# Friends or Frenemies?
# Explaining Copartisan Subnational Fiscal Policy Interdependence

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**Abstract**: Does fiscal policy diffuse across copartisan subnational governments and, if so, how does this process work? Joining research on political budget cycles and economic policy diffusion, I develop two alternative arguments to explain subnational fiscal policy interdependence. One argument explains how subnational governments learn which fiscal policy choices are best for maximizing constituent support from their copartisan peers, leading to subnational fiscal policy interdependence. The other argument explains how subnational government leaders' efforts to outcompete their copartisan peers to appease higher-level party leaders leads to subnational fiscal policy competition and fiscal policy interdependence. To distinguish between these alternatives, I examine subnational fiscal policy diffusion among state governments in Mexico. Spatial econometric analysis shows that competition among copartisan peers is most likely driving subnational fiscal policy interdependence in this nation.

# Introduction

Does fiscal policy diffuse across copartisan subnational governments and, if so, how does this process work? Research on political budget cycles regularly emphasizes the importance of partisanship on government fiscal policy choice. Scholars regularly show that partisan ideology can affect government decisions to engage in fiscal excess (balance), with left-leaning (right-leaning) national and subnational governments undertaking economic policies geared toward the expansionary (contractionary) preferences of their left-leaning (right-leaning) constituents, especially ahead of elections (Tufte 1978; Hibbs 1987; Garrett 1998; Alesina and Rosenthal 1995; Franzese 2002; Rodden 2006; Rodden, Eskeland and Litvack 2003; Eslava 2011; Alesina and Passalacqua 2016). Scholars also frequently show that subnational governments that share the same partisan affiliation as national presidents (regardless of their ideological orientation) tend to engage in greater fiscal discipline, in order to appease national leaders important for determining their future political careers and who are concerned with maintaining macro-economic stability (Jones, Sanguinetti and Tommasi 2000; Rodden and Wibbels 2002; Benton forthcoming).

Despite considerable research on the way that partisanship affects fiscal policy choice, scholars examining political budget cycles have yet to consider whether shared partisan affiliation might also produce fiscal policy interdependence between governments. This is especially surprising for research on the subnational level, given that subnational leaders are usually embedded within larger political party organizations whose members compete to rise to higher-level elected and appointed party posts. Even so, scholars have only considered the impact of partisanship on each subnational government's fiscal policy choice independently from its impact on copartisans. Research shows that partisan ideology drives subnational governments to fiscal policy that responds to the preferences of their constituents, but scholars treat the impact of partisan ideology on each subnational government's fiscal policy choice as occurring independently from the choices of other subnational copartisan peers. Research also shows that vertical partisan alignment encourages subnational governments aligned with national ones to rein in fiscal excess,

but scholars treat each subnational government's decision to this end as independent from those of other copartisan subnational leaders.

The assumption that partisan considerations motivate each copartisan subnational leader independently is surprising. Scholars studying policy diffusion regularly show that main ingredients of government fiscal policy choice—that is, tax and extractive policies/revenues (Hays 2003; Basinger and Hallerberg 2004; Swank 2006; Gilardi and Wasserfallen 2016; Thies, Chyzh and Nieman 2016) and public benefits provision/expenditures (Case, Rosen and Hines 1993; Bouché and Volden 2011; Volden 2002, 2006; Solé-Ollé 2006; Gilardi 2010; Weyland 2007; Brooks 2007)—diffuse across both national and subnational governments. They also show that the policies that determine government access to capital markets that finance government fiscal deficits—such as capital account liberalization (Meseguer 2009; Mukherjee and Singer 2010; Brooks and Kurtz 2012) and financial market regulation/innovation (Way 2005; Ang and Kumar 2014)—diffuse among (national) governments as well. The limited research that exists on overall governments fiscal policy—fiscal deficits (Giuliodori and Beetsma 2008), non-budgeted discretionary spending (Cassette et al. 2013), or joint revenues and expenditures (Schaltegger and Küttel 2002; Allers and Elhorst 2011)—has shown that it is also interdependent. Although this research has not yet considered whether partisanship affects fiscal policy interdependence, that partisanship motivates political budget cycles suggests that it might condition fiscal policy interdependence as well.

In this study, I explain how partisanship drives fiscal policy interdependence. To this end, I develop the logic for two plausible but alternative mechanisms through which partisan-based subnational fiscal policy interdependence might occur. The first argument joins research on how partisanship affects the diffusion of public benefits provision (e.g., Grossback, Nicholson-Crotty and Peterson (2004); Gilardi (2010)) with that on how constituents' ideological partisan preferences affect fiscal policy choice (e.g., Tufte (1978); Hibbs (1987); Garrett (1998); Alesina and Rosenthal (1995); Franzese (2002); Rodden (2006); Rodden, Eskeland and Litvack (2003); Eslava (2011); Alesina and Passalacqua (2016)) and argues that subnational governments will prioritize the ideological prefer-

ences of their constituents when deciding between deficit spending or balanced budgets and will choose the fiscal policy approach most likely to maximize support. Rather than determining constituents' fiscal policy preferences on their own, subnational governments learn which approach will be most effective in maximizing constituent support by considering the fiscal policies implemented by their copartisan peers and adopting these instead. Subnational leaders' efforts to respond to their constituents' ideologically-driven fiscal policy preferences lead to partisan subnational fiscal policy learning and to partisan subnational fiscal policy interdependence.

The second argument joins research on how policy competition affects fiscal policy diffusion (e.g., Schaltegger and Küttel (2002); Redoano (2007); Allers and Elhorst (2011)) with that on how subnational leaders' vertical partisan alignment with national governments affects fiscal policy choice (e.g., Jones, Sanguinetti and Tommasi (2000); Rodden and Wibbels (2002); Benton (forthcoming)) and argues that subnational leaders will consider the fiscal policy choices of their copartisan peers during their effort to honor the fiscal policy preferences of their higher-level party leaders. When subnational leaders must appeal to higher-level party leaders to retain their current positions or to rise to new ones, they will choose a level of fiscal discipline that not only appeases party leaders but also that outcompete their copartisan peers also vying for promotions. That is, rather than guessing which level of fiscal discipline is most likely to set them apart in the eyes of higher-level party leaders, subnational leaders seek to improve upon the fiscal policy choices of their copartisan peers, resulting in subnational partisan fiscal policy competition and thus subnational partisan fiscal policy interdependence. In this way, partisan alignment not only matters to individual subnational government's fiscal policy choice, it also creates competition-based interdependence among copartisan subnational governments seeking to appease higher-level party leaders.

To distinguish between these two mechanisms, I examine fiscal policy interdependence among state governments in Mexico. Mexico is a good case for examination for three reasons: it is a federal system with three tiers of government, (at least) three main parties that regularly win national and subnational executives, and loopholes in its federal fiscal

contract allow subnational governments to overspend. Spatial econometric analysis shows that the fiscal policy competition argument appears to be at work in this specific case, although fiscal policy learning might operate in other nations whose party systems prioritize voters over party leaders in determining the politicians' future careers. In undertaking this study, I seek to make three theoretical contributions. First, I seek to contribute to research on political budget cycles by explaining how they might be interdependent, something that has not yet been considered in this line of research. Second, I contribute to research on policy diffusion by showing how voter-based partisan considerations are not the only partisan mechanism conditioning policy diffusion; higher-level partisan party leader considerations might also condition policy diffusion as well. Finally, I contribute to research on fiscal policy diffusion by showing how partisanship might also condition interdependence in this policy area as well.

## Research on Partisanship and Fiscal Policy Choice

Scholars examining political budget cycles regularly show that partisanship affects government fiscal policy choice through two mechanisms: partisan ideology and partisan alignment.

