i = 1, 2 \text{ and } j \in fs_i \quad (7)$$

$$L^P{}_{T_{ij}^C} = 0: \theta H'(\theta T_{ij}^C) - \lambda + v_{ij} = 0, \text{ for all } i = 1, 2 \text{ and } j \in ((F_i\setminus(F_i \cap S_i))\setminus f_i \quad (8)$$

$L^P{}_{T_{ij}^C} = 0 : \theta\gamma H'(\theta T_{ij}^C) - \lambda + v_{ij} = 0$, for all $i = 1, 2$ and $j \in f_i$ (9)

$L^P{}_{T_i^s} = 0 : \sum\limits_{l \in ((F_i \cap S_i) \backslash fs_i)} H'(\theta T_{il}^C + t_{il}^{C*}) \frac{1}{m_i + r_i} + \sum\limits_{l \in fs_i} \gamma H'(\theta T_{il}^C + t_{il}^{C*}) \frac{1}{m_i + r_i} - \lambda + v_i = 0$, for $i = 1, 2$ (10)

$L^P{}_\lambda = 0 : \widetilde{B}^F - \sum_{i=1}^2 (\sum\limits_{j \in F_i} T_{ij}^C + T_i^S) = 0$, for $i = 1, 2$ (11)

Lemma 1: $T_{ij}^C = 0$ for all $j \in (F_i \cap S_i)$, $T_{ij}^C > 0$ for all $j \in (F_i \backslash (F_i \cap S_i))$, $T_i^S > 0$ for all $i = 1, 2$ is an equilibrium.

Rewriting conditions (4) to (11) by imposing the restrictions in Lemma 1 shows that the first order conditions hold, we therefore have an equilibrium.

Using Lemma 1 to rearrange conditions (8) and (9) yields the following,

$T_{ij}^C \equiv T_{\sim a}^C$ for all $i = 1, 2$ and $j \in ((F_i \backslash (F_i \cap S_i)) \backslash f_i$; $T_{ij}^C \equiv T_a^C$ for all $i = 1, 2$ and $j \in f_i$; and $T_a^C > T_{\sim a}^C$ (12)

Lemma 1 combined with condition (12) verifies Proposition 1 and Corollary 1.

Lemma 2: $T_{il}^C > 0$ for any $l \in (F_i \cap S_i)$, or $T_{il}^C = 0$ for any $l \in F_i \backslash (F_i \cap S_i)$ cannot be an equilibrium.

One can easily verify that rewriting conditions (4) to (11) based on the restrictions imposed in Lemma 2 will lead to a contradiction. Thus, Lemma 2 shows the uniqueness of the equilibrium stated in Proposition 1.

Rewrite (8), (9) and (10) based on Lemma 1 and condition (12) to get

$$\frac{m_2 + r_2}{m_1 + r_1} (\widetilde{B}^1 + T_1^S) \frac{H'^{-1}(\frac{(1-\alpha) m_1}{m_1 + r_1} + \gamma \frac{\alpha m_1}{m_1 + r_1})}{H'^{-1}(\frac{(1-\alpha) m_2}{m_2 + r_2} + \gamma \frac{\alpha m_2}{m_2 + r_2})} - \widetilde{B}^2 = T_2^S.$$

It is easy to see that $T_1^S > T_2^S$ for $\widetilde{B}^1 = \widetilde{B}^2$, since $m_1 > m_2$ and $r_1 < r_2$. This proves Corollary 2.

Appendix B. The discretionary nature of federal transfers to counties

Berry et al. (2010), among others, used data from CFFR. To separate broad-based entitlement programs from federal programs that represent discretionary spending, Levitt and

Snyder (1995, 1997) and Berry et al. (2010) calculate coefficients of variation for each program and they separate them into two categories: low and high variability programs (using as threshold a coefficient of variation of 3/4), because they assume that high variability represents discretionary spending. Unfortunately, I cannot follow the same methodology since the data from the Census does not allow me to identify each source of spending individually. However, I can compare the data from Census of Governments with high-variability programs from CFFR to show that the former is highly discretionary as well.

In Table B1 column (4) we can see that the coefficient of variation associated with Federal to county transfers is 1.45, by far higher than the threshold 3/4 proposed by Levitt and Snyder (1995). The composition of federal to county transfers is detailed in Column (1).[25] There, we can see that almost half of it, on average, is composed by Housing and community development, a highly discretionary set of programs based on the coefficient of variation.[26] Education is the second highest component of federal transfers to counties at 19%, also fairly discretionary. Health and Highways are the third and fourth, with 4% and 3% respectively, and these are unlikely to exert much influence overall.

