

PATRONAGE BY CREDIT: INTERNATIONAL SOURCES OF PATRONAGE POLITICS*

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Abstract

How do international markets affect domestic politics? I present a new channel based on international finance and patronage politics. I argue that US Federal Reserve policy, as driver of the global financial cycle, affects patronage by loosening (or tightening) the budget constraints of politicians in the developing world. Examining up to 128 developing countries from 1960 to 2014, I show that a looser US monetary policy affects governance: it increases patronage spending, corruption levels, and private goods provision and decreases government transparency, while having no effects on public goods provision. These effects are stronger on economies vulnerable to international financial fluctuations. I offer corroborating evidence from 1,721 Mexican municipalities between 1995 and 2010. Using a regression discontinuity design in close electoral races I show that the patronage effects of looser US monetary policy are stronger in politically aligned municipalities. These findings underline an under-emphasized mechanism through which financial globalization influence domestic politics and development.

JEL codes: D72, D73, H77, O19

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1 Introduction

According to the Ministry of Economy and Public Finances of the Province of Buenos Aires, the largest and richest province in Argentina, “the *international liquidity context* [of the early 1990s] provided opportunities for accessing the international financial market. The Province took advantage of this favorable context [...] The newly available funds were used in *infrastructure* projects, driving public investment.”¹ However, this portrait of efficient spending is not widely regarded as an accurate description of reality. Indeed, in the context of recent Argentinian congressional debates about sovereign debt, Frente Renovador leader and national congressman, Sergio Massa, emphasized that “We [Argentines] need to limit debt creation to *infrastructure* goals, so Argentina can go on the market and then finance the Belgrano cargass, a hydroelectric plant, a highway... Otherwise we may repeat a mistake that Argentina made when we were *paying salaries by borrowing money*”.² Crucially, lurking behind the criticism of paying salaries with borrowed funds is a denouncement of patronage spending.

This account highlights a longstanding and fundamental question in political science, namely: How do international markets affect domestic politics and development? Indeed, the political consequences of international market dynamics and globalization have been a central theme in the comparative and international political economy literature. [Gourevitch \(1978\)](#) coined the term “second image reversed” to discuss how the international system affects the internal structure of states. Since then, scholars have written intensively on how economic integration affects domestic politics throughout the world. Many have offered grounds for optimism when it comes to how economic and financial globalization affect internal politics. Here, international market forces go hand in hand with more political competition and better democratic institutions ([Acemoglu and Robinson, 2006](#); [Adsera and Boix, 2002](#); [Eichengreen and Leblang, 2008](#); [Freeman and Quinn, 2012](#); [Rudra, 2005](#)). However, some scholars not only are skeptical of such claims (see [Milner and Mukherjee, 2009](#)), but also have found reasons for pessimism. International market forces may have pernicious consequences for governance ([Ross, 2012](#); [Ahmed, 2013](#); [Pinto and Zhu, forthcoming](#)), peace ([Dube and Vargas, 2013](#)) and prosperity ([Reinhart, Reinhart, and Trebesch, 2016](#)), although such consequences may also depend on domestic conditions ([Kurtz and Brooks, 2011](#)).

In this paper, I examine an important piece in this larger question by studying the extent to which international financial markets influence patronage politics in developing countries. With a few ex-

¹Taken from the website of the Dirección Provincial de Deuda y Crédito Público, Finance Minister, Province of Buenos Aires: http://www.ec.gba.gov.ar/areas/finanzas/deuda/index_deuda.php. Emphasis added. Quotations from Spanish sources have been translated for this paper by the author.

²“Sergio Massa adelantó que apoyará el acuerdo con los holdouts,” March 7, 2016, *La Nación*, <http://www.lanacion.com.ar/1877523-sergio-massa-adelanto-que-apoyara-el-acuerdo-con-los-holdouts-la-argentina-tiene-que-salir-si-o-si-del-default>. Emphasis added.

ceptions, the literature has analyzed the sources of patronage from a purely domestic point of view. This ignores the channels through which international credit markets can have an indirect influence. Specifically, if politicians borrow funds to relax their budget constraints and utilize them to engage in patronage behavior (instead of, say, investing them in public goods), then the international financial market can provide windfalls of capital as well as liquidity constraints affecting domestic politics (Frieden, 1991; Maxfield, 1998). This represents an under-emphasized mechanism through which international economic conditions may influence governance.

The research design focuses on the effects of US Federal Reserve policy on the fiscal behavior of developing countries. By so doing, I leverage the exogeneity of Fed policy and the fact that it drives the global financial cycle (Rey, 2013, 2016). US interest rates influence the attractiveness of other assets, inducing investors to adjust their portfolios accordingly. A looser US monetary policy draws new flows of money into developing countries, and consequently politicians can take advantage of relaxed budget constraints, and greater policy leeway. Since I focus on targeted patronage redistribution, I refer to this phenomena as *patronage by credit*.

However, it is important to emphasize that the effects of US monetary policy on patronage behavior in the developing world might vary substantially as a function of domestic features. In this paper, I explore two of such conditions. First, I analyze how sensitivity to international financial fluctuations moderates the patronage by credit channel. Then, I focus on how political alignment and partisanship affect the link between international finance and patronage behavior. This is why I test this claim in two steps. First, I examine time-series cross-national evidence from up to 128 developing countries since 1960. Second, I complement the analyses by examining subnational-level evidence from Mexican municipalities.

Cross-country evidence from public employment levels supports the arguments of this paper; lower US Federal Funds Rates increase domestic public employment in developing countries. Specifically, a 1 percentage point decrease in the US Federal Funds Rate corresponds to, on average, an increase of 5 public employees per 10,000 people across the developing world. In a country the size of Argentina, this would translate into nearly 21,000 more public employees. These effects are stronger in economies that are more sensitive to international financial fluctuations.

I complement this cross-country evidence in three ways. First, I replicate the analysis examining different measures of public good spending, finding no significant results for a battery of outcomes. Second, I take advantage of the availability of finer-grained cross-country data on political risk to analyze a monthly measure of corruption that closely follows the operationalization of patronage behavior. Similarly, I analyze different measures of elite capture, namely private deposits in foreign

banks and imports of luxury goods. Further, I examine government transparency, expecting patronage and capture to be associated with higher incentives for opaque finances. Across these tests I find strong support for my hypothesis. Finally, I also explore the political consequences of the patronage by credit hypothesis by analyzing the political survival of country leaders in the developing world, finding results fully aligned with my expectations.

Next, I test my arguments at the subnational level, examining public spending data from nearly 1,800 Mexican municipalities between 1995 and 2010. Mexico is a good case as its municipalities have the independent ability to contract debt and also exhibit considerable variation in corruption and patronage practices. This latter variation is also a function of partisanship, which provides the ground to study the role of political parties more seriously. These results corroborate the cross-country findings: when it comes to patronage spending, a 1 percentage point decrease in the Fed rate corresponds to a 3% increase in public employment spending in Mexican municipalities; when it comes to public goods, I either find null results or evidence of lower provision. Finally, leveraging a regression discontinuity design on close elections, I show that the effect of US monetary policy on patronage spending is stronger on politically aligned municipalities, but only if they are ruled by the traditionally clientelistic Institutional Revolutionary Party (PRI).

These findings can be linked to several literatures. First, they add to the debate about how politicians use newly available resources to their electoral advantage. In particular, this adds to the research addressing the “resource curse” with respect to oil wealth (Ross, 2012), foreign aid (Bueno de Mesquita and Smith, 2009; Werker, Ahmed, and Cohen, 2009; Ahmed, 2012), remittances (Ahmed, 2013), or commodity booms (Dube and Vargas, 2013). In a way, this paper presents the “Fed curse.” Second, the finding that governance and policies in and toward the developing world are partly determined by domestic events in the US (Nunn and Qian, 2014; Broz, 2005; Broz and Hawes, 2006), and US monetary policy in particular (Campello and Zucco Jr., 2016; Betz and Kerner, 2015) adds to the vast literature discussing the role of the US in the global arena. At the same time, the evidence presented here also contributes to the debate on the domestic consequences of globalization. Given the well-known pernicious consequences of patronage politics on democratic quality and accountability (Kitschelt and Wilkinson, 2007; Hicken, 2011), the argument advanced here elucidates an indirect channel via which international market forces influence political institutions in the developing world. Finally, the subnational evidence adds to the clientelism literature on Mexico in particular (Magaloni, 2006) as well as to research on federal systems and international markets in general (Jensen, 2006).

Overall, this paper contributes to these literatures by empirically assessing the relation between patronage politics and international financial markets. This is important for several reasons. First,

it explicitly incorporates international sources to the supply side of patronage politics, something underemphasized in the patronage politics literature. Second, it provides a better understanding of how local politicians react to budget shocks by analyzing the link between public debt and US Federal Reserve rates. Third, it relies on both subnational and national analyses from developing countries, thus bringing together both micro- and macro-oriented evidence. Finally, these insights shed light on the consequences of international finance, demonstrating how domestic politics in the US and its Federal Reserve can, via the international market, affect domestic politics and development in the developing world. This suggests ways in which the study of international political economy may enhance our understanding of patronage politics, and vice versa.

2 The International Sources of Patronage Spending

To stay in power, politicians use distributional policies to create political support. Such policies often take the form of targeted clientelistic redistribution, particularly in developing countries. More specifically, politicians engage in patronage politics, opting out of policy performance in the provision of public goods or programmatic commitments, giving rise to a “perverse accountability” (Stokes, 2005). Explanations for this strategic choice are based on both political demand and supply. Demand-side explanations emphasize the efficacy of patronage politics as a function of voters’ income and economic uncertainty (Alesina, Baqir, and Easterly, 2000; Stokes et al., 2013). That is, the socioeconomic status of citizens determines whether they find such political exchange beneficial or not. Because of this, poor voters are often the main targets of political machines (Szwarcberg, 2015).

In contrast, supply-side accounts explore factors constraining or enabling politicians to engage in targeted allocations –such as partisan or ethnic biases in the fiscal and electoral institutions that influence access to public resources and voter mobilization (Calvo and Murillo, 2004; Chandra, 2004; Kitschelt and Wilkinson, 2007; Magaloni, Diaz-Cayeros, and Estevez, 2007; Weitz-Shapiro, 2012). However, the literature on the supply side of patronage politics has yet to carefully analyze the potential consequences of international financial markets, and in particular, how they may impact the budget available to elected politicians. In canonical models of redistributive politics, the budget determination is kept in the background and taken as exogenously given (Cox and McCubbins, 1986; Dixit and Londregan, 1996). In reality, the resources available are mainly a function of two sources: one, funds raised by collecting taxes, and two, funds obtained by borrowing from the credit market. The latter option is exemplified by Tammany Hall, the political machine that ran New York City throughout much of the 19th century. Its leader, William “Boss” Tweed, tripled New York City’s debt without modifying the tax rate (Scott, 1969). Thus, the link between international credit markets and patronage

spending requires closer examination.