Scholars have long examined the political factors leading governments to diverge from an "Optimal Debt Policy" approach (Barro 1979; Aiyagari et al. 2002; Lucas and Stokey 1983; Alesina and Passalacqua 2016), whereby fiscal deficits and public debt experience short-term rises during economic recession and declines during economic recovery. However, governments rarely adhere to this approach. Citing "partisan theory" (Hibbs 1977, 1987, 1994), scholars argue that, in an effort to appease their lower-middle and working class constituents, left-leaning parties favor greater public spending and are thus more tolerant of fiscal deficits, as inflation is a secondary concern to their constituents compared to employment. In an effort to appease their upper-middle and upper-class constituents, right-leaning parties favor lower public spending and are less tolerant of fiscal deficits, as unemployment is a secondary concern for their constituents compared to inflation

(Franzese 2002). Because left-leaning parties' working class and poorer constituents prioritize immediate-term public spending for job creation and economic growth, left-leaning incumbents should ramp up fiscal spending ahead of elections. Because right-leaning parties' middle and upper class voters prioritize macroeconomic stability for job creation and economic growth, right-leaning incumbents should observe fiscal discipline ahead of elections to appease their constituents (Tufte 1978; Hibbs 1987; Garrett 1998; Alesina and Rosenthal 1995; Franzese 2002). Such "ideological partisan budget cycles" have been observed among national and some subnational governments (Eslava 2011).

Likewise, scholars have also long sought to identify the factors that can help alleviate common pool resource dynamics often plaguing subnational spending, especially in decentralized political systems (Rodden 2002, 2003; Rodden and Wibbels 2002; Weingast 2014, 2009; Faguet 2014). One of the political factors said to work is "vertical partisan alignment" between subnational and national governments. Scholars note that presidential influence over the career paths of copartisan subnational leaders can lead subnational copartisans toward greater fiscal discipline, in their effort to appease national presidents concerned about national macroeconomic stability. Subnational leaders might also be concerned about national macroeconomic performance for its effect on their copartisan presidents' national reputations and their parties' national electoral fortunes, also inspiring fiscal discipline for this reason as well (Jones, Sanguinetti and Tommasi 2000; Rodden and Wibbels 2002; Benton forthcoming). Partisan juxtaposition between subnational and national governments raises subnational fiscal expenditures, because subnational leaders do not enjoy copartisan presidents able to promote them to higher positions nor do they benefit electorally from national macroeconomic stability. In fact, they are more likely to benefit from the reverse, with subnational governments raising fiscal expenditures and deficits in order to appease out-of-power higher-level party leaders hoping to unseat incumbent governments (Benton forthcoming).

Research thus reveals two ways that partisanship can affect government fiscal policy choice, that is, decisions to engage in fiscal indiscipline (deficits) or discipline (balance). However, in making these arguments, scholars have typically treated the fiscal policy

decisions of copartisans as independent. Among scholars examining ideological partisan budget cycles, partisan ideology is said to drive governments to similar fiscal policy decisions, with left-leaning partisans engaging in deficit spending and right-leaning partisans preferring balanced budgets. However, the effect of partisan ideology on each government is assumed to be independent from that of its copartisan peers ruling other jurisdictions, whether national or subnational ones. Among scholars examining the impact of partisan alignment between national and subnational governments on subnational fiscal policy choice, partisan alignment is said to encourage subnational governments aligned (juxtaposed) with national ones to rein (engage) in fiscal profligacy, regardless of their left/right partisan leaning. However, each subnational leader's decision to engage in fiscal discipline in response to the presence of higher-level in-power (or out-of-power) party leaders is treated as independent from those of any of their copartisan peers managing other subnational governments. These omissions are surprising. Subnational leaders are members of party organizations and are likely aware of the fiscal policy choices of their peers, especially those of their copartisan peers from whom they might learn how best to appeal to constituents or with whom they might compete for higher-level party posts.

# Research on Partisanship and Policy Interdependence

That research on the impact of partisanship on government fiscal policy choice does not consider whether fiscal policy might be interdependent is odd for three reasons.

First, research on interdependence in government tax policy, benefits provision, and fiscal policy more generally regularly demonstrate that these policy areas are often interdependent, even most research does not examine whether it is partisan-based. Scholars show that subnational government tax and extractive policy diffuse across national (Hays 2003; Basinger and Hallerberg 2004; Swank 2006; Gilardi and Wasserfallen 2016; Thies, Chyzh and Nieman 2016) and subnational governments (Berry and Berry 1992; Fletcher and Murray 2006; Leiser 2017), usually as a result of government competition. Tax competition occurs when governments seek tax policy that maximizes tax contributors

(but minimizes benefits recipients) in their jurisdictions, leading them to compete with other, usually geographically nearby jurisdictions in their tax policy terms. Scholars also show that policies that affect government public benefits provision—such as education (Cohen-Vogel and Ingle 2007; Renzulli and Roscigno 2005), health (Shipan and Volden 2008, 2014), and social insurance (Bouché and Volden 2011; Volden 2002, 2006; Gilardi 2010; Weyland 2007; Brooks 2007)—also diffuse across governments, usually as the result of simply policy learning processes but also sometimes as the result of yardstick competition. Yardstick competition occurs when governments choose benefits provision to appease voters expected to benchmark their policy performance against that of other, usually geographically nearby jurisdictions.

Second, research shows that partisan ideology—one of the factors long said to shape government fiscal policy choice by scholars examining political budget cycles—conditions policy interdependence in some kinds of public benefits provision. For example, Grossback, Nicholson-Crotty and Peterson (2004) argue that subnational governments uncertain about whether a particular public benefits innovation will match their own—and especially their constituents'—ideological preferences—look to other ideologically similar governments for guidance on whether they have adopted the policy in question before doing so themselves. Gilardi (2010) take this line of reasoning one step further to argue that national leaders look to the policy choices of ideologically similar national governments for guidance on whether a prospective public benefits provision will match the policy preferences of their constituents, as well as on whether it will be effective in cultivating voter support and in providing beneficial public policy outcomes for constituents. These scholars show that government concern for constituents' ideologically-driven policy preferences can drive partisan-based policy learning and thus interdependence.

Finally, scholars considering overall government fiscal policy choices, that is, the decision to generate deficits, balanced budgets, or surpluses—measured through discretionary spending (Cassette et al. 2013), fiscal deficits (Giuliodori and Beetsma 2008), or joint revenues/expenditures (Schaltegger and Küttel 2002; Redoano 2007; Allers and Elhorst 2011)—also observe interdependence in these decisions among both national and subna-

tional governments, with yardstick competition usually said to drive this interdependence. Despite research showing the presence of partisan-based public policy interdependence, research examining fiscal policy interdependence has not yet examined whether it also might be partisan based.

That both non-partisan and partisan-based public benefits interdependence as well as non-partisan-based fiscal policy interdependence have been observed amidst partisan-based fiscal policy cycles and partisan-based vertical fiscal policy considerations suggests that these dynamics might interact to produce partisan-based fiscal policy interdependence. However, the mechanisms through which this might occur are unclear, especially given the different mechanisms said to drive policy interdependence in the literature described above. In the following section, I develop two alternative arguments for how politicians' efforts to succeed in their political careers might condition partisan-based subnational fiscal policy diffusion.

## Two Arguments About Partisan Fiscal Policy Interdependence

There are two alternative mechanisms through which partisan-based subnational fiscal policy interdependence might occur: through partisan-based learning and through partisan-based competition.

Prior research suggests one mechanism through which partisanship might affect subnational fiscal policy diffusion: policy learning from copartisan peers (e.g., Grossback, Nicholson-Crotty and Peterson (2004); Volden, Ting and Carpenter (2008); Gilardi (2010)). It could be argued that subnational governments engaging in ideological partisan budget cycles learn which fiscal policy choices are best for maximizing the support of their partisan constituents from their copartisan peers ruling other jurisdictions, leading to interdependent subnational partisan budget cycles and interdependent partisan-based fiscal policy choices. Although subnational leaders take into account their constituents'

ideologically-driven policy preferences when deciding their most preferred fiscal policy approach (Tufte 1978; Hibbs 1987; Garrett 1998; Alesina and Rosenthal 1995; Franzese 2002), they may be unsure about the precise policies that will be most effective in appeasing their partisan constituents. Similar to what has been observed with public benefits provision (Grossback, Nicholson-Crotty and Peterson 2004; Volden, Ting and Carpenter 2008; Gilardi 2010), subnational leaders might consider the fiscal policies implemented by their copartisan peers as the best signal for how to maximize their particular partisan voters' support. Subnational governments thus might learn from copartisan subnational governments' fiscal policy choices which fiscal policy approach is best for maximizing constituent support, leading to subnational fiscal policy interdependence and interdependent ideological partisan budget cycles in this way. This argument is summarized here:

*Partisan Fiscal Policy Learning Argument:* Subnational governments look to learn from copartisan peer governments which fiscal policy choice is best for maximizing constituent support, leading to partisan fiscal policy interdependence.