A high coefficient of variation may not be due to discretion, but instead to large demographic or economic changes in a county during a period of time. If this were the case, the coefficient of variation would mistakenly indicate that the program is highly discretionary when it is not. In order to address this potential issue, I will compare the variance of the residual that comes from a regression of each program against all the observable demographic and economic characteristics with the variance of the program itself. To compute the former, I estimate

$$y_{jit} = \alpha + \mathbf{X}'_{\mathbf{jit}}\beta + \mathbf{D}'_{\mathbf{i}}\mathbf{D}_{\mathbf{t}} + \mathbf{u}_{\mathbf{j}} + e_{jit}, \tag{B1}$$

where y_{jit} is a given federal outlay in county j within State i in year t as a percentage of personal income; $\mathbf{X}'_{\mathbf{jit}}$ is a matrix of demographic and economic county level-time varying controls (natural log of real income per capita, % of blacks, % under 18 years old, % over 65 years old and natural log of population); $\mathbf{D}'_{\mathbf{i}}\mathbf{D}_{\mathbf{t}}$ captures state by state level heterogeneity per year and $\mathbf{u}_{\mathbf{j}}$ is a county fixed effect that captures unobserved fixed heterogeneity; and e_{jit} is the residual.

[25] The data I am using from the Census of Government does not allow me to identify each source of spending individually at county level. However, each source can be observed aggregated at state level. That is to say the sum of all the federal to county transfers inside the state divided by program, which is what I am using to calculate the shares in column 1.

[26] The magnitudes of federal to county transfers cannot be compared with federal funds from CFFR because the former only accounts for direct transfers to localities, while the second one contains both direct and indirect transfers.

If the ratio $\hat{var}(\hat{e}_{jit})/\hat{var}(y_{jit})$ is close to one, it means that the model did not absorb much variation of y_{jit}, in which case demographic and economic changes did not explain the variability, hence the program could be considered as highly discretionary. The opposite is concluded if that ratio is close to zero.

The results can be seen in Column (6) of Table B1, federal to county transfers are not less discretionary than the variables used in previous studies, detailed in Column (8). Even more, it is at least as discretionary as all of them except for highway programs.

Appendix C. Data sources

All the data comes from the *Census Bureau - USA Counties*, unless indicated.

http://www.census.gov/support/USACdataDownloads.html#INC

Intergovernmental transfers from Federal government to Counties. *U.S. Census Bureau - USA Counties, Census of Governments* (1982, 1987, 1992, 1997, 2002).

Intergovernmental transfers from State government to Counties. *U.S. Census Bureau - USA Counties, Census of Governments* (1982, 1987, 1992, 1997, 2002).

Regional Consumer Price Index (CPI) for all urban consumers, not seasonally adjusted. Yearly value obtained by averaging across months. *U.S Department of Labor: Bureau of Labor Statistics.*

Personal Income. *Bureau of Economic Analysis - USA Counties.*

Percentage of Blacks. *Race Data, U.S. Census Bureau - USA Counties.*

Percentage of People Under 18. *Age, U.S. Census Bureau - USA Counties.*

Percentage of People Over 65. *Age, U.S. Census Bureau - USA Counties.*

Population. *U.S. Census Bureau - USA Counties.*

Presidential election Outcomes, Democrat and Republican vote share. *CQ Press - USA Counties.*

Matched Counties with Congressional district and Redistricting. *Congressional District Atlas: 95th to 109th Congress.*

President, Governors, and United States House Representatives' Parties. *Library of Congress Web Archive; OurCampaigns.com.*

State legislative seats held by each party. *Burnham, W Dean, "Partisan Division of American State Governments, 1834-1985". ICPSR Study No. 00013; Council of State Governments, Book of the States.*

Elected council-executive counties. *National Association of Counties (NACO).*

Table 1: Federal-County transfers conditional on State and County alignment. Estimation of equation (3)

Panel A: Estimation Results		**(1)**	**(2)**	**(3)**
	Estimators			
	$\hat{\beta}_{FS}$	-0.025		-0.007
		[0.017]		[0.015]
	$\hat{\beta}_{FC}$		0.010	0.021**
			[0.011]	[0.009]
	$\hat{\beta}_{FS \times FC}$			-0.049*
				[0.029]
	Observations	15,067	15,054	15,054
	R2 within	0.180	0.179	0.181
	Number of counties	3,071	3,071	3,071
Panel B: Linear combination of estimators				
(1)	$\hat{\beta}_{FS} + \hat{\beta}_{FS \times FC}$			-0.056**
				[0.027]
(2)	$\hat{\beta}_{FC} + \hat{\beta}_{FS \times FC}$			-0.027
				[0.029]