Some crucial questions remain unanswered, chief among them: Do politicians borrow funds from the credit market to engage in patronage behavior? And if so, to what extent do the dynamics of the international market influence patronage politics? These are theoretical and policy-relevant questions. Indeed, early international relations scholars recognized the powerful influence coming from the international system and dubbed it the “second image reversed” (Gourevitch, 1978). Since then, a significant literature has debated the consequences of globalization, in particular looking at its effects on developing countries. This research is mostly concerned with the impact of market integration on states. Here, international economic forces have an impact on a myriad of outcomes, from generating new preferences and political coalitions (e.g., Rogowski, 1987; Keohane and Milner, 1996) to triggering regime change (e.g., Freeman and Quinn, 2012; Rudra, 2005). Some scholars have focused on the “compensation hypothesis,” which argues that globalization induced openness bolsters welfare spending. This is due to an increased demand for social protection in the face of greater vulnerability to exogenous economic shocks (Rodrik, 1998). However, this literature has not emphasized the differences between *types* of redistributive policies, such as programmatic spending versus targeted spending, nor has it fully explored its political consequences.

To shed light on these questions, I next present the core of my argument. In brief, its building blocks consist of three key actors: the US Federal Reserve, which drives global finance; investors, who react to Fed policy and (re)adjust their portfolios to include more or less public debt from developing countries; and local politicians, who by being office-oriented engage in targeted redistribution and borrow funds from the credit market to do so.

2.1 The Global Financial Cycle and the US Federal Reserve

The notion that developing countries are (directly or indirectly) affected by decisions made at financial and political centers has a long intellectual history. In a financially globalized world, concerns about loss of policy autonomy, contagion of crises and other systemic risks are particularly acute. For instance, Maxfield (1998) discusses how fundamental international conditions in the form of global interest rates financially constrain emerging markets and their prospects for democracy. In a similar vein, Campello and Zucco Jr. (2016) argue that the global cost of capital is linked to presidential approval rates in Latin America, and Betz and Kerner (2015) show that it is linked with the signature and ratification of bilateral investment treaties. In order to explore the political consequences of global finance, one must fully specify the potential channels via which global markets might exert their influence on domestic politics.

One of the key ways in which global finance exerts pressures on developing economies is through international interest rates (Maxfield, 1998; Campello, 2015; Mosley, 2003). Low rates make creditors less risk-averse and more willing to divert capital from developed markets to the emerging world (Calvo, Leiderman, and Reinhart, 1996) and also makes them less likely to pay close attention to “suboptimal government policies” (Brooks, Cunha, and Mosley, 2015). Conversely, a hike in international returns on capital reduces the supply of capital to emerging markets, which consequently see a decrease in their foreign reserves.

Crucially, the global nature of international interest rates is more domestic than it would appear. This is because the global financial cycle is mainly driven by US monetary policy. It is well established that monetary conditions in the United States influence aggregate risk aversion and volatility, capital flows, and the leverage of the financial sector in many parts of the international financial system (Miranda-Agrippino and Rey, 2015).³ Thus, a key channel of monetary policy transmission is the “search for yield” (Rajan, 2005).⁴ Rey (2013, 2016) convincingly shows that the global financial cycle—that is, common movements in gross capital flows, credit growth, and leverage around the world—is indeed primarily driven by US monetary policy. The argument is specific to the US given its central role in the current international financial system. The importance of the US dollar in international finance is unquestionable, giving the US a central role in the international monetary system (in particular international banking) and the international price system (Cohen, 2015; Gopinath, forthcoming). More generally, Rey (2016) shows that US monetary shocks are transmitted internationally *regardless* of exchange rate regimes, thereby challenging the Mundellian trilemma. That is, in a world of globalized finance, insulating the economy from global factors and retaining monetary policy independence is harder to achieve than previously thought.⁵

If global finances are driven (at least to some degree) by US monetary policy, then it is worth discussing the characteristics of the US central bank, namely the Federal Reserve. To begin with, scholars have argued that the Federal Reserve was created largely to advance the position of the US in the world economy (Broz, 1997). The U.S. Congress created and set up the Fed in 1913 by enacting the Federal Reserve Act. Some amendments have been made and since 1977 the monetary policy objectives of the

³Moreover, risky asset prices around the globe, from stocks to corporate bonds, also have an important common component (Miranda-Agrippino and Rey, 2015). Longstaff et al. (2011) show that the majority of sovereign CDSs can be linked to global factors and that sovereign credit spreads are more related to the US stock and high-yield markets than to local economic measures.

⁴Indeed, recent research shows that in response to FOCM announcements that signal the maintenance of low interest rates, money market funds invest in riskier asset classes and cut their fees (Di Maggio and Kacperczyk, 2016).

⁵This does not imply that exchange rate regimes do not matter. For instance, Obstfeld, Shambaugh, and Taylor (2005), Klein and Shambaugh (2015) and Obstfeld (2015) show that the exchange-rate regime can moderate the comovement of short rates with respect to the base country. Obstfeld (2015) notes, however, that long rate movements are orthogonal to the exchange-rate regime.

Fed are to “maintain long run growth of the monetary and credit aggregates commensurate with the economy’s long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices and moderate long-term interest rates.”⁶ The objectives of ‘maximum employment’ and ‘stable prices’ are usually known as the Fed’s dual mandate.⁷ Despite criticism of its international repercussions, Federal Reserve authorities emphasize that its monetary policy focuses on the US economy and should not take into account how it may impact other economies.⁸ India’s central bank Governor at the time, Raghuram Rajan, voiced his concern about this issue claiming that the “U.S. should worry about the effects of its policies on the rest of the world.”⁹ To which Ben Bernanke responded the next day “What we’re trying to do with our monetary policy here –as I think my colleagues in the emerging markets recognize– is trying to create a stronger U.S. economy.”¹⁰

Even when it is clear which fundamentals the Federal Reserve analyzes to formulate its policies, it is also clear that investors are uncertain about future rates. For instance, based on Federal Fund Futures, Figure 1 shows how estimated probabilities of Fed rate cuts can vary substantially, from over 80% to near 0 in a matter of months. Such type of wide variation can also be seen in a matter of hours, as Figure A1 in the Appendix shows. In line with this, even central bankers from the Federal Open Market Committee change their opinions in unexpected ways. For example, St. Louis Fed President James Bullard, regarded as one of the more hawkish members of the committee, has recently called for no more than one rate hike in 2016, and none further until at least 2019.¹¹ These accounts support the interpretation that overall movements, as well as the timing of US monetary policy-making, can be regarded as exogenous with respect to patronage politics in the developing world. This exogeneity is the foundation for the identification strategy of the research design presented below.

In short, US monetary policy is driven by domestic considerations, but has global consequences. In the next section I argue that one such consequence is patronage behavior and governance in the developing world.

⁶12 U.S. Code § 225a - Maintenance of long run growth of monetary and credit aggregates (as added by act of November 16, 1977 (91 Stat. 1387) and amended by acts of October 27, 1978 (92 Stat. 1897); Aug. 23, 1988 (102 Stat. 1375); and Dec. 27, 2000 (114 Stat. 3028).)

⁷This dual mandate also allows the Fed to garner congressional support through periods of either high inflation or high unemployment (Broz, 2016).

⁸For analyses of the Fed policy as a function of US domestic politics see Broz (2016).

⁹“Rajan Warns of Policy Breakdown as Emerging Markets Fall,” by Kartik Goyal, *Bloomberg*, January 31, 2014, <http://www.bloomberg.com/news/articles/2014-01-30/rajan-warns-of-global-policy-breakdown-as-emerging-markets-slide>

¹⁰“India vs. the U.S.: When Central Bankers Collide,” by Peter Coy, *Bloomberg Business Week*, January 31, 2014, <http://www.bloomberg.com/bw/articles/2014-01-31/india-vs-dot-the-u-dot-s-dot-when-central-bankers-collide>. For an in depth analysis of Fed’s policy impact on India see Basu, Eichengreen, and Gupta (2014).

¹¹“Fed Minutes Could Still Hold Important Clues Post-Brexit Vote,” by Christopher Condon and Steve Matthews, *Bloomberg*, July 6, 2016, <http://www.bloomberg.com/news/articles/2016-07-06/fed-minutes-could-still-hold-important-clues-post-brexit-vote>.

Figure 1: Probability of September 2016 Fed rate hike: Dec 2015 - June 2016



2.2 Patronage by Credit

Political agents use their control over government resources to improve their odds of remaining in office (Bueno de Mesquita et al., 2003). Key to this goal is the use of policies that link voter utility to politician's success, a dynamic that makes distributive politics an exchange relationship. However, not all distributive strategies are the same. For the majority of the world's voters electoral accountability is guided less by programmatic considerations than by clientelistic and patronage elements (Wantchekon, 2003; Remmer, 2007). In this paper, I analyze patronage politics by focusing on public employment. I do so for two main reasons. First, public employment is a well-known staple of and widely used operational measure of clientelistic government (Calvo and Murillo, 2004; Keefer, 2007; Remmer, 2007).¹² Politicians rely on the allocation of public sector jobs to build their power bases, reward supporters, co-opt other groups, and create support for their policies (Chandra, 2004; Nooruddin and Rudra, 2014). More specifically, public employees can serve as political brokers and monitors who gather information about voters and build networks around them (Stokes et al., 2013). The notion that patronage has historically been distributed via public sector jobs has plenty of anecdotal evidence and has raised concerns among scholars (Rodrik, 2000) and policy makers alike –e.g., in organizations such

¹²This logic also extends to public employment in the case of foreign policy, namely patronage employment in international organizations (Gray, 2015) and in the foreign service (Arias and Smith, 2016).

as the World Bank (World Bank, 1997). Second, Robinson and Verdier (2013) put public sector employment at the center of analysis by arguing that the distribution of public jobs is credible, targeted, and reversible, which solves the two-sided credibility problem of clientelism where both politicians and voters might wish to commit to actions that are not ex post optimal.

Crucially, the supply of patronage varies with state resources. Scholars have noted the impact of nontax revenues, be they from natural resources (Ross, 2001), foreign aid (Bueno de Mesquita and Smith, 2009) or transfers (Remmer, 2007), as well as remittance flows (Ahmed, 2013). In line with these arguments, and building upon the previous section, I argue that patronage spending is affected by international credit markets. Specifically, an exogenously given looser (tighter) US monetary policy, via international financial markets, can ease (aggravate) politicians' budget constraints. For instance, when investors face low rates in the US, most foreign assets become more attractive, and part of their investments will flow into those more attractive places. This is nothing but a newfound credit opportunity for office-seeking politicians, particularly in developing countries. Looking to secure their office and their rents, politicians can embrace these new opportunities in the credit market, and this in turn affects the resources available for patronage spending. Hence, in the context of developing countries and examining within-country over-time variation, I hypothesize the following:

Hypothesis 1 (Patronage by credit). *As federal funds rates from the US Federal Reserve fall, public employment spending in the developing world increases.*

However, patronage spending is but one type of spending. Even in finding support for Hypothesis 1, a potential concern is that increased public employment spending is unrelated to patronage and simply reflects an overall spending increase that occurs when politicians enjoy a bigger budget. To disentangle those effects, I analyze public goods spending. The literature on the political economy of clientelism argues that when politicians engage in patronage politics, they have fewer incentives to provide public goods. In the absence of public good spending, patronage politics becomes even more credible and attractive to voters. Indeed, this logic is supported by theory (Robinson and Verdier, 2013) as well as empirical evidence (Bates, 1981; Chubb, 1982; Remmer, 2007; Keefer, 2007). The core idea behind these results is that the marginal political return of a dollar spent on patronage is higher than one spent on public goods. There are a few reasons why this is likely to be the case. First, increasing the gap between the provision of private goods and public goods can make supporters more loyal as they lose more if they do not belong to the 'winning coalition' (Bueno de Mesquita et al., 2003). Second, arguably, the returns to patronage spending can be harvested rather quickly, whereas some public goods investments –such as infrastructure– might take some time to create such returns.¹³ Finally,

¹³This is unlikely to hold for all public goods, but it is arguably the case for infrastructure, which is in turn a key

as is argued in the non-taxed resources literature, since these newfound resources do not come from citizens' taxes (at least in the current period), the pressures to ensure such money is spent on public goods may be more likely to be reduced or absent.