However, prior research also suggests another mechanism through which partisanship might affect subnational fiscal policy diffusion: policy competition among copartisan peers (e.g., Schaltegger and Küttel (2002); Redoano (2007); Allers and Elhorst (2011)). It could be argued that subnational governments look to outcompete their copartisan peers' fiscal policy choices in order to maximize their chances of gaining favor, not with voters as has usually been argued (e.g., Schaltegger and Küttel (2002); Redoano (2007); Allers and Elhorst (2011)), but with higher-level party leaders, integrating subnational partisan budget cycles from the top-down in this way. Although subnational leaders prioritize the fiscal policy preferences of higher-level party leaders when deciding their most preferred fiscal policy approach (Jones, Sanguinetti and Tommasi 2000; Rodden and Wibbels 2002; Benton forthcoming), when choosing a fiscal policy most likely to appeal to party leaders important for ensuring their political careers, subnational leaders may be uncertain as to whether their fiscal policy choices will be sufficient for ensuring party leader support. Other copartisan subnational leaders are also selecting fiscal policy with an eye toward appeasing these same party leaders, with party leaders benchmarking each political subordinate's fiscal policy performance against her peers, creating "top down"-driven yardstick

competition (Caldeira 2012) among coopartisans. Because those subnational leaders best able to ensure party leader support for their political careers will be those that take fiscal positions that improve upon those of their copartisan peers in other jurisdictions, subnational governments will have an incentive to consider the fiscal policy choices of their copartisan peers and to improve upon them. That is, subnational leaders might be motivated to engage in yardstick competition with their copartisan peers in other jurisdictions, in order to maximize their chances of gaining favor with higher-level party leaders, leading to subnational fiscal policy interdependence. This argument is summarized here.

*Partisan Fiscal Policy Competition Argument:* Subnational governments look to outcompete copartisan peer governments' fiscal policy choice in order to maximize their chances of gaining favor with higher-level party leaders, leading to partisan fiscal policy interdependence.

# Empirical Strategy

I distinguish between the two arguments through examination of state level fiscal policy in Mexico. Mexico is a good case for examination for three reasons: it is a federal system with three tiers of government, (at least) three main parties regularly win national and subnational executives, and loopholes in its federal fiscal contract allow subnational governments to overspend. These three things allow me to test for partisan-based political budget cycles and fiscal policy interdependence at the subnational level.

Mexico is divided into 31 states and a Federal District (designated a state in 2016), with states divided into about 2,440 municipalities (depending on the year). Three main parties have regularly competed for national, state, and municipal elections, with a new party recently making its way into the national and subnational political scene. The Institutional Revolutionary Party (PRI) controlled Mexico during much of the 20th century, losing the presidency in 2000 but regularly winning state and municipal offices. Two other national parties also regularly win state and municipal elections: the National Action Party (PAN), which won the 2000 and 2006 presidential races, and the Democratic Revolution Party (PRD). The PRI reassumed the presidency in December 2012

(term ending in December 2018). A new party, the Movement for National Regeneration (MORENA), recently won the 2018 national presidential race.

Mexican subnational governments enjoy considerable policy and fiscal autonomy (Díaz-Cayeros 2006; Falleti 2010), made all the more autonomous by lax political institutional oversight and regulatory enforcement. Mexico's federal fiscal contract dates to fiscal, public debt, and banking reforms between 1997 and 2000 which operated mostly intact from 2001 to 2016, when a new public debt law was approved. The 2001-2016 fiscal contract purposefully strengthened vertical fiscal imbalances. The national government retained most tax rights and funded states through fiscal transfers (Díaz-Cayeros 2006). States redistribute a set share of federal transfers to municipalities (Timmons and Broid 2013). States and municipalities enjoy some tax rights but they are insufficient for meeting policy obligations (Giugale, Hernández-Trillo and Oliveira 2000; Cabrero and Carrera 2002).

The fiscal contract also authorized subnational governments to use long-term debt to finance economically productive public investment (outlined in the national constitution), as long as long-term debt is in Mexican pesos, from authorized financial institutions, and reported to the Secretary of the Treasury and Public Credit (SHCP). Importantly, states and municipalities were not authorized to run fiscal deficits, although they can use short-term loans for cash management and to close year-end fiscal accounts. However, in practice short-term loans were unregulated and could remain unreported in subnational fiscal accounts and to national authorities, allowing subnational governments to run fiscal deficits by leaving these loans to accumulate (often unpaid) and refinancing them with long-term debt (Revilla 2013; Hurtado and Zamarripa 2013; Hernández-Trillo et al. 2009). Lax regulatory and political institutional oversight facilitated this dynamic, allowing subnational governments to run excessive fiscal deficits and wrack up considerable public debt as a result.

By law, subnational borrowing had to be based on fiscal solvency, with lenders holding capital reserves tied to it (Revilla 2013; Hurtado and Zamarripa 2013; Hernández-Trillo et al. 2009). Subnational governments seeking loans from private lenders had to secure

formal credit ratings (with one exception, see below) from authorized agencies to prevent their loans from automatic capital risk re-weighting (Revilla 2013; Hurtado and Zamarripa 2013; Hernández-Trillo et al. 2009). Those seeking loans from public banks faced internal bank fiscal appraisals, with these loans scrutinized by the CNBV and capital risk re-weighted as needed (Giugale, Hernández-Trillo and Oliveira 2000). In practice, however, subnational fiscal accounts were nontransparent, with arrears to service providers and public employees, other contingent liabilities (like pension obligations), and (unsanctioned) fiscal deficits (and the short-term loans financing them) unreported (Revilla 2013; Hurtado and Zamarripa 2013; Hernández-Trillo et al. 2009). Subnational governments also shopped for credit ratings to guarantee good reports and postponed bad ones, while competition between agencies for clients inflated ratings (Rosado Buenfil 2017). Subnational credit ratings and fiscal assessments were often—if not usually—inconsistent with true subnational fiscal positions (Hurtado and Zamarripa 2013; Hernández-Trillo et al. 2009; Rosado Buenfil 2017), with states and municipalities easily accessing credit lines disproportionate to their fiscal capacity to repay.

Much of this was likely known but subnational governments could collateralize long-term debt with unearmarked and earmarked fiscal transfers and own-source revenues, with these resources intercepted by fiduciaries and debt payments made before reaching subnational treasuries, reducing the risk to repayment. In practice, however, debt collateralization did not prevent subnational governments from assuming debt obligations that neared the limit of or exceeded the resources available for collateralization. The resources collateralizing debt declined during economic downturns, affecting repayment. There were no hard bailouts during the period under analysis but soft bailouts occurred when subnational governments were allowed to refinance short-term loans using long-term debt or to restructure long-term debt to reduce payments (Revilla 2013; Hurtado and Zamarripa 2013). National and state governments often helped municipalities orchestrate access to long-term credit and interpreted the constitution's economic productivity clause to include debt refinancing and restructuring (Revilla 2013; Hurtado and Zamarripa 2013; Hernández-Trillo et al. 2009).

State legislatures are responsible for setting limits to state and municipal long-term debt, and for authorizing state and municipal long-term loans. The approval of municipal councils was also needed for municipal long-term debt. In practice, however, governors controlled state legislatures and bureaucracies, and mayors municipal councils and bureaucracies, weakening oversight over debt decisions and allowing long-term debt obligations to exceed formal limits (enacted in only about half of states and usually unenforced) (Hurtado and Zamarripa 2013). At the municipal level, electoral laws in all but six states guaranteed mayors absolute majorities in municipal councils, while municipal administrative structures guaranteed all mayors absolute control over their bureaucracies (Merino 2006; Pérez Durán 2008; Meza 2015).