Notes: This table shows how federal to county transfers increase within non-aligned states compared to aligned ones. In panel A column 1 and 2 I estimate the effect of state and county alignment on federal to county transfers. Panel A column 3 shows the result of estimating equation (3). In Panel B column 3, row (1) shows the difference in Federal transfers to an aligned county between aligned and non-aligned states. The row (2) shows the difference within an aligned state between an aligned and a non-aligned county. All regressions include county and year fixed effects, as well as the natural log of income per capita, natural log of population, % of blacks, % of inhabitants younger than 19 and % of inhabitants older than 65. The highest 2% values of the dependent variable were considered outliers and dropped from the sample. Robust standard errors clustered at the state level are reported in parenthesis. *, ** and *** denote 10, 5 and 1% level of significance, respectively.

Table 2: Federal-County transfers conditional on State and County alignment as well as partisan or swing counties. Linear combination of estimators from the estimation of equation (4)

	(1)	(2)
Panel A: Positive partisan (margin > 0.1)		
(1)	$\hat{\beta}_{FS} + \hat{\beta}_{FS\times FC} + \hat{\beta}_{FS\times pos} + \hat{\beta}_{FS\times FC\times pos}$	-0.059*
		[0.032]
(2)	$\hat{\beta}_{FS} + \hat{\beta}_{FS\times pos}$	0.018
		[0.018]
(3)	$\hat{\beta}_{FS\times FC} + \hat{\beta}_{FS\times FC\times pos}$	-0.077**
		[0.037]
Panel B: Swing (margin $\leq$ |0.1|)		
(1)	$\hat{\beta}_{FS} + \hat{\beta}_{FS\times FC} + \hat{\beta}_{FS\times close} + \hat{\beta}_{FS\times FC\times close}$	-0.044
		[0.035]
(2)	$\hat{\beta}_{FS} + \hat{\beta}_{FS\times close}$	-0.021
		[0.023]
(3)	$\hat{\beta}_{FS\times FC} + \hat{\beta}_{FS\times FC\times close}$	-0.024
		[0.044]
Panel C: [Omitted category] Negative partisan (margin < -0.1)		
(1)	$\hat{\beta}_{FS} + \hat{\beta}_{FS\times FC}$	-0.016
		[0.076]
(2)	$\hat{\beta}_{FS}$	-0.046**
		[0.02]
(3)	$\hat{\beta}_{FS\times FC}$	0.031
		[0.082]

Notes: This table shows how federal to county transfers increase within non aligned states, compared to aligned ones, for three different categories of the last presidential electoral vote share. Each cell represents a linear combination of estimators obtained from estimating equation (3). The number of observations is 15,054, the number of counties is 3,071. R2=0.179. The highest 2% values of the dependent variable were considered outliers and dropped from the sample. Robust standard errors for the linear combinations clustered at the state level are reported in parenthesis. *, ** and *** denote 10, 5 and 1% level of significance, respectively.

Table 3: Robustness checks. Different subsamples and specifications. Estimation of equation (3)

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Method:				OLS				IV
estimators								
$\hat{\eta}$								0.011
								[0.008]
$\hat{\beta}_{FS}$	-0.007	-1.715	0.008	-	-0.013	-0.020	-0.000	-0.000
	[0.015]	[3.316]	[0.011]	-	[0.017]	[0.015]	[0.016]	[0.012]
$\hat{\beta}_{FC}$	0.021**	3.471**	0.020**	0.013*	0.018*	0.023***	0.020**	0.014*
	[0.009]	[1.654]	[0.009]	[0.007]	[0.009]	[0.009]	[0.009]	[0.007]
$\hat{\beta}_{FS\times FC}$	-0.049*	-9.659	-0.054*	-0.034	-0.046	-0.036	-0.059*	-0.055***
	[0.029]	[6.003]	[0.028]	[0.024]	[0.031]	[0.029]	[0.030]	[0.017]
Observations	15,054	15,066	15,054	15,054	13,218	14,260	13,292	13,133
R-squared	0.181	0.110	0.180	0.217	0.167	0.181	0.173	0.167
Number of Counties	3,071	3,077	3,071	3,071	2,699	2,976	2,927	2,892
$\hat{\beta}_{FS}+\hat{\beta}_{FS\times FC}$	-0.056**	-11.37**	-0.046	-	-0.059**	-0.056*	-0.059**	-0.056***
	[0.027]	[5.668]	[0.028]	-	[0.028]	[0.029]	[0.027]	[0.013]
$\hat{\beta}_{FC}+\hat{\beta}_{FS\times FC}$	-0.027	-6.188	-0.034	-0.022	-0.028	-0.014	-0.039	-0.04
	[0.028]	[6.017]	[0.027]	[0.023]	[0.032]	[0.029]	[0.029]	[0.016]
First Stage R2								0.360
First Stage F test								70.12
First Stage excluded instrument coefficient								0.520***
Standard error								[0.015]