Overall, if public goods spending also moves in tandem with US monetary policy movements, then public employment spending is likely to be part of an overall increase in spending, and potentially unrelated to patronage politics. If in contrast, public goods spending is not influenced in the same way as public employment, then one can be more confident that allocation *away* from public goods and *toward* patronage is occurring, affirming the argument of this paper. I therefore hypothesize the following:

Hypothesis 2 (Public Good Spending). *As federal funds rates from the U.S. Federal Reserve fall, public good spending in the developing world is not affected.*

Even in finding support for the aforementioned hypotheses, my interpretation about public employment as patronage is subject to another critique. Perhaps policy makers choose public employment as their preferred type of fiscal stimulus in such a way that it relates more to programmatic politics than to patronage politics. Indeed, compensation theories would predict that, facing pressures from globalization and economic integration, politicians seek to offer compensation and protection, and use public employment to achieve that (Rodrik, 1998). Empirical evidence from the developed world has found support for this notion, whereby more integrated economies display larger public sectors (Rodrik, 1998; Nooruddin and Rudra, 2014; Quinn, 1997). To untangle these potentially contradictory mechanisms, we can seek evidence of the corollaries of patronage politics, namely rent seeking and political capture, as well as political obfuscation, which would otherwise be absent in the presence of programmatic politics.

Among the much-discussed consequences of patronage politics is the deterioration of democratic institutions, with extant corruption (and the associated rent seeking) being one of them (Kurer, 1993). As Hicken (2011) notes about clientelism, it both reflects and feeds corruption behavior. Specifically, Singer (2009) argues that clientelism may generate incentives for other corrupt behaviors by influencing the need for funds to maintain clientelist machines. Indeed, the strong priors on the comovement between patronage practices and corruption is such that indicators of corruption have been used as a proxy for the level of clientelism (Persson, Tabellini, and Trebbi, 2003; Keefer, 2007).

Yet another logical extension of this patronage by credit argument is to analyze transparency. Governments have incentives to optimize degrees of transparency across policy areas. In many cases, these incentives lead politicians to optimize obfuscation. For instance, Kono (2006) argues that democratic determinant of the marginal productivity of other public goods, reinforcing the incentives to spend on patronage.

governments obscure policy areas that go against the preferences of the majority of voters. In the same spirit, the role of secrecy surrounding oil revenues has been emphasized by [Ross \(2012\)](#). The core idea is straightforward: limiting the information available to the electorate increases the leeway politicians have to manage policy actions, and specially, budget allocations ([Hollyer, Rosendorff, and Vreeland, 2011](#)). Consequently, if politicians use new funds for patronage and rent seeking purposes, it is in their best interest to be opaque about it. Consequently, I hypothesize the following:

Hypothesis 3 (Corruption and Transparency). *As federal funds rates from the U.S. Federal Reserve fall, corruption increases and transparency decreases in the developing world*

2.3 Research Design

I test these hypotheses in two sections. First, I examine cross-country evidence from the developing world. Then, I study subnational evidence from Mexican municipalities. In both cases, I also analyze several corollaries of the argument, aiming to corroborate the patronage by credit interpretation.

Overall, I test the previous hypotheses examining within-country (or municipality) over-time variation, relying on the following baseline OLS estimation:

$$Y_{i,t} = \beta \text{US Federal Funds Rate}_t + \gamma \mathbf{X}_{i,t} + \alpha_i + \sum_{n=1}^3 \delta_n t^n + \epsilon_{i,t} \quad (1)$$

where $Y_{i,t}$ represents different outcomes of interest from geographical unit i at time t . The vector \mathbf{X} corresponds to a battery of controls appropriate for each particular estimation. By employing country (or municipality) fixed effects (α_i) I control for time-invariant characteristics that may be correlated with socioeconomic conditions and political or economic outcomes that might affect patronage, such as ethnic fractionalization or colonial history (see [Treisman, 2007](#)).

The US Federal Funds Interest Rate is the main independent variable of interest. I focus on the Federal Funds Rate as it is the main indicator of US monetary policy actions ([Bernanke and Blinder, 1992](#)). As in similar research ([Campello, 2015](#); [Campello and Zucco Jr., 2016](#)), the identification strategy comes from the fact that US Federal Funds rates are exogenous to the developing world. However, despite such exogeneity, there are two potential threats to identification. One is that any given result might be driven by a spurious correlation between the US Federal Funds Rates and patronage spending in the developing world. By including a flexible time trend –here, a cubic time trend polynomial ($\sum_{n=1}^3 \delta_n t^n$)– I control for time and ensure that secular patterns in the evolution of US monetary policy and the variables of interest do not induce a spurious correlation in the results ([Carter and Signorino,](#)

2010). Nonetheless, a second potential threat is the possible confounding effects of other key indicators that also vary by t . A clear candidate for such a confounder is the movement of international commodity prices. To address that concern, I incorporate the Free Market Commodity Price Index, drawn from UNCTAD, as a key control in the analyses. Nonetheless, one could posit that there might still be other changes over time that are not controlled for by either the time trend or commodity prices and that are spuriously correlated with US monetary policy. This concern can be addressed by the inclusion of time-fixed effects. But since the US Federal Funds rate only varies over time, it will be collinear with year fixed effects. Below, I will take two steps in this direction. First, I also estimate Equation 1 including 5-year period fixed effects. Second, I also present different estimation strategies that will allow me to include year fixed effects: In the cross-country analysis, I implement a *difference-in-differences* type of strategy; in the Mexican analysis, I use a *regression discontinuity* design.

3 Cross-Country Analysis: Evidence from the Developing World

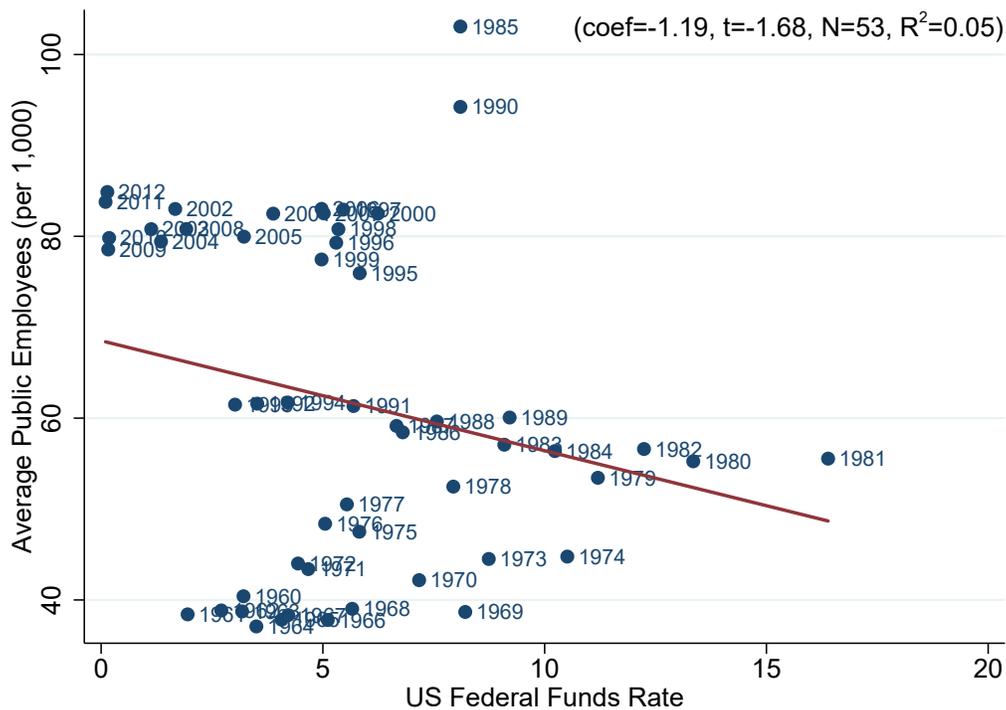
This section examines the effect of US monetary policy on patronage politics in up to 128 non-OECD countries from 1960 to 2014.¹⁴ I show that a looser US monetary policy increases patronage politics, proxied by public employment. The case for the patronage interpretation in this relationship is supported by analyzing public goods, corruption, private goods, and transparency. Moreover, as a corollary, I also investigate leader survival, which provides results fully aligned with the patronage argument. Finally, I explore the mechanisms of the link between the US Federal Funds rate and public employment.

3.1 US Monetary Policy & Patronage Politics in the Developing World

Public employment data is drawn from the Groningen Growth and Development Centre (GGDC) 10-Sector Database (Timmer, de Vries, and de Vries, 2014) and LABORSTA, hosted by the International Labour Organization (ILO). I use the number of public employees per 1,000 people as the main outcome of interest (but will discuss robustness measures below). Here, public employees are those employed in general government and other community services, which includes local, state, and central government units. Data availability limits the sample to a maximum of 82 countries from 1960 to 2012, although the panel is not balanced and few observations come from 1960s. In this sample, the average country has about 65 public employees per 1,000 people. Low-income countries such as Malawi and Senegal naturally have a lower average (20 and 30, respectively). Some Latin American

¹⁴For consistency, the sample includes Mexico and Chile who became OECD members in 1994 and 2010 respectively. However, results are unchanged if they are excluded from the analyses.

Figure 2: US Federal Funds Rate and Public Employment in the Developing World



countries, such as Mexico or Argentina, exhibit a behavior close to the sample mean or slightly above it (Mexico has a mean of 72 and Argentina 104). Oil-rich countries also behave in a broadly similar way, with countries such as Nigeria, Iran, and UAE having averages of 39, 62, and 86 public employees per 1,000 people, respectively

Over the sample period, the yearly average Federal Funds rate was 5.4 percent, with several hikes and drops over the years –peaking in 1981 with a yearly average over 16 percent (and over 19 percent in June and July of that year) and reaching a near zero rate at the end of 2008. Figure 2 illustrates the bivariate relationship between US Federal Funds rates and average public employment in the developing world, showing the expected pattern. This relationship is much stronger if one looks at the post-1970 period (Figure A2) or analyzes median public employment (Figure A3).¹⁵ For a more systematic analysis, the estimating equation takes the form of Equation 1. Here, the vector X includes time-varying controls, namely a Commodity Price Index (as described above), a measure of democracy (the Polity2 index from Polity IV (Marshall, Gurr, and Jaggers, 2013)) as well as real GDP per capita and population from the World Development Indicators, hosted by the World Bank. In additional models, I also include a measure of the non-taxed resource wealth (i.e., oil and foreign aid), unemployment

¹⁵Another way to visually examine the data is to look at annual changes in employment, as shown in Figure A4.