Mexican states and municipalities have access to a four main debt instruments: commercial bank loans, public development bank loans, bond emissions, and trust instruments. Conveniently, not all of these debt instruments can be used to finance unsanctioned fiscal deficits. Commercial bank loans are used to finance infrastructure investment, while they also provide short-term bridge loans used to cover fiscal deficits. States (and municipalities) often roll-over short-term bridge loans into longer term debt instruments with commercial banks, usually as a part of larger commercial bank loan packages aimed at infrastructure investment or sometimes as separate loans (Ratings 2011; Hurtado and Zamarripa 2013). Either way, commercial banks most often finance state (and municipal) fiscal deficits. In contrast, public development banks finance state and municipal infrastructure investment. Private sector bond emissions have been mainly used to finance infrastructure investment but they are occasionally used to refinance commercial bank loans (and as such accumulated short-term debt). Trust instruments are mainly used to finance infrastructure investment in public-private partnerships, though few trust instruments have been approved.

The different uses to which the different types of financing are put allow me to generate testable predictions for the alternative arguments described above. One of the problems with both the political budget cycle and policy diffusion literatures is the difficulty in distinguishing between alternative mechanisms said to drive their effects. In the political

budget cycle literature, it is difficult to distinguish whether subnational governments rein in fiscal spending out of concern for copartisan constituents or out of concern for copartisan party leaders, as the observed fiscal policy outcome is the same under both logics (Benton forthcoming). In the policy diffusion literature, it is difficult to distinguish whether policy diffusion occurs through policy learning or policy competition (Gilardi 2013), as the observed fiscal policy outcome is the same under both logics as well. In the arguments I develop above, the same is true: the observed fiscal policy outcome should be the same under both the fiscal policy learning and fiscal policy competition logics. However, the uses to which the different types of debt instruments available to state (and municipal) governments in Mexico can be put allow me to distinguish between the alternative mechanisms driving fiscal policy diffusion in this case. I explain this below.

Of course, one might expect that because Mexico's electoral system raises the importance of party leaders in determining subnational politicians' political careers (Kerevel 2015*b*; Langston 2010), partisan policy competition might matter more than partisan policy learning in driving fiscal policy interdependence. The particular mechanism driving fiscal policy interdependence among subnational copartisans likely depends on the way that politicians build political careers in their political system. Electoral systems that raise the importance of cultivating constituent support for building political careers should encourage subnational politicians to learn from the fiscal policy approaches of copartisans aimed at appealing to constituents (Benton forthcoming), thereby driving learning-based fiscal policy interdependence described in the first argument above. In contrast, electoral systems that raise the importance of party leaders in determining the shape of politicians' political careers should encourage politicians to consider the preferences of party leaders (Benton forthcoming), thereby driving them to consider how best to compete with copartisans in order to better secure party leader support, in the way described in the competition-based argument above. However, scholars have also shown that elected representatives in Mexico also seek to deliver benefits to constituents, leaving us open to the possibility that partisan fiscal policy interdependence occurs through partisan learning as well (Kerevel 2015*a*).

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# Testable Expectations of the Alternative Arguments

According to the "Partisan Fiscal Policy Learning Argument," subnational governments seek to learn from copartisan peer governments which fiscal policy choice is best for maximizing constituent support. In contrast, according to the "Partisan Fiscal Policy Competition Argument," subnational governments look to outcompete copartisan peer governments' fiscal policy choices in order to maximize their chances of gaining favor with higher-level party leaders. Given the regular use of commercial bank loans for financing fiscal deficits in subnational Mexico, this means that we should expect to observe partisan-based interdependence in commercial bank debt under both arguments, making it impossible to distinguish which mechanism is at work through analysis of commercial bank debt alone. Subnational politicians' aiming to appeal to constituents will look to learn and adopt the best fiscal policy practices from copartisan subnational governments whose constituents are expected hold similar policy preferences to their own. Subnational politicians aiming to appeal to party leaders will look to outperform the best fiscal policy practices from copartisan subnational governments whose higher-level party leaders' preferences are similar to their own. See Table 1.

Table 1: Fiscal Policy Interdependence by Mechanism and Type of Debt

|  | Fiscal Policy Learning Mechanism | Fiscal Policy Competition Mechanism |
|---|---|---|
| Commercial Bank Debt | Yes | Yes |
| Development Bank Debt | Yes | No |

However, the alternative mechanisms argued to drive partisan fiscal policy interdependence should produce different results for development bank debt. If subnational governments learn from their copartisan peers how to cultivate the support of their constituents, they will likely mirror copartisan governments' commercial bank debt-financed spending as well as their development bank debt-driven infrastructure investment. Although subnational governments understand the difference between commercial bank-financed fiscal deficits and development bank debt-financed public works, voters are unlikely to perceive it. Voters preferring expansionary fiscal policy will expect to see not just inflated current

spending but also greater capital investment. Voters preferring contractionary fiscal policy will expect to see not just deflated current spending but also lower capital investment. Indeed, voters might even conflate the two, confusing development bank debt-financed public investment with commercial bank debt-financed deficit spending. It is precisely because subnational leaders are uncertain about what fiscal policies are most likely to appeal to their constituents that they will learn from and adopt not just the commercial bank-financed deficit policies of their copartisan peers in other jurisdictions, but will also adopt the development bank-financed spending policies that voters might confuse with fiscal policy as well. Subnational leaders attuned to the policy preferences of their constituents wish to avoid the possibility that their constituents might punish them at the polls for following a policy logic different from what they expect. See Table 1.

In contrast, if subnational governments choose fiscal policy with an eye to outcompeting their copartisan peers in their efforts to appeal to party leaders—according to the "Partisan Fiscal Policy Competition" argument—they should focus their efforts on determining the best levels of debt used to finance fiscal deficits—commercial bank loans—and should undertake development bank-debt financed public spending in response to unrelated, other local and/or national development priorities. Given that development bank debt is used to finance public infrastructure investment and that party leaders can easily perceive the difference between commercial bank-financed fiscal deficits and development bank-debt financed public works, there will be no need to compete with copartisan peer governments in development bank debt-financed spending in order to appeal to higher-level copartisan leaders concerned mainly with unsustainable, unnecessary fiscal deficits that can undermine national macroeconomic stability. That voters are unlikely to perceive differences between commercial bank-financed and development bank-financed spending is of no concern to subnational governments seeking to impress higher-level party leaders crucial for their future political careers. As such, subnational leaders seeking to maximize the incentive of higher-level party leaders to promote them over their copartisan peers to higher level posts will adopt fiscal policy and commercial bank debt with an eye to outcompeting their copartisan peers but will adopt infrastructure investment and devel-

opment bank debt with other socio-economic or political criteria in mind instead. See Table 1.

In other words, if "Partisan Fiscal Policy Learning" is driving fiscal policy interdependence, we should see partisan-based interdependence in commercial bank as well as development bank debt, with those parties favoring higher fiscal deficits assuming greater commercial bank and development bank debt and those politicians favoring lower fiscal deficits assuming lower commercial bank and development bank debt. In contrast, if "Partisan Fiscal Policy Competition" is present, we should see partisan-based interdependence in commercial bank debt levels, with those parties favoring higher fiscal deficits assuming greater commercial bank debt and those politicians favoring lower fiscal deficits assuming lower commercial bank debt. Specifically, we should see subnational governments with higher-level party leaders in power competing with one another to offer balanced fiscal budgets to their in-power copartisan superiors concerned with macroeconomic stability, and subnational governments with higher-level party leaders out of power competing with one another to offer debt-financed fiscal spending to their out-of-power copartisan superiors seeking to unseat incumbent national governments. However, we should see no partisan-based interdependence in development bank debt, as subnational leaders are not compelled to compete with one another to appease party leaders in their level of public infrastructure investment, with other, criteria determining the level of infrastructure-related spending instead.

## Data and Modeling Strategy

I examine long-term debt from commercial banks rather than fiscal deficits. As noted above, subnational fiscal deficits are unsanctioned, with states and municipalities not reporting deficits or spending beyond revenues. Instead, subnational governments in Mexico used short-term loans from commercial banks to run unsanctioned fiscal deficits, accumulating these loans and refinancing them with long-term credit from these same institutions. Municipalities cannot use development bank loans for short-term financing, reducing their

capacity to refinance such loans with these institutions. Debt from commercial banks thus serve as a good proxy for fiscal excess, with loans from these institutions widely available to subnational governments in Mexico.