Note: This table shows the same result as in Table 2 in Column 1. In Column 2, I use federal transfers in per capita terms as the dependent variable. In Column 3 I use an alternative measure of party control of the State. In Column 4 I control for State level Heterogeneity by using State*year dummy variables. In Column 5 I eliminate from the sample those counties in which voters in a county elect a council-executive. In Column 6 I eliminate states with one congressional district. In Column 7 I eliminate counties divided in many congressional districts. In Column 8 I perform an IV estimation where State-County transfers are instrumented with the average of State-County transfers inside the district but outside the country. All regressions include county and year fixed effects, as well as the natural log of income per capita, natural log of population, % of blacks, % of inhabitants younger than 19 and % of inhabitants older than 65. The highest 2% values of the dependent variable were considered outliers and dropped from the sample. Robust standard errors clustered at the state level are reported in parenthesis. *, ** and *** denote 10, 5 and 1% level of significance, respectively.

Table 4: Robustness checks. Different subsamples and specifications. Estimation of equation (4)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Method:				OLS				IV
$\hat{\eta}$								-0.0006
								[0.006]
$\hat{\beta}_{FS\times FC} + \hat{\beta}_{FS\times FC\times pos}$	-0.078**	-14.438*	-0.091**	-0.053*	-0.074*	-0.065*	-0.091**	-0.085***
	[0.037]	[7.708]	[0.038]	[0.031]	[0.041]	[0.038]	[0.038]	[0.023]
$\hat{\beta}_{FS\times FC} + \hat{\beta}_{FS\times FC\times close}$	-0.024	-6.723	-0.031	-0.021	-0.016	-0.017	-0.032	-0.029
	[0.044]	[7.474]	[0.043]	[0.040]	[0.056]	[0.044]	[0.046]	[0.034]
$\hat{\beta}_{FS\times FC}$	0.031	3.29	-0.027	0.043	0.006	0.034	0.039	0.042
	[0.082]	[13.852]	[0.030]	[0.081]	[0.086]	[0.083]	[0.089]	[0.062]
Observations	15,054	15,066	15,054	15,054	13,218	14,260	13,292	13,133
R-squared	0.179	0.109	0.179	0.216	0.165	0.181	0.172	0.169
Number of Counties	3,071	3,077	3,071	3,071	2,699	2,976	2,927	2,892
First Stage R2								0.36
First Stage F test								56.05
First Stage excluded instrument coefficient								0.572***
Standard error								[0.021]