(in percent), GDP growth and total trade (as percent of GDP). Table A1 presents descriptive statistics.

Table 1: US Monetary Policy and Patronage in the Developing World

	Public Employees (per 1,000)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Federal Funds Rate	-0.453**	-0.454**	-0.346**	-0.477**	-0.699**	-1.155***	-0.966**
	(0.207)	(0.223)	(0.172)	(0.228)	(0.342)	(0.382)	(0.389)
Democracy	0.469**	-0.338	0.376**	0.427**	-0.461*	-0.443	-0.416
	(0.209)	(0.217)	(0.142)	(0.211)	(0.246)	(0.298)	(0.296)
Commodity Price Index	0.041**	0.071**	0.045**	0.044**	0.072**	0.101***	0.097***
	(0.020)	(0.028)	(0.020)	(0.021)	(0.032)	(0.033)	(0.032)
GDPpc (Ln)	10.268	0.211	17.741***	7.844	5.964	-20.921	-14.273
	(6.956)	(18.686)	(5.499)	(7.671)	(19.442)	(28.304)	(26.407)
Population (Ln)	8.542	57.147	-8.785	17.683	83.384**	124.471**	130.134**
	(23.738)	(34.643)	(22.018)	(23.812)	(40.957)	(52.016)	(50.350)
Trade (% of GDP)				-0.004	0.044	0.038	0.054
				(0.063)	(0.089)	(0.099)	(0.097)
Non-Tax Revenue (% of Rev.)					-0.204	-0.108	-0.022
					(0.306)	(0.376)	(0.321)
Unemployment						-1.039**	-1.057**
						(0.470)	(0.410)
GDP Growth (%)							-0.830***
							(0.267)
Observations	1775	1298	1775	1712	1099	893	891
Countries	82	82	82	81	78	76	76
R-squared	0.31	0.09	0.54	0.33	0.15	0.25	0.29
Country FE	✓	✓	✓	✓	✓	✓	✓
Cubic Time Poly.	✓	✓	✓	✓	✓	✓	✓

Clustered standard errors at the country level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Column 2 restricts the sample to the post-1981 period. Column 3 also controls for region-specific time trends.

Table 1 analyzes the impact of the Federal Funds Rate on the total number of public employees (per 1,000 people). Column 1 presents the baseline specification. The coefficient on the Federal Funds Rate is negative and statistically significant at conventional levels. Substantively, a 1 percentage point decrease in the Fed funds rate corresponds to an increase of close to 5 in the expected number of public employees per 10,000 people. Columns 2 through 7 assess the robustness of this result. One concern is that it is driven by the 1979 interest rate hike. Column 2 addresses that by restricting the sample to the post-1981 period, finding the same result. To control for region specific fluctuations, Column 3 includes region specific time trends, and while the Federal Funds Rate coefficient is slightly smaller in absolute value, it is still statistically significant at conventional levels. Columns 4 through 7 progressively add a series of controls. While some of these covariates might be affected by the Federal Funds rate, which could bias the results, it is nonetheless informative to see that the coefficient of the Federal Funds Rate always remains significant, and if anything, larger in absolute value. Overall, these results support Hypothesis 1.

3.2 Smoking Guns: Evidence from Public Goods Spending

As noted before, a potential concern with the previous results is that they are simply reflecting an increase in spending that occurs when politicians can relax their budget constraints. The purpose of testing Hypothesis 2 is to address such concerns. To do so, I focus on three sets of public goods outcomes, namely education, health, and water supply.¹⁶ Following the preferred estimation from the previous section, Table 2 shows the results.

Table 2: US Monetary Policy & Public Goods in the Developing World

	Education Exp. (Ln) (1)	Gross Secondary School Enrollment (2)	Health Exp. (Ln) (3)	Water Access (% pop.) (4)
Federal Funds Rate	-0.005 (0.006)	0.086 (0.066)	-0.005 (0.005)	-0.005 (0.023)
Democracy	0.006 (0.004)	-0.044 (0.113)	0.010 (0.008)	0.130** (0.064)
Commodity Price Index	0.000 (0.000)	0.008 (0.008)	0.001** (0.001)	0.001 (0.002)
GDPpc (Ln)	0.731** (0.303)	11.581*** (2.443)	0.544** (0.229)	3.247 (2.371)
Population (Ln)	0.844 (0.696)	0.576 (7.842)	0.774 (0.656)	14.716** (5.626)
Observations	558	2873	1022	2510
Countries	77	116	88	120
R-squared	0.54	0.74	0.55	0.61
Country FE	✓	✓	✓	✓
Cubic Time Poly.	✓	✓	✓	✓

Clustered standard errors at the country level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Columns 1 and 3 analyze education and health expenditures (natural logarithm of 2005 US dollars). The estimated effects are far from being statistically significant. While spending measures constitute the preferred outcome here, they are nonetheless imperfect. Such spending can still be targeted, for instance to some politically favored areas but not others (Stasavage, 2005; Keefer, 2007). Because of that, Columns 2 and 4 looks at outcomes, namely gross secondary school enrollment and percent of population with access to an improved water source. In both cases, the results show once again a null effect. Moreover, the Federal Funds Rate coefficient in Column 2 is positive, that is, the “opposite” of the overall spending argument –and is more in line with arguments of underprovision of public goods as spending is directed towards patronage (Robinson and Verdier, 2013; Bueno de Mesquita et al., 2003). In fact, this is in line with the results obtained when examining literacy rates as a measure for provision of quality education –although caution is warranted as the sample size is small (see Table A3).

¹⁶Data for the outcomes in this section comes from the WDI.

In short, across the board I find no statistically significant relation between US monetary policy and public goods provision, supporting Hypothesis 2. This is in line with the argument that the increased spending in public employment is driven by patronage politics rather than an overall relaxation of fiscal policy.

3.3 Rent Seeking: Corruption, Private Goods, and Government Transparency

Even with the null finding on public goods, the interpretation about public employment as patronage is subject to another critique. Perhaps, policy makers choose public employment as their preferred type of fiscal stimulus or welfare safety nets, explaining the null on public goods, but still being unrelated to patronage. And while a large body of literature supports the interpretation of public employment as patronage politics, in this section, I present systematic evidence that is line with such interpretation. Testing Hypothesis 3, I analyze whether outcomes that should be associated with patronage behavior are indeed influenced by US monetary policy in the way one would expect. Specifically, I examine subjective ratings of patronage/corruption, private bank account deposits abroad, imports of luxury (or elite) goods, and government transparency. Table 3 shows these results.

Table 3: US Monetary Policy & Rent Seeking in the Developing World

	Corruption Rating	Net Intl. Claims (Ln)	Elite Imports (Ln)	Elite Imports (% of trade)	Transparency Index
	(1)	(2)	(3)	(4)	(5)
Federal Funds Rate	-0.024*** (0.008)	-0.128*** (0.037)	-0.026*** (0.005)	-0.005*** (0.001)	0.039*** (0.007)
Democracy	-0.018 (0.011)	-0.018 (0.045)	0.014** (0.007)	0.002* (0.001)	0.013 (0.009)
Commodity Price Index	0.002 (0.002)	0.012*** (0.004)	0.002*** (0.001)	0.000 (0.000)	-0.006*** (0.001)
GDPpc (Ln)	-0.095 (0.248)	-1.965* (1.095)	1.145*** (0.144)	-0.002 (0.022)	0.412* (0.213)
Population (Ln)	-0.625* (0.355)	0.572 (2.536)	1.122*** (0.365)	0.081* (0.048)	-2.062** (0.954)
Observations	33574	4021	2683	2596	2849
Countries	101	128	120	120	98
R-squared	0.23	0.08	0.48	0.04	0.34
Year FE	✓				
Country FE	✓	✓	✓	✓	✓
Cubic Time Poly.	✓	✓	✓	✓	✓

Clustered standard errors at the country level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Column 1 analyzes country-months. Columns 2-5 analyze country-years.

First, I rely on political risk ratings data from the International Country Risk Guide (ICRG), hosted by the PRS Group, to gauge whether a subjective measure of corruption/patronage behave as my argu-

ment would imply. Another advantage of these risk measures is that they are available on a monthly basis, from January 1984 to December 2013, which also alleviates concerns about time aggregation. I rely on one particular component of political risk, namely the ICRG's 'Corruption' measure. The measurement is actually close to my working definition of 'Patronage.' As put by the ICRG, the measure is "concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, 'favor-for-favors,' secret party funding, and suspiciously close ties between politics and business." It is coded on a six-point scale index where (once recoded) higher values indicate higher corruption, with a mean value over the sample period of about 3.4. Results are shown in Column 1 and are fully supportive of Hypothesis 3 and the overall arguments of the paper.

Next, Columns 2 through 4 analyze particular economic outcomes that can be interpreted as private goods provision, which should be broadly consistent with the patronage by credit phenomenon. To operationalize private goods, I follow DiGiuseppe's (2016) approach and rely on private bank deposits abroad and imports of luxury goods. Column 2 analyzes the extent to which private wealth is deposited in foreign banks. Data from the Locational Banking Statistics, compiled by the Bank of International Settlements, provides banks' balance sheets and the geographical breakdown of their counterparties and is available from 1976 to 2013. I analyze net international claims (natural logarithm, in 2005 constant million dollars) which is a measure of interconnections at the country level and has been shown to be key when analyzing the channeling of funds through offshore financial centers or the recycling of the petrodollars of oil exporters (von Peter, 2007; McGuire and Tarashev, 2008). The result displayed in Column 2 has the expected sign and is statistically significant at conventional levels; a 1 percentage point decrease in the Federal Funds rate increases private bank deposits abroad by about 12%.

Columns 3 and 4 aim to identify the provision of patronage by analyzing import of goods associated with elites –i.e., luxury goods. Following DiGiuseppe (2016), I categorize 'elite' goods from the list of sanctioned products by the US surrounding UN sanctions on North Korea for its missile tests and nuclear behavior. Country-industry level import data from 1975 to 2012 is drawn from the UN COMTRADE database. Column 3 analyzes the natural logarithm of total luxury goods imports while Column 4 looks at the share of luxury imports with respect to total imports. In both cases the results are as expected: the Federal Funds rate coefficient is negative and statistically significant at conventional levels. Substantively, based on the estimate from column 3, a 1 percentage point decrease in the Federal Funds increases luxury goods imports by approximately 3.5%.

Finally, Column 5 explores the effects on government transparency. The logic behind exploring government transparency is simple. If politicians are actually able to amass newly available sums of money, they have incentives to hide that from voters –especially in cases where, for example, debt

accumulation not only implies taxation in the future but also inefficient spending in the present. I rely on the HRV Transparency Index (Hollyer, Rosendorff, and Vreeland, 2014) which captures such behavior. It measures the disclosure of policy-relevant information by the government to the public. Specifically, the reporting behavior of 240 variables from the WDI is summarized on a single dimension via an item response model. In the sample available of 98 developing countries from 1980 to 2010, the index ranges from approximately -3 to 8.3 with a mean value of about 0.75 , where higher values indicate higher transparency. The results are as expected: the coefficient on the Federal Funds Rate is positive and statistically significant. That is, a looser US monetary policy translates into lower government transparency.