Although Mexico's subnational debt framework dates to 2001, data recording state level debt separately from municipal debt only exists from 2005. Between 2001 and 2005, state and municipal debt loads were reported together. As a result, I rely on data from 2005-2015. The dependent variables are measured as total yearly per capita state debt contracted with private sector commercial banks and with public sector development banks. I transform yearly debt into per capita square root terms to address nonlinearity and outliers. (I use a square root transformation due to the presence of zero yearly debt.) Unit-root tests–Levin-Lin-Chu, Harris-Tzavalis, Breitung, and Hadri tests–on the dependent variables (assuming a common autoregressive process) show that the data are stationary. I thus examine the debt data in level form. Data are from the Secretary of the Treasury and Public Credit (Secretaría de Hacienda y Crédito Pública (SHCP)).

I examine the data using spatial econometric analysis. Any situation that involves the "externalities from one unit's actions on others' implies interdependence" (Franzese and Hays 2008*b*). In the presence of spatial interdependence, non-spatial modeling techniques suffer from problems associated with omitted variable bias Franzese and Hays (2008*a*). The spatial econometric model most often used to capture spatial interdependence among units include the Spatial Autoregressive Model (SAR) model (otherwise known as the Spatial Lag model) (Franzese and Hays 2008*b*). The SAR model assumes the presence of spatial externalities in both modeled and un-modeled effects (i.e., the systematic and stochastic components). To paraphrase Beck, Gleditsch and Beardsley (2006): SAR models show how a one unit change in [an independent variable] affects the [dependent variable] in the current [unit], how this feeds through to the [dependent variable] in all the other [units] (through the hypothesized spatial lag), and then how this then feeds back to the current [unit] (again through the spatial lag), and so forth, until some equilibrium effect is reached (as the effects in the second and subsequent round of adjustments decline each time). Spatial interdependence as modeled in the SAR model thus

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implies the presence of direct, indirect, and total marginal effects for each explanatory variable.

Given that I examine cross-sectional time-series data, I implement a panel SAR or Spatio-Temporal Autoregressive Model (STAR) model that takes the following functional form (Franzese and Hays 2008*b*):

$$\mathbf{y} = \rho \mathbf{W} \mathbf{y} + \phi \mathbf{M} \mathbf{y} + \mathbf{X} \beta + \varepsilon \tag{1}$$

where $\mathbf{y}$ is the dependent variable, an $NT \times 1$ column vector of cross sections stacked by period. $\mathbf{X}$ is an $NT$ matrix of $k$ regressors, where $\beta$ is the $k \times 1$ column vector of estimated parameters. $\mathbf{W}\mathbf{y}$ is the spatial lag and reflects the dependence of each unit $i$'s outcome on unit $j$'s, where $\mathbf{W}$ is an $NT \times NT$ block-diagonal spatial weights matrix describing the hypothesized spatial relationships between the $n$ units in each period, where $\rho$ is the estimated spatial lag coefficient reflecting the strength of spatial interdependence. Each entry $w_{ij}$ in $\mathbf{W}$ represents the relative connectivity between unit $i$ and unit $j$, with self-neighbors $w_{ii} = 0$. $\mathbf{M}\mathbf{y}$ is a first-order temporal lag of the dependent variable, where $\mathbf{M}$ is an $NT \times NT$ matrix (with 1's on the minor diagonal, 0's elsewhere) and $\phi$ the temporal autoregressive coefficient. It is assumed that $\mu \sim N(0, \sigma_\mu^2)$ in the random effects case but is a vector of parameters in the fixed effects case. $\varepsilon$ is an $NT \times 1$ vector of stochastic components and it is assumed that $\varepsilon \sim N(0, \sigma_\varepsilon^2)$. See Franzese and Hays (2008*b*).

Following the STAR functional form, I also include a first-order temporal lag $\mathbf{M}\mathbf{y}$ of the dependent variable in all models (*Lag Com Bank Debt*). I also include an $NT \times NT$ block-diagonal spatial weights matrix $\mathbf{W}\mathbf{y}$ that captures partisan peer-group affiliation. Scholars have highlighted the importance of theory-driven spatial weights matrix design (see Neumayer and Plümper (2016)). Three main parties ruled Mexico's 32 states (including the Federal District) during the 2005-2015 period under analysis: the formerly nationally hegemonic Institutional Revolutionary Party (PRI), the National Action Party (PAN), the Democratic Revolution Party (PRD), a PAN-PRD coalition. An independent

candidate won one gubernatorial race. (Incidentally, the PAN held the national presidency from 2000-2012 and the PRI from 2013-2018.) To construct the spatial weights matrix, I constructed 10 spatial matrices–one for each year in the data–to identify whether each state pair falls into the same partisan peer-group or not. I then aggregated these individual yearly matrices into an $NT \times NT$ block-diagonal spatial weights matrix, where the yearly partisan peer-group matrix blocks were placed along the block-diagonal and where 0's were placed in all off-diagonal blocks.[1]

Scholars have highlighted the importance of theory-driven spatial weights matrix specification (see Plümper and Neumayer (2010)). The logic driving the "Partisan Fiscal Policy Learning" argument suggests that the spatial weights matrix should be row-standardized. Row-standardized spatial weights matrices force the sum of the weights in each row to add to one, with each cell in each row divided by its row sum. Technically speaking, row-standardization makes the spatial lag equivalent to the weighted average of the lagged dependent variable in other units (Plümper and Neumayer 2010). Theoretically speaking, the impact of each copartisan peer on subnational government fiscal policy choice is treated as more (less) important as the number of copartisan peers declines (rises), because there are fewer (more) copartisan peers to learn from and take into account. Subnational governments with fewer (more) copartisan peers will have fewer (more) copartisan peers to learn from and will thus place greater (lower) value on each copartisan peers' fiscal policy choice when considering their own.

In contrast, the logic driving the "Partisan Fiscal Policy Competition" argument suggests that the spatial weights matrix should not be row-standardized. Non-row-standardized spatial weights matrices allow the weights in each row to sum to the number of "neighbors." Technically speaking, non-row-standardization makes the spatial lag equiv-

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[1]Because STAR models require that all states have "neighbors," I made two coding choices while constructing the yearly spatial weights matrices. In 2005 a PAN-PRD coalition governed only the state of Chiapas, while there were no other PAN-PRD coalitions in other states this same year. I coded this state in this year as a member of the PRD partisan peer-group, given that this governor was once a member of the PRD. In 2015, an independent candidate (originally from the PRI) governed the state of Nuevo León, while there have been no other independent governors. I coded this state in this year as a member of the PRI partisan peer-group, given that this governor defected from this party, with former PRI political networks crucial for bringing him to power. I thus consider his relevant peer-group to be the PRI.

alent to the weighted sum of the lagged dependent variable in the other units (Plümper and Neumayer 2010). Theoretically speaking, the impact of each copartisan peer on subnational government fiscal policy choice is treated equally, regardless of the number of copartisan peers. Subnational governments with fewer copartisan peers will have fewer copartisan peers to compete with but also fewer potential posts, given that the party is likely to control fewer higher-level positions. Subnational governments with more copartisan peers will have more copartisan peers to compete with but also more potential posts, given that their party is likely to control more higher-level positions.