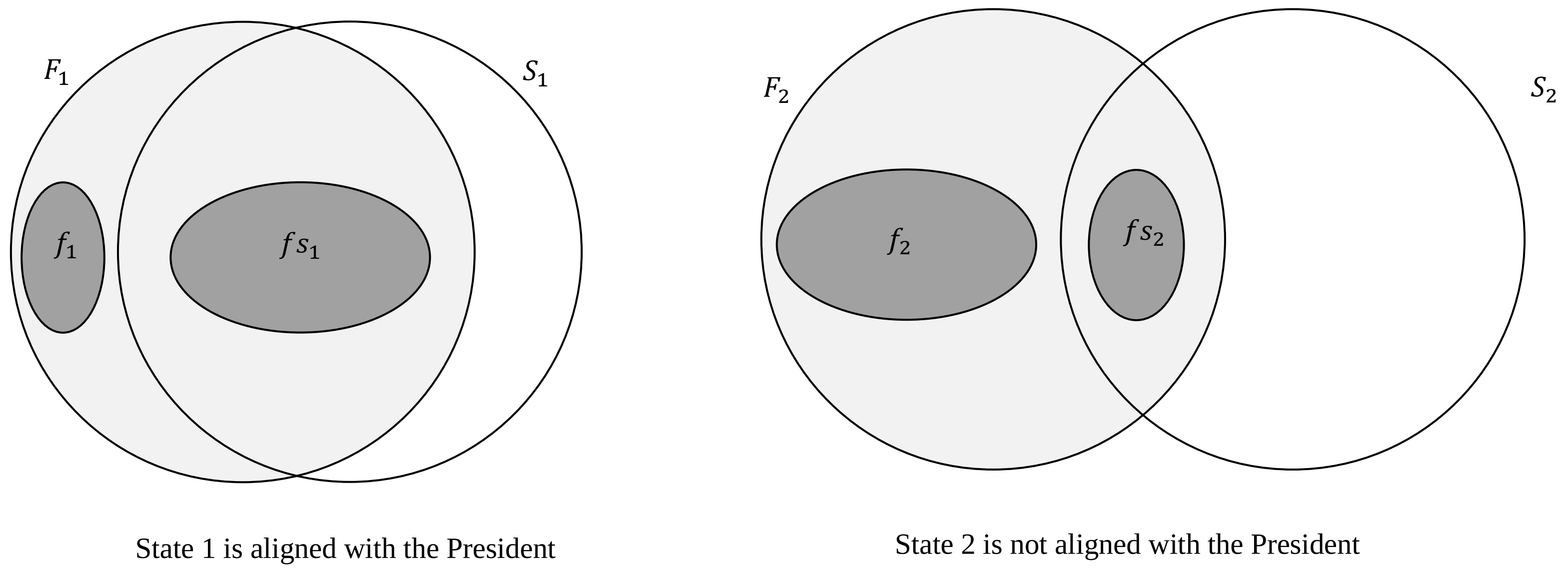
Note: This table shows the same result as in Table 3 in Column 1, but only for the linear combinations. In Column 2, I use federal transfers in per capita terms as the dependent variable. In Column 3 I use an alternative measure of party control of the State. In Column 4 I control for State level Heterogeneity by using State*year dummy variables. In Column 5 I eliminate from the sample those counties in which voters in a county elect a council-executive. In Column 6 I eliminate states with one congressional district. In Column 7 I eliminate counties divided in many congressional districts. In Column 8 I perform an IV estimation where State-County transfers are instrumented with the average of State-County transfers inside the district but outside the country. All regressions include county and year fixed effects, as well as the natural log of income per capita, natural log of population, % of blacks, % of inhabitants younger than 19 and % of inhabitants older than 65. The highest 2% values of the dependent variable were considered outliers and dropped from the sample. Robust standard errors clustered at the state level are reported in parenthesis. *, ** and *** denote 10, 5 and 1% level of significance, respectively.

Table B1. The discretionary nature of federal transfers to counties. Comparison with other transfers and programs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
variable y_{jit}		mean(y_{jit})	$\hat{var}(y_{jit})$	CV	$\hat{var}(e_{jit})$	$\frac{\hat{var}(e_{jit})}{\hat{var}(y_{jit})}$	Source	Used in previous studies by:
Federal-County transfers as % PI		0.50	0.52	1.45	0.24	0.46	Census of Governments	-
State-County transfers as % PI		4.53	5.71	0.53	0.73	0.13	Census of Governments	Frederickson and Cho (1974) Ansolabehere et al. (2002) Ansolabehere and Snyder (2006)
Federal-State transfers as % PI		3.33	1.43	0.36	0.13	0.09	Census of Governments	Grossman (1994) Ujhelyi (2013)
Federal funds on Health as % PI	4%	5.61	38.64	1.11	5.56	0.14	CFFR	Albouy (2013) Berry et al. (2010)
Federal funds on Education as % PI	19%	0.43	0.40	1.47	0.15	0.38	CFFR	
Federal funds on Highway as % PI (Dept. of transportation)	3%	0.52	1.24	2.13	1.01	0.82	CFFR	
Federal funds on Housing and Community development as % PI	49%	0.83	1.09	1.26	0.52	0.47	CFFR	

Note: Column 1 shows the composition of federal-county transfers as % of personal income (PI) by program. Column 2, 3 and 4 show simple means, variances and coefficient of variation, respectively. Column 5 presents the estimated variance of the residual that comes from regressing equation B1 using clustered errors at State level (for Federal-State transfer as % GSP robust standard errors were used, instead). Column 6 shows the ratio between $\hat{var}(e_{jit})$ and $\hat{var}(y_{jit})$ as a measure of variability of the federal program (close to 1 is high variability, close to 0 is considered low variability). Column 7 shows the sources where the federal funds come from. And Column 8 presents authors who used the mentioned variables in previous studies. For calculating columns 2, 3,4, 5 and 6 the highest 2% values of the dependent variable were dropped from the sample because of being considered outliers.

Figure 1: Graphic representation of counties preferred by the President and states.



F_i: set of counties preferred by the President.

S_i: set of counties preferred by the State *i*.

$(F_i \cap S_i)$: set of counties preferred by both the President and State *i*.

f_i: set of counties preferred only by the President, with an aligned Representative.

fs_i: set of counties preferred by both the President and State *i*, with an aligned Representative.