These results strongly support Hypothesis 3, reinforcing the patronage interpretation put forward here.

3.4 Political Consequences: Analyzing Leader Survival

The premise behind the patronage by credit argument relies on the notion that politicians engage in patronage behavior to stay in power. Hence, a corollary should be that the conditions created by the Federal Reserve leading to patronage behavior should also lead to an increase in the probability of surviving in office. In this section, I test this hypothesis using leader survival data from 121 developing countries between 1960 and 2014. Leader survival data is drawn from the Archigos database (Goemans, Gleditsch, and Chioza, 2009). The main outcome of interest is whether the leader was removed from office in any particular year.

Since the outcome variable is an indicator of whether the leader was removed from office that year, I rely on a probit model. To account for time-dependence and model the survival process, I include a cubic polynomial of the years the leader has been in office (Carter and Signorino, 2010). However, to make sure the result is not driven by a specific model, I also estimate the analyses via OLS.

As before, the key variable of interest is the US Federal Funds Rate. The key political and economic controls are the same from the previous section, with some additions from the extant literature on the survival of leaders. Specifically, I control for non-tax (i.e., oil and foreign aid) wealth (Andersen and Aslaksen, 2013; Wright, Frantz, and Geddes, 2013) and whether a leader signs a bilateral investment treaty on a given year (Arias, Hollyer, and Rosendorff, 2016). Moreover, I include an indicator variable for whether the country experiences a civil conflict on that given year (Chiozza and Goemans, 2004) as well as an indicator for the occurrence of executive elections (Cruz, Keefer, and Scartascini, 2016).¹⁷ Finally, in the probit model I include region fixed effects, while in the OLS model I include country

¹⁷DPI data is available since 1975, which limits the sample. However, removing such covariate and analyzing the full sample provides similar results.

fixed effects. In all cases, standard errors are clustered at the country level.

Table 4: US Monetary Policy and Leader Survival in the Developing World

	Leader Failure			
	Probit		OLS	
	(1)	(2)	(3)	(4)
Federal Funds Rate	0.031** (0.014)	0.045*** (0.017)	0.005* (0.003)	0.008** (0.003)
Democracy	0.033*** (0.007)	0.036*** (0.007)	0.006*** (0.002)	0.005** (0.002)
Commodity Price Index	-0.001 (0.001)	0.000 (0.002)	-0.000 (0.000)	0.000 (0.000)
GDPpc (Ln)	-0.065* (0.036)	-0.072 (0.054)	-0.023 (0.021)	-0.010 (0.040)
Population (Ln)	-0.027 (0.036)	0.041 (0.034)	-0.078 (0.054)	-0.187** (0.087)
GDP Growth (%)	-0.018*** (0.006)	-0.023*** (0.008)	-0.004*** (0.001)	-0.005*** (0.001)
Trade (% of GDP)	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.000)	-0.000 (0.000)
Non-Tax Revenue (% of GDP)		0.003 (0.003)		0.000 (0.001)
BIT Signing		-0.085*** (0.028)		-0.013*** (0.004)
Civil War		0.051 (0.124)		0.041 (0.031)
Observations	3925	2693	3928	2693
Countries	121	110	121	110
Region FE	✓	✓		
Country FE			✓	✓
Cubic Time Poly.	✓	✓	✓	✓

Dependent variable equals 1 if there is a leader failure that year, 0 otherwise.

All models include an executive election year indicator as control.

Clustered standard errors at the country level in parentheses.

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

Table 4 shows the results. The first two columns display the probit estimation, while the last two do so for the OLS, with even-numbered columns including additional covariates. Overall, the results confirm the expectation. A looser US monetary policy increases the probability of survival in office.

These results strongly support the claim that the decisions made by the Federal Reserve have substantial political impact in the developing world. This complements the findings from [Genovese, Schneider, and Wassmann \(2016\)](#) who show that monetary policy measures of the European Central Bank have an impact on political protests across Europe, and it is also in line with [Bernhard and Leblang \(2006\)](#) who show that financial market turbulence can negatively affect the ability of politicians in industrial democracies to retain office and [DiGiuseppe and Shea's \(forthcoming\)](#) finding that creditworthiness is associated with longer leader tenure in non-democratic countries.

3.5 Extensions & Mechanisms: Is everybody equally affected?

The results discussed so far are informative as they refer to an average effect of US monetary policy across the developing world, leveraging within-country over-time variation. Nonetheless, one can further examine the underlying mechanisms behind such effects, by exploring theoretically motivated heterogeneous effects. On a technical note, doing so allows me to assess the robustness of the estimation to the inclusion of year fixed effects. In this section I therefore explore the extent to which the US monetary policy effects on patronage politics are moderated by a country’s sensitivity to international market conditions.

In regards to financial conditions, it is intuitive to argue that the importance of the global financial cycle for a given country is increasing in the amount of foreign capital inflows needed (Campello, 2015; Betz and Kerner, 2015). Countries that necessitate greater inflows of foreign capital –to ensure their repayment capacity and macroeconomic stability– are relatively more exposed to variations in US monetary policy as they are especially vulnerable to reversals in investor sentiment (IMF, 2015).

I follow Campello (2015) and Campello and Zucco Jr. (2016), and construct a country time-invariant indicator on whether a country has a high debt service-to-exports ratio, which captures a country’s sensitivity to international financial fluctuations. In a way, this captures the financial stress on borrowers and, in the language of potential outcomes, can be interpreted as a proxy for the propensity to ‘comply’ with the US Federal Reserve ‘treatment.’ As such, I hypothesize that the effects of US monetary policy on patronage are stronger on countries with a high debt service-to-exports ratio. I test this prediction by estimating the following equation:

$$\text{Public Employment}_{it} = \beta(\text{Fed}_t \times \text{High Debt Service}_i) + \gamma\mathbf{X}_{it} + \alpha_i + \delta_t + \epsilon_{it} \quad (2)$$

where *High Debt Service* is an indicator variable that takes the value of 1 if country i has a high debt service-to-exports ratio, 0 otherwise. Similarly to Campello (2015) and Campello and Zucco Jr. (2016), the high debt service-to-exports ratio indicator equals 1 when the average debt service obligations over the sample period are greater than or equal 35% of exports, which is equivalent to the 90th percentile (although results are robust to changes in the threshold –e.g. using 25% of exports, which is the 75th percentile).¹⁸

The variable of interest is the interaction term $\text{Fed}_t \times \text{High Debt Service}_i$ which now varies by country and year. This allows me to control for year fixed effects (δ_t). Country fixed effects also control

¹⁸These countries are Algeria, Argentina, Brazil, Burundi, Colombia, Ecuador, Jamaica, Kazakhstan, Lebanon, Mexico, Morocco, Pakistan, Peru, and Seychelles.

for the High Debt Service_{*i*} effect, as it is time-invariant. The expectation is that the coefficient β is negative. Conceptually, analyzing this effect is akin to a *difference-in-differences* design, where I compare the effects of US monetary policy in countries that are sensitive to international financial markets to countries that display relatively less sensitivity, in years following looser US monetary policy relative to years following tighter policy.

Table 5: US Monetary Policy and Patronage in the Developing World

	Public Employees (per 1,000)				
	OLS				2SLS
	(1)	(2)	(3)	(4)	(5)
Fed \times High Debt Service	-1.770*** (0.448)	-4.076*** (1.127)	-0.939* (0.473)	-2.004** (0.777)	
Sovereign Debt (Ln)					14.136** (6.083)
Democracy	0.408* (0.216)	-0.466* (0.244)	0.376** (0.179)	0.160 (0.189)	0.518 (0.421)
GDPpc (Ln)	12.002* (6.843)	7.116 (21.444)	21.876*** (4.554)	1.233 (10.759)	-3.358 (10.422)
Population (Ln)	1.478 (25.394)	81.534* (42.113)	-39.787** (15.763)	-8.634 (24.403)	72.415 (55.891)
Trade (% of GDP)				0.036 (0.072)	0.080 (0.132)
Non-Tax Revenue (% of GDP)				-0.322 (0.252)	-0.502* (0.276)
GDP Growth (%)				-0.732** (0.293)	-1.731*** (0.444)
<i>First Stage</i>					
Fed \times High Debt Service					-0.120*** (0.021)
Kleibergen-Paap F-stat					9.46
Observations	1545	1103	1545	1218	1081
Countries	67	67	67	64	60
R-squared	0.39	0.20	0.76	0.35	
Country FE	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓

Column 2 restricts the sample to the post-1981 period. Column 3 also controls for Region-Year Fixed Effects. Clustered standard errors at the country level in parentheses.

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

Table 5 shows the results. Columns 1 through 4 estimate Equation 2 in different ways. Column 1 presents the baseline specification. Results are as expected and supportive of the argument. Similar to Table 1, Column 2 restricts the sample to the post-1981 period, finding an even stronger result. Column 3 includes region-year fixed effects, and as before, while the coefficient is slightly smaller in absolute size, it remains statistically significant. Column 4 confirms the result holds when adding a series of covariates.

Finally, I examine the underlying mechanisms. The key purported mechanism relies on public debt borrowing. Politicians, taking advantage of favorable credit conditions, can increase their budgets by borrowing so as to engage in patronage spending. The prediction is straightforward, namely that a looser US monetary policy increases sovereign debt, which in turn increases patronage spending. To test this claim, I instrument a country’s sovereign debt with the US Federal Funds Rate interacted with the High Debt Service indicator, and then analyze the impact of sovereign debt on patronage behavior. To do so, I rely on the following 2SLS estimation:

$$\text{Sovereign Debt}_{it} = \lambda(\text{Fed}_t \times \text{High Debt Service}_i) + \nu\mathbf{X}_{it} + \varphi_i + \psi_t + \eta_{it} \quad (3)$$

$$\text{Public Employment}_{it} = \beta\widehat{\text{Sovereign Debt}}_{it} + \gamma\mathbf{X}_{it} + \alpha_i + \delta_t + \epsilon_{it} \quad (4)$$

where Equation (3) represents the first stage and Equation (4) describes the second stage. Here, *Sovereign Debt* is the natural logarithm of external debt in 2005 US dollars, drawn from the WDI.

There is a key potential concern over the excludability of the instrument. The underlying driver of the variation in US monetary, US economic conditions, may be correlated with economic conditions in developing countries, which can influence fiscal policy through channels other than sovereign debt. To address this, the empirical model directly control for economic conditions in developing countries, effectively blocking alternative paths.

Column 5 in Table 5 shows the results. The bottom panel displays the coefficient which corresponds to λ in Equation (3), and behaves as expected. The F-Test, of 9.46, indicates that the estimation does not suffer from a weak instrument problem (Staiger and Stock, 1997). The results of the second stage confirms the expectations, as higher sovereign debt increases patronage spending.