I also include a series of non-spatial **X** control variables in all models. States vary in their capacity to access debt markets (Benton and Smith 2016; Smith and Benton 2017; Benton 2017). Larger and wealthier states with bigger budgets are better able to access capital markets (Thau 2005; Freire 2014; Benton and Smith 2016), so I include state population (square root) (*Population*), state Gross Domestic Product (per capita, square root) (*GDP per capita*), and total state fiscal revenues (own source revenues plus transfer revenues; square root per capita) (*Total Fiscal Revenues*). Prior total debt levels may also affect the ability to access loans, so I include lagged values for all other types of state debt (*Lag Dev Bank Debt*, *Lag Bond Bank Debt*, *Lag Trust Debt*). I do not include state credit ratings as they do not reflect creditworthiness in Mexico (Hernández-Trillo et al. 2009; Espinosa and Martell 2015; Rosado Buenfil 2017; Hurtado and Zamarripa 2013; Benton and Smith 2016; Smith and Benton 2017; Benton 2017). High vertical fiscal imbalances (the ratio of transfer revenues to total revenues) may raise the incentive to spend (*Vertical Fiscal Imbalance*) (Rodden 2006). Greater administrative capacity improves state policy-making, something that might improve access to loans (Smith and Benton 2017; Avellaneda 2009; O'Toole and Meier 1999); human development levels (Avellaneda 2009; O'Toole and Meier 1999) and vertical fiscal imbalances (Cabrero Mendoza 2004; Ibarra Salazar, Sandoval Musi and Sotres Cervantes 2001) are often used as proxies. Data are from the National Geographic Statistics Institute (INEGI) and the National Population Council (CONAPO).

States also vary in their incentive to access capital markets (Benton and Smith 2016;

Smith and Benton 2017; Benton 2017). Low socio-economic development may raise the need for debt-financed public investment (*Human Development Index*) (Sáez 2016), so I include the state's raw human development scores (marginality index). Vertical partisan alignment can also affect fiscal and debt decisions (Jones, Sanguinetti and Tommasi 2000; Rodden and Wibbels 2002; Benton forthcoming), so I include a dummy variable capturing whether states were aligned with presidents or not (*Vertical Partisan Alignment*). Finally, opportunistic and partisan political business cycles may affect debt decisions, leading either all or only some parties' state incumbents to ramp up long-term debt ahead of elections (Tufte 1975, 1978; Nordhaus 1975; Alesina, Roubini and Cohen 1997; Drazen 2001; Eslava 2011; Franzese 2002; Alesina and Passalacqua 2016; Hibbs 1987; Garrett 1998; Alesina and Rosenthal 1995; Rodden 2006; Rodden, Eskeland and Litvack 2003; Alesina and Passalacqua 2016). I include dummies capturing the state gubernatorial election years (*Gubernatorial Election Year*) and the partisan identification of the state executive (*PAN Governor*, *PRD Governor*, *PAN-PRD Governor*, *Independent Governor*, with *PRI Governor the omitted case*). In addition to assessing whether debt policy diffusion is present, I also wish to assess whether political business cycles are present after controlling for debt policy diffusion. Data are from the National Geographic Statistics Institute (INEGI), the National Population Council (CONAPO), the Center for Research on Development (CIDAC), and state electoral institutes.

## Statistical Results

Recall that the fiscal policy learning argument predicts that not only will state government fiscal policy in Mexico be interdependent with that of its copartisans, so too will state government infrastructure investment and the development bank loans used to finance it. This means that we should observe spatial interdependence in both commercial and development bank debt if this argument is correct, and that parties inclined to greater (lower) fiscal expenditures should incur greater (lower) commercial bank and development bank debt. That is, we should see partisan-based spatial lag effects in both commercial

bank and development bank debt.

Meanwhile, the fiscal policy competition argument predicts that state government fiscal policy in Mexico will be interdependent with that of its copartisans but not state government infrastructure investment or the loans used to finance it. This means that we should observe spatial interdependence in commercial bank debt but not in development bank debt if this argument is correct. Specifically, we should see subnational governments with higher-level party leaders in power competing with one another to offer balanced budgets and lower commercial bank debt spending to their in-power copartisan superiors concerned with macroeconomic stability, and subnational governments with higher-level party leaders out of power competing with one another to offer commercial bank debt-financed fiscal spending to their out-of-power copartisan superiors seeking to unseat incumbent national governments. That is, we should see partisan-based spatial lag effects in commercial bank but not development bank debt.

To evaluate which logic is at work, I first consider support for the two alternative arguments using a series of spatial diagnostics tests. Table 2 presents diagnostics tests for spatial dependence among partisan peer-groups for commercial and development bank debt using the row-standardized copartisan peer-group spatial weights matrix, as required by the logic of this argument. As shown, Lagrange Multiplier and Robust Lagrange Multiplier tests show the possible presence of a spatial lag in the commercial bank data. In contrast, the development bank data appear free from any type of spatial interdependence. Table 2 also presents results for the spatial diagnostics tests using the non-row-standardized copartisan peer-group spatial weights matrix, as required by the fiscal policy competition logic. As shown, Lagrange Multiplier and Robust Lagrange Multiplier tests also show the possible presence of a spatial lag in the commercial bank debt. As expected by both arguments, it appears that subnational governments might enjoy commercial bank debt policy interdependence. Meanwhile, as expected by the fiscal policy competition argument, development bank debt appears to be free of spatial interdependence.

I next examine STAR models using both row-standardized and non-row-standardized

Table 2: Spatial Diagnostics Tests

| | Row-Standardized Spatial Weights | | | Non Row-Standardized Spatial Weights | | |
|---|---|---|---|---|---|---|
| | Statistic | DF | P-Value | Statistic | DF | P-Value |
| **Commercial Bank Debt** | | | | | | |
| | | | | | | |
| Spatial error: | | | | | | |
| Moran's I | 1.271 | 1 | 0.204 | 0.577 | 1 | 0.564 |
| Lagrange multiplier | 0.726 | 1 | 0.394 | 1.888 | 1 | 0.169 |
| Robust Lagrange multiplier | 0.727 | 1 | 0.394 | 0.110 | 1 | 0.740 |
| | | | | | | |
| Spatial lag: | | | | | | |
| Lagrange multiplier | 4.789 | 1 | 0.029 | 11.422 | 1 | 0.001 |
| Robust Lagrange multiplier | 4.790 | 1 | 0.029 | 9.644 | 1 | 0.002 |
| **Development Bank Debt** | | | | | | |
| | | | | | | |
| Spatial error: | | | | | | |
| Moran's I | -0.099 | 1 | 1.079 | 0.373 | 1 | 0.709 |
| Lagrange multiplier | 0.268 | 1 | 0.605 | 1.073 | 1 | 0.300 |
| Robust Lagrange multiplier | 0.030 | 1 | 0.863 | 2.199 | 1 | 0.138 |
| | | | | | | |
| Spatial lag: | | | | | | |
| Lagrange multiplier | 0.682 | 1 | 0.409 | 0.004 | 1 | 0.950 |
| Robust Lagrange multiplier | 0.444 | 1 | 0.505 | 1.130 | 1 | 0.288 |

Table 3: Fiscal Policy Learning (STAR Models with Row-Standardized Spatial Weights Matrix)

| | (1) Commercial Bank Debt | (2) Development Bank Debt | (3) Commercial Bank Debt | (4) Development Bank Debt |
|---|---|---|---|---|
| Lag Com Bank Debt (pc, sqrt) | 0.893*** | 0.0542** | 0.770*** | 0.0456* |
| | (0.0291) | (0.0219) | (0.0363) | (0.0271) |
| Lag Dev Bank Debt (pc, sqrt) | 0.155*** | 0.857*** | 0.234*** | 0.660*** |
| | (0.0422) | (0.0325) | (0.0550) | (0.0407) |
| Lag Bond Debt (pc, sqrt) | 0.172*** | 0.0203 | 0.317*** | -0.0504 |
| | (0.0463) | (0.0349) | (0.0684) | (0.0513) |
| Lag Trust Debt (pc, sqrt) | 0.187*** | -0.0178 | 0.197*** | -0.0313 |
| | (0.0602) | (0.0456) | (0.0647) | (0.0484) |
| PAN Governor | 1.145 | -0.840 | 3.639** | -0.619 |
| | (1.370) | (1.116) | (1.667) | (1.297) |
| PRD Governor | -0.478 | 0.544 | -0.198 | 2.487 |
| | (1.449) | (1.216) | (1.986) | (1.599) |
| PAN-PRD Governor | -0.836 | -1.636 | 1.734 | -4.012** |
| | (1.856) | (1.407) | (2.185) | (1.632) |
| Independent Governor | -5.782 | -1.223 | -4.182 | -2.840 |
| | (7.710) | (5.888) | (7.325) | (5.520) |
| Vertical Partisan Alignment | -2.185* | 1.001 | -1.441 | 1.074 |
| | (1.198) | (1.075) | (1.171) | (1.014) |
| Gubernatorial Election Year | 2.990** | -0.423 | 3.286*** | -0.292 |
| | (1.190) | (0.901) | (1.117) | (0.838) |
| Human Development Index | -1.551** | 0.405 | -7.138 | 2.107 |
| | (0.602) | (0.456) | (8.187) | (6.172) |
| Vertical Fiscal Imbalance | 12.67*** | -3.262 | -0.504 | 16.08 |
| | (4.581) | (3.469) | (13.21) | (9.902) |
| Total Fiscal Revenues (pc, sqrt) | -0.0310*** | 0.0193** | -0.101 | 0.119** |
| | (0.0116) | (0.00877) | (0.0650) | (0.0478) |
| GDP per capita | 0.00516 | -0.00469 | 0.0136 | 0.0180 |
| | (0.00442) | (0.00335) | (0.0210) | (0.0158) |
| Population (sqrt) | -0.00177** | -0.000565 | 0.0145 | 0.0142 |
| | (0.000724) | (0.000549) | (0.0148) | (0.0100) |
| Constant | -8.283* | 5.372 | -14.85 | -41.83** |
| | (4.368) | (3.383) | (23.83) | (16.82) |
| rho | 0.117** | -0.0767 | 0.145** | -0.0985 |
| | (0.0517) | (0.0852) | (0.0694) | (0.0958) |
| sigma | 7.335*** | 5.559*** | 6.637*** | 4.981*** |
| | (0.290) | (0.220) | (0.263) | (0.197) |
| State Fixed Effects | NO | NO | YES | YES |
| Observations | 320 | 320 | 320 | 320 |
| Wald test of rho=0 | 5.133** | 0.809 | 4.359** | 1.056 |
| Likelihood ratio test of rho=0 | 5.034** | 0.816 | 4.223** | 1.070 |
| Lagrange multiplier test of rho=0 | 5.906** | 0.604 | 4.789** | 0.681 |
| Log Likelihood | -1092.1 | -1003.0 | -1060.3 | -968.0 |

Acceptable range for rho: -2.000 < rho < 1.000. Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Fiscal Policy Competition (STAR Models with Non-Row-Standardized Spatial Weights Matrix)

| | (1) Commercial Bank Debt | (2) Development Bank Debt | (3) Commercial Bank Debt | (4) Development Bank Debt |
|---|---|---|---|---|
| Lag Com Bank Debt (pc, sqrt) | 0.893*** | 0.0529** | 0.763*** | 0.0439 |
| | (0.0288) | (0.0223) | (0.0361) | (0.0274) |
| Lag Dev Bank Debt (pc, sqrt) | 0.151*** | 0.860*** | 0.212*** | 0.661*** |
| | (0.0421) | (0.0323) | (0.0553) | (0.0409) |
| Lag Bond Debt (pc, sqrt) | 0.167*** | 0.0204 | 0.303*** | -0.0493 |
| | (0.0462) | (0.0351) | (0.0679) | (0.0514) |
| Lag Trust Debt (pc, sqrt) | 0.178*** | -0.0186 | 0.171*** | -0.0325 |
| | (0.0601) | (0.0457) | (0.0650) | (0.0485) |
| PAN Governor | 6.093** | -1.254 | 10.52*** | -0.0822 |
| | (2.394) | (2.267) | (2.862) | (2.684) |
| PRD Governor | 3.561* | -0.397 | 5.935** | 1.937 |
| | (2.069) | (1.537) | (2.839) | (2.099) |
| PAN-PRD Governor | 3.849 | -2.253 | 8.077*** | -3.902 |
| | (2.467) | (2.006) | (3.027) | (2.441) |
| Independent Governor | -7.552 | -1.293 | -6.286 | -3.457 |
| | (7.718) | (6.017) | (7.283) | (5.697) |
| Vertical Partisan Alignment | -3.734*** | 0.899 | -3.225** | 0.506 |
| | (1.404) | (1.419) | (1.296) | (1.384) |
| Gubernatorial Election Year | 2.562** | -0.384 | 2.749** | -0.309 |
| | (1.198) | (0.911) | (1.124) | (0.849) |
| Human Development Index | -1.483** | 0.367 | -5.497 | 2.778 |
| | (0.595) | (0.454) | (8.153) | (6.175) |
| Vertical Fiscal Imbalance | 12.09*** | -3.142 | 2.951 | 15.91 |
| | (4.573) | (3.481) | (13.11) | (9.930) |
| Total Fiscal Revenues (pc, sqrt) | -0.0302*** | 0.0195** | -0.0759 | 0.107** |
| | (0.0115) | (0.00878) | (0.0615) | (0.0471) |
| GDP per capita | 0.00630 | -0.00486 | 0.0158 | 0.0184 |
| | (0.00440) | (0.00335) | (0.0208) | (0.0158) |
| Population (sqrt) | -0.00168** | -0.000543 | 0.00501 | 0.0104 |
| | (0.000723) | (0.000549) | (0.0148) | (0.0111) |
| Constant | -10.43** | 5.019 | -13.53 | -37.18** |
| | (4.500) | (3.511) | (22.58) | (16.98) |
| rho | 0.0113*** | -0.00324 | 0.0162*** | 0.000430 |
| | (0.00386) | (0.00759) | (0.00505) | (0.00961) |
| sigma | 7.306*** | 5.565*** | 6.588*** | 4.991*** |
| | (0.289) | (0.220) | (0.260) | (0.197) |
| State Fixed Effects | NO | NO | YES | YES |
| Observations | 320 | 320 | 320 | 320 |
| Wald test of rho=0 | 8.517*** | 0.183 | 10.27*** | 0.00201 |
| Likelihood ratio test of rho=0 | 8.405*** | 0.183 | 10.11*** | 0.00201 |
| Lagrange multiplier test of rho=0 | 10.96*** | 0.137 | 11.42*** | 0.00187 |
| Log Likelihood | -1090.4 | -1003.3 | -1057.4 | -968.5 |

Acceptable range for rho: -2.000 < rho < 1.000. Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

spatial weights matrices. I also present models without and with state fixed effects. Scholars have highlighted the importance of allowing theory to drive the choice of including unit fixed effects in spatial econometric models (see Plümper and Neumayer (2010)). Models without state fixed effects examine differences in levels of debt across states, whereas models with state fixed effects examine differences in debt levels within states (Plümper and Neumayer 2010). That is, models without state effects estimated effects in the level of state fiscal policy whereas models with state effects estimate effects in the change of state fiscal policy (Plümper and Neumayer 2010). In the case of fiscal policy learning, subnational leaders should learn from copartisans on both fronts, that is, they should learn from copartisan peers which levels and changes in commercial bank and development bank debt are most likely to ensure constituent support. In the case of fiscal policy competition, subnational leaders should compete with copartisans on both fronts as well, because appeasing party leaders requires both outcompeting copartisans in their levels and changes in commercial bank debt. Neither levels nor changes in infrastructure-financing development bank debt should matter to party leaders concerned with fiscal deficits under this logic.

Table 3 presents the results for the STAR Models examining support for the fiscal policy learning argument, without and with state fixed effects. As shown, the $\rho$ (rho) term is positive and significant in both commercial bank debt models. However, the $\rho$ (rho) term is not significant in either of the development bank debt models, a finding contrary to the partisan fiscal policy learning argument. It thus appears that fiscal policy learning does not occur in the Mexican case. Table 4 presents the results for the STAR Models examining support for the partisan fiscal policy competition argument, without and with state fixed effects. In these models, the $\rho$ (rho) term—for the non-row-standardized spatial weights matrix—is positive and significant in both commercial bank debt models. Meanwhile, the $\rho$ (rho) term is not significant in both development bank debt models. These findings are in line with the argument that partisan fiscal policy competition drives fiscal policy interdependence in the Mexican case.