Robustness I submit these results to several robustness checks. First, as mentioned before, I check the results using different thresholds for ‘High Debt Service’. Table A5 shows similar findings using 25% instead of 35%. Further, one might be concern that these thresholds are defined over the entire sample period. Table A6 address such concern by defining the High Debt Service indicator over the 1960-1980 or 1960-1985 period and restrict the analysis to the sample period of 1981-2011 and 1986-2011, respectively finding the same results. Second, as errors might be correlated across years as well, I check the robustness of the results to clustering the standard errors two-way by countries and years. Both Tables A6 and A7 show the results are the same. Next, one might be concerned about the slow dynamics of the series of interest. I address such concern by implementing both an Error Correction Model type of estimation and by implementing a Newey-West estimation with first-order

autocorrelation. Results are shown in Table A8 and provide similar findings. Finally, to make sure that the effects are not driven by this particular outcome variable, I first run the analysis taking the natural logarithm of the number of public employees (per 1,000) and then I use public employment expenditure (as percent of government expenditure) from the WDI. In the latter, data availability restricts the sample to the post-1990 period. Table A9 shows the robustness of the results to these different choices of dependent variable.

4 Subnational Analysis: Evidence from Mexican Municipalities

The cross-country approach presented thus far is informative. By encompassing all developing countries, it arguably demonstrates the generality of the patronage by credit argument. In this section, I complement the analysis by examining subnational evidence from Mexico. There are several reasons for pursuing a within-country analyses. First, political and societal factors that might influence patronage behavior are held relatively constant within each country. For example, particular electoral rules such as balloting procedures tend to be the same across the subnational units. Other, perhaps less observable, factors such as culture or class linkages of major political parties are held constant as well, providing stronger internal validity (Remmer, 2007). Moreover, concerns about issues of data comparability are ameliorated. This together with potentially better data quality likely leads to more accurate measurement and estimations. Second, by testing the argument at the subnational level, one can also further test the generalizability and strength of the theory. This is relevant for two main reasons: First, subnational capital markets are an increasingly important segment of investment portfolios (Freire and Petersen, 2004). Second, federal dynamics imply opportunities and obstacles for local level governments, mainly through political support or opposition from central governments.

Mexico's relatively high but substantially varying levels of corruption, political patronage, and budget composition across municipalities make it a well-suited case to test the implications of the patronage by credit argument. Mexico is a federal system divided into 31 states and the Federal District of Mexico City, containing almost 2,500 municipalities. Municipalities are the lowest level of government, below the national and state levels. Following major decentralization reforms in the 1990s, municipal governments play an important role in delivering public services and managing local infrastructure, accounting for approximately 20% of total government spending (Wellenstein, Núñez, and Andrés, 2006; Falletti, 2005). Municipal attributions consist mainly of the provision of public goods such as sewerage, drinking water, roads, recreational parks, zoning, and garbage collection. While the

taxing authority of municipalities is limited to a property tax and the collection of fees, revenues are supplemented by national and state transfers, which on average account for 60% of municipalities' available resources, and by borrowing from the capital market. Municipalities are governed by mayors typically elected to three-year non-renewable terms.¹⁹

Arguably, both processes of increased electoral competition and political decentralization have provided incentives and opportunities for municipal governments to better manage their budgets as well as to politicize their spending, ironically decreasing local accountability (Cornelius, 1996; Simpser et al., 2016). Indeed, mayoral malfeasance is anything but trivial. Between 2007 and 2015, 8% of audited funds were spent on projects not benefiting the poor, while a further 6% were spent on unauthorized projects (Arias et al., 2016). It is therefore unsurprising that 50% of voters do not believe that municipal governments use public resources honestly (Chong et al., 2015). Here, I focus on municipal-level patronage politics by examining resources allocated to public employment.

The key public resource of interest here is municipal debt. National laws state that subnational entities may assume long-term debt liabilities for “economically productive” investments (Auditoria Superior de la Federación, 2011; Revilla, 2013). National laws make states responsible for regulating state and municipal long-term debt but their rules usually go unenforced. Lax subnational budgetary regulatory and fiscal transparency frameworks have allowed subnational governments to accumulate unsanctioned short-term fiscal deficits over time, including payment arrears to service providers and unfunded contingent liabilities (such as pension funds) (Giugale, Hernández-Trillo, and de Carmo Oliveira, 2000; Hernández-Trillo and Jarillo-Rabling, 2002). Indeed, the literature on federalism argues that when national level governments implicitly back excess state-level expenditures, subnational governments face an incentive to take out debt as its costs can be externalized to the nation (Rodden, Eskeland, and Litvack, 2003; Rodden and Wibbels, 2009; Weingast, 2009).

4.1 Research Design & Data

Following the research design presented before, I proceed to test my arguments at the municipal level in three steps. First, I analyze municipal patronage spending proxied by public employment spending. Then, I examine public goods spending. Finally, I look at federal dynamics by asking whether these effects are stronger for politically aligned municipalities.

I rely on data from nearly 1,800 municipalities between 1995 and 2010. Financial information as well as sociodemographic data come from INEGI (all monetary values are expressed in constant 2005 Mexican pesos). Electoral results are drawn from the Municipal Elections Database compiled by the

¹⁹Mayors will be able to seek reelection for the first time in the 2018 elections.

Centro de Investigación Para el Desarrollo, A.C. (CIDAC).

As before, I rely on an OLS estimation as follows:

$$Y_{it} = \beta \text{US Federal Funds Rate}_t + \gamma \mathbf{X}_{it} + \alpha_i + \sum_{n=1}^3 \delta_n t^n + \epsilon_{it} \quad (5)$$

as well as a 2SLS estimation where Equation (6) represents the first stage –debt is instrumented by US Federal Funds Rate– and Equation (7) describes the second stage, with the corresponding outcome of interest

$$\text{Municipal Debt}_{it} = \lambda \text{US Federal Funds Rate}_t + \nu \mathbf{X}_{it} + \varphi_i + \sum_{n=1}^3 \delta_n t^n + \eta_{it} \quad (6)$$

$$Y_{it} = \beta \widehat{\text{Municipal Debt}}_{it} + \gamma \mathbf{X}_{it} + \alpha_i + \sum_{n=1}^3 \delta_n t^n + \epsilon_{it} \quad (7)$$

where Y_{it} represents the different outcomes of interest. As before, the main variable of interest is the US Federal Reserve Funds Rate, and for the instrumental variable estimation, the natural logarithm of municipal debt stocks. The vector \mathbf{X} represents a series of economic and political controls. With respect to economic variables, I control for federal and state transfers, tax revenue, population, and agricultural production. I also control for political variables, namely indicators for which party is in power as well as dummies for elections (including federal, gubernatorial, and congressional). Moreover, by employing municipal fixed effects (α_i) I control for time-invariant municipal characteristics that may be correlated with socioeconomic conditions and patronage outcomes. As before, while I control for the Commodity Price Index, I account for time effects by including a cubic time trend. Finally, the error term ϵ_{it} is allowed to be arbitrarily correlated within municipalities but independent otherwise. Table A10 presents descriptive statistics.

4.2 Main Results: Patronage Spending

To examine patronage spending I rely on measures of public employment spending per capita.²⁰ The sample mean is close to 620 pesos per capita. Naturally, rural indigenous municipalities in Oaxaca exhibit low values. Nonetheless, there is wide variation in spending. In fact, the municipality with the largest spending per capita over the last few years is San Javier, a small rural community in the PRI led state of Sonora. With fewer than 500 people and a public employment spending per capita of

²⁰These are *servicios personales* in municipal budgets.

over 8,000 pesos, it is not surprising to find that the mayor in the 2012-2015 period, Hilario Valeriano Mendoza Agüero (PRI), has been arrested with charges of corruption, mismanagement of public funds, and abuse of authority.²¹

Table 6 shows the results. Columns 1 through 3, estimate an OLS model as Equation (5); columns 4 through 6 estimate the 2SLS specification, following Equations (6) and (7).

Table 6: US Monetary Policy, Municipal Debt, and Patronage Spending in Mexican Municipalities

	Public Employment Spending (per capita)					
	OLS			2SLS		
	(1)	(2)	(3)	(4)	(5)	(6)
Federal Funds Rate	-23.717*** (0.937)	-24.723*** (0.968)	-22.819*** (0.975)			
Municipal Debt (Ln)				346.293*** (58.078)	343.218*** (55.922)	362.441*** (68.282)
Transfers (Ln)	12.956** (5.087)	11.226** (5.013)	9.036** (4.442)	-141.702*** (38.838)	-144.150*** (37.644)	-144.150*** (42.387)
Tax Revenue (Ln)	15.952*** (4.901)	21.281*** (4.837)	36.810*** (5.964)	0.842 (13.020)	6.849 (12.892)	29.905* (15.688)
Population (Ln)	-654.207*** (82.693)	-703.308*** (83.691)	-602.647*** (94.372)	-817.896*** (114.402)	-880.661*** (115.634)	-807.249*** (148.227)
Commodity Price Index	1.563*** (0.079)	1.634*** (0.080)	1.548*** (0.088)	1.669*** (0.319)	1.720*** (0.326)	1.493*** (0.335)
Agr. Prod. Value (Ln)			9.449*** (2.949)			31.398*** (6.031)
<i>First Stage</i>						
Federal Funds Rate				-0.071*** (0.011)	-0.076*** (0.021)	-0.068*** (0.012)
Kleibergen-Paap F-stat				38.92	41.19	30.56
Observations	21941	21941	18630	14984	14984	12634
Municipalities	1712	1712	1696	1645	1645	1556
R-squared	0.56	0.57	0.55			
Party/Electoral Vars.		✓	✓		✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓
Cubic Time Poly.	✓	✓	✓	✓	✓	✓

Clustered standard errors at the municipal level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The OLS results strongly support Hypothesis 1. Lower Federal Funds rates increase patronage spending, and this relation is highly statistically significant. Substantially, a 1 percentage point decrease in the Fed funds rate increases public employment spending per capita by about 23 pesos. This increase equals about 3 percent of the mean public employment spending.

In the same line, the 2SLS estimations support the arguments of the paper. Federal funds directly influence municipal debt. This relationship is extremely consistent, and the F-Tests denote the

²¹“Detienen a exalcalde de San Javier por actos de corrupción,” by Daniel Sánchez Dórame, *Excelsior*, August 6, 2016, <http://www.excelsior.com.mx/nacional/2016/06/08/1097613>

strength of the instrumentation (Staiger and Stock, 1997). In the second stage, the evidence supports the mechanism showing that debt has a positive effect on public employment spending.

The Appendix shows a series of robustness checks. To check the robustness with respect to different outcomes Table A11 Panel A shows the results when analyzing the natural logarithm of public employment spending per capita, and Panel B analyzes discretionary wage bonuses given to public employees. Both cases show the same findings. Table A12 shows the results are also robust to two-way clustering by municipality and year, and Table A13 implement dynamic estimations –Error Correction Models and Newey-West estimations– finding the same results.

4.3 Smoking Guns: Public Goods

I analyze three different outcomes related to spending on public goods. First, I analyze overall public investment, which includes spending on roads or sanitation for example. The second outcome is the investment in housing programs. Such programs aimed at buying or improving housing, like *Ésta es tu casa* or *Programa de Apoyo a la Vivienda*, have become a key part of Mexican development policies. Like other programs, the source of funds derives from municipal, state and federal resources. Finally, I examine spending on education –which is also co-funded by the three levels of government.²²

Results are displayed in Table 7. Columns 3 and 4 show no statistically significant relation between US monetary policy and municipal spending on housing programs. In contrast to the public spending argument, a looser US monetary policy leads decreases spending on public investment and education. The 2SLS results provide support to the claim that debt is not efficiently spent. These results are supportive of hypothesis 2 and fully in line with the patronage by credit argument.

4.4 The Role of Political Alignment: Evidence from a Regression Discontinuity Design

Beyond further testing of my general argument, a key reason for pursuing a within-country analysis is to further understand the political processes underlying the effect of US monetary policy on patronage politics. In view of the trends of financial integration on the one hand and decentralization and federalism on the other (Garret and Rodden, 2007), it is important to incorporate dynamics between central and local governments. Specifically, I analyze how political alignment moderates the previous results. Given the importance of subnational debt (along with cases of bailouts among large

²²Since 2000, Article 25 of the Mexican Education Law (Ley General de Educación) mandates that the annual federal education expenditure must be no smaller than 8% of GDP, but it does not stipulate requirements for state or municipal spending.

Table 7: **US Monetary Policy, Municipal Debt, and Public Goods in Mexican Municipalities**

	Public Investment (Ln)		Investment in Housing (Ln)		Education Expenditure (Ln)	
	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)
Federal Funds Rate	0.023** (0.011)		-0.008 (0.012)		0.038*** (0.012)	
Municipal Debt (Ln)		-0.109** (0.046)		0.137 (0.225)		-0.414*** (0.142)
Transfers (Ln)	0.727*** (0.106)	0.730*** (0.125)	0.154*** (0.050)	0.047 (0.105)	0.064 (0.122)	0.046 (0.151)
Tax Revenue (Ln)	0.078* (0.044)	0.109 (0.085)	0.122*** (0.042)	0.098* (0.054)	0.172*** (0.057)	0.176* (0.098)
Population (Ln)	-0.293 (0.302)	-0.460 (0.515)	-0.462 (0.446)	-0.580 (0.501)	0.156 (0.466)	-1.088* (0.586)
Agr. Prod. Value (Ln)	-0.019 (0.024)	-0.026 (0.024)	-0.017 (0.017)	-0.026 (0.020)	-0.061*** (0.015)	-0.064*** (0.024)
Kleibergen-Paap F-stat		39.19		30.80		27.58
Observations	3473	1996	18380	12518	4302	2508
Municipalities	685	374	1689	1518	1179	578
R-squared	0.46	0.45	0.28	0.27	0.13	-0.44
Party/Electoral Vars.	✓	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓
Cubic Time Poly.	✓	✓	✓	✓	✓	✓

Clustered standard errors at the municipal level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

federations) coupled with the suggestive evidence of corruption and inefficiency associated with decentralization programs (Wibbels, 2000; Treisman, 2000a,b), this analysis of political alignment is a natural and substantively important extension to undertake. More importantly, looking at the local-level context enables me to examine potential partisan biases in the federal dynamics as well as potential partisan effects that might arise given comparative advantages in the political arena. As such, this section uses a regression discontinuity design in close electoral races to understand the extent to which political alignment influences the effect of US monetary policy on patronage spending, and whether this is moderated by specific parties.

Federal dynamics imply opportunities and obstacles for local-level fiscal policies as local level governments might attempt to externalize their fiscal burdens. Specifically, when higher levels of government cannot credibly commit not to bail local politicians out, federal dynamics generate poor incentives for fiscal discipline (Rodden, 2005, 2002; Rodden, Eskeland, and Litvack, 2003). Moreover, these fiscal incentives can have far-reaching consequences (Treisman, 2000b; Velasco, 2000). Careaga and Weingast (2003) present a model in which governments that raise their own revenue have incentives to provide market-enhancing public goods, while governments that rely heavily on revenue-sharing from the central government are more likely to use resources on patronage and rent-seeking. Tornell and Lane (1999) discuss a “voracity effect” where powerful interest groups and weak institutions undermine saving during booms. In particular, Rodden and Wibbels (2009) argue that public employees top the list of such type of organized interest groups, pushing for higher wages and new expenditures during good times.

However, the fiscal incentives (and potential patronage consequences) produced by federal dynamics are likely to be driven by partisan politics. On the one hand, some argue that the supply of patronage varies by partisanship, whereby certain parties have a comparative advantage, and hence are more prone to engage in patronage spending (Calvo and Murillo, 2004; Remmer, 2007). On the other hand, the incentives of the central government to provide fiscal support also vary by partisanship. Specifically, the driving force is whether the parties at the local and central government are politically aligned. In line with the case study analyzed here, Timmons and Broid (2013) argue that Mexican governors reallocate funds to politically aligned municipalities. Crucially, they find such partisan bias only among PRI governors, finding no bias from PAN and PRD governors. Overall, the core findings from the early literature (e.g., Grossman, 1994) have been confirmed by recent studies emphasizing causality. For instance, Broilo and Nannicini (2012) use a regression discontinuity design design to show that politically aligned Brazilian municipalities receive larger discretionary transfers. Similarly, Gulzar (2015) finds that political alignment leads to a higher quantity of public employees in

the health sector in Punjabi constituencies. Consistent with a patronage driven interpretation, those public employees work less often.

Building upon the aforementioned arguments, I expect that the effects of US monetary policy on patronage spending will be stronger in municipalities that are politically aligned with their governors, and that the effect will be largely driven by PRI partisans.

Research Design Estimating the causal impact of political alignment on the US monetary policy–patronage spending link can be obscured by endogeneity issues. Naturally, an empirical correlation between the two might be driven by factors that affect both alignment and patronage by credit. To address this problem, my identification strategy comes from a regression discontinuity design (RDD) in close electoral races (Lee, 2008; Imbens and Lemieux, 2008). Essentially, the effect of political alignment is identified by the RDD by approximating a natural experiment, namely comparing places where the candidate aligned with the governor barely won with places where the candidate aligned with the governor barely lost. As in any design, there are threats to the validity of the inference. In the case of the RD, estimates would be invalidated if either aligned or unaligned parties can manipulate close elections in their favor, rendering observation on either side of the cutoff not comparable (Caughey and Sekhon, 2011). Density tests show that the number of observations right above the cutoff is not significantly different from the number of observations just below it, indicating no evidence of sorting (Cattaneo, Jansson, and Ma, 2016; McCrary, 2008). For instance, using different local polynomial density estimators, the density tests fails to reject the null hypothesis that the density of the running variable is continuous at the cutoff, with p -values ranging from 0.37 to 0.74. I further examine the validity of the design by analyzing the effects on variables that should not be affected. These placebo tests consider several covariates, including population, tax revenue, and agricultural production. As shown in Table A14, the (null) results supports the validity of the design. Moving forward to the estimation, I rely on the following OLS:

$$\begin{aligned}
\text{Patronage Spending}_{ist+1} = & \beta \text{Alignment}_{ist} + \gamma (\text{Alignment}_{ist} \times \text{Fed}_t) + \lambda (\text{Alignment}_{ist} \times f(\mathbf{x}_{ist})) \\
& + \psi f(\mathbf{x}_{ist}) + \zeta (\text{Fed}_t \times f(\mathbf{x}_{ist})) + \eta (\text{Alignment}_{ist} \times \text{Fed}_t \times f(\mathbf{x}_{ist})) \\
& + \alpha_s + \delta_t + \epsilon_{ist}
\end{aligned} \tag{8}$$

where Y_{ist+1} refers to patronage spending, here proxied by public employment spending (per capita), in municipality i from state s in the year following the election on year t . Alignment_{ist} is an indicator variable that takes the value of 1 if the elected mayor from municipality i is from the same party as

the governor from state s . Here, $f(x_{ist})$ refers to a linear control function of the forcing variable, x_{ist} , namely the margin of victory between the winner and the runner up –where positive values represent politically aligned winners and negative values non-aligned winners. Here, I focus on close elections, where the margins of victory is within the $[-7.5; 7.5]$ and $[-5; 5]$ per cent range.²³ Finally, the estimation includes state (α_s) and year (δ_t) fixed effects.

The parameter of interest is γ , which estimates the effect of the US monetary policy on patronage spending when the elected mayor is politically aligned. Results are shown in Table 8.

Table 8: Political Alignment, US Monetary Policy, and Patronage Spending

	Public Employment Spending (per capita)					
	All States		PRI State		Non-PRI State	
	(1)	(2)	(3)	(4)	(5)	(6)
Party Alignment \times Fed	-45.646*	-63.810**	-71.979*	-123.412**	-19.282	-11.336
	(26.124)	(32.229)	(41.185)	(52.272)	(31.486)	(38.522)
Observations	2243	1545	1256	857	987	688
Interval	$[-7.5; 7.5]$	$[-5; 5]$	$[-7.5; 7.5]$	$[-5; 5]$	$[-7.5; 7.5]$	$[-5; 5]$
State FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓

Clustered standard errors at the municipal level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The first two columns show the results for all states within the $[-7.5; 7.5]$ and $[-5; 5]$ intervals, respectively. The effects strongly support the argument that the US Federal Reserve Funds Rate influences patronage spending, and that this effect is stronger on politically aligned municipalities. Crucially, these estimates represent average effects across all parties. To further explore the specific role of partisanship in and of itself, I repeat the analysis by looking at PRI governed states and non-PRI governed states separately, and the results are as expected. Columns 3 and 4 display the results for PRI states, where the effects are statistically significant and approximately double the average effects from Columns 1 and 2. In contrast, estimation for non-PRI states shows no significant results, as shown in Columns 4 and 6. In addition, I replicate the analysis but examining public goods. In the Appendix, Table A15 shows the RDD produces a consistent null on public good outcomes, corroborating the patronage argument.

Overall, these results are fully aligned with the extant literature as well as with evidence from Mexico in particular, and provide strong subnational-level support for the argument advanced here.

²³Using the $[-1; 1]$ interval produces similar results, although in some cases they are not statistically significant because of power.

5 Concluding Remarks

Is there a link between international financial fluctuations and governance in developing countries? Is it the case that decisions made by Ben Bernanke influenced patronage behavior in places such as the municipality of Ecatepec de Morelos in Estado de Mexico? In this paper, I have brought new evidence that answers to these questions in the affirmative. By explicitly incorporating the notion that politicians embrace borrowing opportunities in the credit market, I am able to link fluctuations in the US Federal Reserve funds rate and patronage politics in the developing world, both at the cross-country and sub-national level.

In short, the empirical evidence strongly supports the patronage by credit argument presented here. Not only do politicians use public debt to fund their public employment spending, but the extent to which they are able to do so is substantially influenced by the international financial market. Ironically, by implementing monetary policy focusing on US employment, the Federal Reserve is also, indirectly, influencing patronage employment in developing countries. Moreover, the complementary evidence suggests that the US monetary policy effects can arguably be referred to as a ‘Fed curse’. Specifically, a looser US monetary policy has no effects on public goods provision, but it increases levels of corruption and private goods provision, and decreases government transparency in the developing world. Additionally, as one would expect, the conditions that lead to ‘patronage by credit’ also help leaders in developing countries to stay in office longer. These effects are stronger on economies that are more vulnerable to international finance fluctuations.

I take my arguments one step further and explore these effects at the sub-national level, examining Mexican municipalities, corroborating the results. This approach also allows me to further explore the role of political parties and fiscal institutions. Under such framework, the evidence shows that the effects of the Federal Funds rate on patronage are stronger in politically aligned municipalities.