The results for the spatial lag terms $\rho$ (rho) in Table 3 and Table 4 thus support

the argument that subnational fiscal policy interdependence in Mexico occurs through partisan-based fiscal policy competition rather than partisan-based fiscal policy learning. Importantly, two other parameters in Table 4 support this conclusion. First, the *Vertical Partisan Alignment* dummy variable capturing whether governors share the same partisan affiliation as the national president was negative and significant in the commercial bank debt models in Table 4, in line with the argument that politicians care about appeasing higher-level party leaders. This result combined with the significant ρ (rho) attests to presence of subnational politicians seeking to appease higher level party leaders in their fiscal policy preferences at the same time that they seek to outcompete their copartisan peers in their fiscal policy choices. Moreover, *Vertical Partisan Alignment* was insignificant in both models examining development bank debt in Table 4, attesting to the lack of need for subnational leaders to appease higher-level party leaders in their use of development bank loans. This result combined with the insignificant ρ (rho) term attests to the lack of incentive for subnational politicians to consider higher-level party leaders or copartisans when taking decisions about infrastructure investment financed with development bank loans.

Second, the *Gubernatorial Election Year* dummy variable capturing whether there were state level elections that year was also only significant in the models examining commercial bank loans. This finding reinforces the conclusion that career-driven motives driving politicians' fiscal policy choices. That is, where subnational leaders' fiscal policy choices mattered for appeasing party leaders, as in the case of deficit-financing commercial bank loans, were these fiscal policy choices both spatially interdependent, as seen in the positive and significant ρ (rho) term, as well as electorally-motivated, as seen in the positive and significant *Gubernatorial Election Year* coefficient. In contrast, where debt policy choices played no role in copartisan competition to impress party leaders, as in the case of development bank debt, subnational politicians did not time these projects to state elections, as shown by the insignificant *Gubernatorial Election Year* coefficient, nor were they spatially interdependent, as shown by the insignificant ρ (rho) term.

Table 5 and Table 6 present marginal spatiotemporal effects, as recommended by

Table 5: Marginal Effect of Gubernatorial Elections on Commercial Bank Debt

|  | PRD State | PRI State | PAN State |
|---|---|---|---|
| Own State | 2.752363** | 2.76381** | 2.75502** |
|  | (1.135237) | (1.13865) | (1.136049) |
| Peer State | 0.0476389** | 0.0590866* | 0.0502965** |
|  | (0.0231716) | (0.0316022) | (0.0249923) |

Note: Marginal effect cells show the short-term effect of the
presence of a state gubernatorial race on a state's (column) own
commercial bank debt and on other states' (row) levels
of commercial bank debt. $^{*}$ $p < 0.10$, $^{**}$ $p < 0.05$, $^{***}$ $p < 0.01$

Table 6: Marginal Effect of Vertical Partisan Alignment on Commercial Bank Debt

|  | PRD State | PRI State | PAN State |
|---|---|---|---|
| Own State | -3.229943*** | -3.243377*** | -3.233061*** |
|  | (1.124936) | (1.131246) | (1.126362) |
| Peer State | -0.055905* | -0.0693391* | -0.0590238* |
|  | (0.0288788) | (0.0401721) | (0.0313247) |

Note: Marginal effect cells show the short-term effect of the
presence of a state gubernatorial race on a state's (column) own
commercial bank debt and on other states' (row) levels
of commercial bank debt. $^{*}$ $p < 0.10$, $^{**}$ $p < 0.05$, $^{***}$ $p < 0.01$

Franzese and Hays (2007). Specifically, Table 5 presents results for the impact of *Gubernatorial Election Year* on states controlled by the the left-leaning Democratic Revolution Party (PRD), the right-leaning National Action Party (PAN), and the more centrist and formerly hegemonic Institutional Revolutionary Party (PRI) on a state's own fiscal finances in 2006 as well as those of its copartisan peers. (The year 2006 is used instead of 2005, due to the presence of lagged dependent variables in the models.) The marginal effects are calculated from Table 4's commercial bank debt model with state fixed effects. The table shows that, for example, the presence of a gubernatorial election in a PAN state that year could be expected to raise that state's per capita commercial bank debt by 2.76 (square root) or by nearly 8 Mexican pesos. Moreover, that state's electorally-motivated rises en commercial bank debt could be expected to trigger rises in per capita commercial bank debt in other PAN states, even those not electing new state governors that year. Specifically, copartisan PAN governors in other states could be expected to raise their debt by 0.05 pesos (square root) or 0.0025 pesos per capita. Similar results obtain for the other parties. This may not seem like much, but aggregated across state populations (which ranged from 565,000, 14.0 million, and averaged 3.3 million in 2005), combined with the effect of gubernatorial races in other copartisan states, and cumulated over time, these figures can add up to be quite significant.

Table 6 presents results for the impact of *Vertical Partisan Alignment* on a state's own as well as its copartisan peers' commercial bank debt, again for each of the nation's main parties controlling state governments during the period under analysis. Again, the marginal effects are calculated from Table 4's commercial bank debt model with state fixed effects. As shown, when a PAN governor shares partisan alignment with the national president, which was actually the case for this party in 2006, the state government assumes 3.233 Mexican pesos per capita (square root), or a about 10.50 pesos, less in per capita commercial bank debt. Moreover, this reduction diffuses to other PAN states, who acquire 0.069 pesos per capita (square root), or about 0.005 pesos, less in commercial bank debt. As above, similar results obtain for the other parties as well. Once again, while this may not seem like much, aggregated across state populations, combined with the effect

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of vertical partisan alignment in other copartisan states, and cumulated over time, these figures can add up to be quite large.

## Conclusion

The original aim of this paper was to develop and adjudicate between two alternative arguments that might explain partisan subnational fiscal policy interdependence. Building on the literature on ideological partisan budget cycles (Tufte 1978; Hibbs 1987; Garrett 1998; Alesina and Rosenthal 1995; Franzese 2002; Rodden 2006; Rodden, Eskeland and Litvack 2003; Eslava 2011; Alesina and Passalacqua 2016) as well as partisan policy diffusion (Grossback, Nicholson-Crotty and Peterson 2004; Volden, Ting and Carpenter 2008; Gilardi 2010), I argue that subnational governments might learn which fiscal policy choices are best for maximizing constituent support from their copartisan peers, leading to subnational fiscal policy learning and thus fiscal policy interdependence. Building on the literature on vertical partisan alignment (Jones, Sanguinetti and Tommasi 2000; Rodden and Wibbels 2002; Benton forthcoming) and on non-partisan-based fiscal policy interdependence (Schaltegger and Küttel 2002; Redoano 2007; Allers and Elhorst 2011), I also argue that subnational government leaders' efforts to outcompete their copartisan peers to appease higher-level party leaders might lead to subnational fiscal policy competition between them and thus fiscal policy interdependence in this way instead.

To distinguish between these alternatives, I examine subnational fiscal policy diffusion among state governments in Mexico. Mexican states (and municipalities) have access to a four main debt instruments through which to finance public debt, where only one debt instrument can be easily used to finance fiscal deficits. The different uses to which different types of debt instruments available to subnational governments in Mexico can be put allow me to distinguish between the alternative mechanisms driving fiscal policy diffusion in this case. Given the regular use of commercial bank loans for financing fiscal deficits in subnational Mexico, this means that partisan-based interdependence in commercial bank debt should occur under both arguments. However, the alternative mechanisms

should produce different results for development bank debt. If subnational governments learn from their copartisan peers how to cultivate the support of their constituents, then they will likely mirror copartisan governments' development bank-financed infrastructure investment. In contrast, if subnational governments choose fiscal policy to outcompete copartisan peers, then they should focus their efforts on the commercial bank debt most often used to finance fiscal deficits, leaving development bank-driven infrastructure investment free from partisan-based interdependence. Spatial econometric analysis shows that competition among copartisan peers is most likely driving subnational fiscal policy interdependence in this nation.

In building these alternative arguments, I seek to make three theoretical contributions. First, I seek to contribute to research on political budget cycles by explaining how they might be interdependent, something that has not yet been considered in this line of research. Second, I contribute to research on policy diffusion by showing how voter-based partisan considerations are not the only partisan mechanism conditioning policy diffusion; higher-level partisan party leader considerations might also condition policy diffusion as well. Finally, I contribute to research on fiscal policy diffusion by showing how partisanship might also condition interdependence in this policy area as well.

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