Overall, these findings suggests that patronage politics, and governance more broadly, has roots in the international financial system. More specifically, the findings underscore new ways in which the political circumstances in the developing world are in part determined by the power and influence of US monetary policy.

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Appendix

Table A1: Cross-Country - Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Pubic Employees (per 1,000)	69.303	50.825	3.773	460.224	2088
Federal Funds Rate	5.351	3.509	0.09	16.39	13301
Federal Funds Rate (monthly)	3.987	2.892	0.07	11.64	33574
Democracy	-0.884	6.868	-10	10	6347
Commodity Price Index	121.756	63.349	43.383	302	13301
Commodity Price Index (monthly)	155.656	64.006	96.217	302	33574
GDPpc (Ln)	7.632	1.455	4.242	11.974	8498
Population (Ln)	1.514	2.966	-5.454	8.890	11779
Trade (% of GDP)	75.585	51.235	0.021	531.737	8044
Non-Tax Resources (% of GDP)	11.8	14.044	-2.594	242.286	6268
Unemployment (%)	8.997	6.184	0.1	39.3	4200
Education Expenditure (% of Gov. Expenditure)	15.78	5.238	3.93	44.802	1331
Gross Secondary School Enrollment	54.536	29.867	0	166.136	6408
Health Expenditure (% of Gov. Expenditure)	10.717	4.489	0.096	34.412	3372
Water Access (% population)	81.658	18.095	13.2	100	4882
Adult literacy rate, 15+ years (%)	77.346	21.804	8.685	99.998	687
Adult literacy rate, 15+ years, female (%)	72.636	25.737	3.183	99.998	684
Adult literacy rate, 15+ years, male (%)	82.149	18.179	13.513	99.999	684
Youth literacy rate, 15-24 years (%)	86.035	18.597	14.378	100	685
Corruption (monthly)	3.479	1.025	0	6	33574
Net International Claims (Ln)	-0.165	6.354	-12.067	11.137	4761
Elite Imports (Ln)	4.054	1.894	0	10.172	3106
Elite Imports (‰ of trade)	0.153	0.16	0	2.569	2988
Transparency	0.528	1.843	-10.87	8.345	3100
Leader Failure	0.138	0.345	0	1	6222
BIT Signing	0.484	1.306	0	17	7775
Presidential Election Held	0.105	0.306	0	1	5174
Civil War	0.097	0.296	0	1	5375
Sovereign Debt (Ln)	20.037	3.162	0	30.511	4433

An observation is a country and year unless otherwise noted.

**Table A2: US Monetary Policy and Patronage in the Developing World: 5-year period
Fixed Effects**

	Public Employees (per 1,000)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Federal Funds Rate	-0.474** (0.212)	-0.460** (0.222)	-0.359** (0.175)	-0.498** (0.233)	-0.673** (0.337)	-1.113*** (0.375)	-0.933** (0.382)
Democracy	0.463** (0.209)	-0.342 (0.218)	0.373** (0.143)	0.421* (0.212)	-0.465* (0.246)	-0.455 (0.298)	-0.428 (0.298)
Commodity Price Index	0.041** (0.020)	0.072** (0.028)	0.045** (0.020)	0.044** (0.021)	0.073** (0.032)	0.105*** (0.034)	0.100*** (0.032)
GDPpc (Ln)	10.251 (6.942)	0.175 (18.640)	17.727*** (5.493)	7.834 (7.655)	5.844 (19.418)	-21.263 (28.176)	-14.609 (26.309)
Population (Ln)	8.450 (23.697)	56.835 (34.533)	-8.754 (22.021)	17.607 (23.774)	82.959** (40.867)	123.370** (51.770)	129.374** (50.128)
Trade (% of GDP)				-0.005 (0.063)	0.042 (0.089)	0.036 (0.099)	0.052 (0.097)
Non-Tax Revenue (% of Rev.)					-0.203 (0.305)	-0.099 (0.376)	-0.016 (0.322)
Unemployment						-1.033** (0.464)	-1.051** (0.407)
GDP Growth (%)							-0.822*** (0.266)
Observations	1775	1298	1775	1712	1099	893	891
Countries	82	82	82	81	78	76	76
R-squared	0.31	0.09	0.54	0.33	0.16	0.26	0.29
Country FE	✓	✓	✓	✓	✓	✓	✓
5-year Period FE	✓	✓	✓	✓	✓	✓	✓
Cubic Time Poly.	✓	✓	✓	✓	✓	✓	✓

Clustered standard errors at the country level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: US Monetary Policy & Literacy Rates in the Developing World

	Literacy Rate (%)			
	Pop. 15+ yrs.			Pop. 15-24 yrs.
	Both sexes (1)	Female (2)	Male (3)	Both sexes (4)
Federal Funds Rate	0.371** (0.157)	0.375* (0.192)	0.330** (0.141)	0.342* (0.186)
Democracy	-0.019 (0.124)	-0.094 (0.147)	0.026 (0.112)	0.003 (0.134)
Commodity Price Index	-0.009 (0.009)	-0.005 (0.010)	-0.016* (0.009)	-0.010 (0.011)
GDPpc (Ln)	0.669 (2.113)	1.781 (2.604)	-0.820 (1.728)	1.110 (2.077)
Population (Ln)	15.913*** (3.926)	18.091*** (4.729)	13.174*** (3.473)	12.702** (4.869)
Observations	497	495	495	500
Countries	124	124	124	124
R-squared	0.69	0.69	0.65	0.50
Country FE	✓	✓	✓	✓
Cubic Time Poly.	✓	✓	✓	✓

Clustered standard errors at the country level in parentheses.

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

Table A4: US Monetary Policy & Corruption and Private Goods in the Developing World: 5-year period Fixed Effects

	Net Intl. Claims (Ln)	Elite Imports (Ln)	Elite Imports (% of trade)	Transparency Index
	(1)	(2)	(3)	(4)
Federal Funds Rate	-0.130*** (0.038)	-0.026*** (0.005)	-0.005*** (0.001)	0.039*** (0.007)
Democracy	-0.018 (0.045)	0.014** (0.007)	0.002* (0.001)	0.013 (0.009)
Commodity Price Index	0.012*** (0.004)	0.002*** (0.001)	0.000 (0.000)	-0.006*** (0.001)
GDPpc (Ln)	-1.965* (1.095)	1.145*** (0.143)	-0.002 (0.022)	0.412* (0.213)
Population (Ln)	0.571 (2.537)	1.122*** (0.365)	0.081* (0.048)	-2.062** (0.955)
Observations	4021	2683	2596	2849
Countries	128	120	120	98
R-squared	0.08	0.48	0.04	0.34
Country FE	✓	✓	✓	✓
5-year period FE	✓	✓	✓	✓
Cubic Time Poly.	✓	✓	✓	✓

Clustered standard errors at the country level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: US Monetary Policy and Patronage in the Developing World: Different Thresholds

	Public Employees (per 1,000)				
	OLS				2SLS
	(1)	(2)	(3)	(4)	(5)
Fed × High Debt Service (25%)	-1.788*** (0.451)	-3.417*** (1.004)	-1.167*** (0.391)	-1.691*** (0.571)	
Sovereign Debt (Ln)					13.749* (8.108)
Democracy	0.447** (0.218)	-0.348 (0.224)	0.386** (0.177)	0.228 (0.185)	0.509 (0.366)
GDPpc (Ln)	12.580* (6.853)	8.649 (21.715)	21.943*** (4.550)	2.167 (10.862)	-3.224 (10.940)
Population (Ln)	3.908 (25.807)	84.103* (42.855)	-38.873** (15.781)	-6.457 (25.393)	70.613 (59.690)
Trade (% of GDP)				0.038 (0.071)	0.079 (0.131)
Non-Tax Revenue (% of GDP)				-0.314 (0.252)	-0.498* (0.286)
GDP Growth (%)				-0.737** (0.293)	-1.707*** (0.548)
<i>First Stage</i>					
Fed × High Debt Service (25%)					-0.124** (0.048)
Kleibergen-Paap F-stat					6.54
Observations	1545	1103	1545	1218	1081
Countries	67	67	67	64	60
R-squared	0.39	0.20	0.76	0.36	
Country FE	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓

Clustered standard errors at the country level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: US Monetary Policy and Patronage in the Developing World: Further Robustness on Thresholds

	Public Employees (per 1,000)					
	OLS	2SLS	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Fed × High Debt Service (25%, 1960-1980)	-1.177*** (0.450)					
Fed × High Debt Service (25%, 1960-1985)			-1.219** (0.537)			
Fed × High Debt Service (30%, 1960-1980)					-2.221** (1.020)	
Sovereign Debt (Ln)		8.322* (4.753)		5.610* (3.020)		3.601* (2.145)
Democracy	0.139 (0.196)	0.443 (0.284)	-0.326 (0.202)	0.066 (0.186)	-0.371* (0.206)	-0.021 (0.190)
GDPpc (Ln)	-1.483 (5.982)	6.802 (7.582)	14.186 (13.706)	16.286 (10.049)	16.068 (14.028)	14.075 (10.976)
Population (Ln)	-42.922** (17.377)	7.174 (28.889)	6.958 (53.936)	-1.532 (19.437)	18.543 (56.732)	-15.336 (19.279)
Trade (% of GDP)		0.003 (0.060)		0.019 (0.048)		0.012 (0.042)
Non-Tax Rev. (% of GDP)		-0.291* (0.164)		-0.218* (0.114)		-0.203* (0.108)
GDP Growth (%)		-0.868*** (0.329)		-0.531** (0.231)		-0.384** (0.161)
Kleibergen-Paap F-stat		3.74		7.79		10.57
Sample period	1981-2011	1981-2011	1986-2011	1986-2011	1986-2011	1986-2011
Observations	801	699	729	624	729	624
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓

Columns 1-2 use the 1960-1980 time period to construct the High-Debt Service indicator.

Columns 3-4 use the 1960-1985 period. Two way clustered standard errors at the country and year level in parentheses.

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

Table A7: US Monetary Policy and Patronage in the Developing World: Two-Way Clustering

	Public Employees (per 1,000)		
	OLS		2SLS
	(1)	(2)	(3)
Fed × High Debt Service	-1.770** (0.690)	-2.004** (0.804)	
Sovereign Debt (Ln)			14.136** (6.124)
Democracy	0.408* (0.217)	0.160 (0.194)	0.518 (0.417)
GDPpc (Ln)	12.002* (6.571)	1.233 (10.563)	-3.358 (10.590)
Population (Ln)	1.478 (28.636)	-8.634 (25.516)	72.415 (60.055)
Trade (% of GDP)		0.036 (0.075)	0.080 (0.140)
Non-Tax Revenue (% of GDP)		-0.322 (0.249)	-0.502* (0.303)
GDP Growth (%)		-0.732** (0.309)	-1.731*** (0.507)
<i>First Stage</i>			
Fed × High Debt Service			-0.120*** (0.043)
Kleibergen-Paap F-stat			7.68
Observations	1544	1217	1081
Countries	52	42	42
R-squared	0.06	0.13	
Country FE	✓	✓	✓
Year FE	✓	✓	✓

Two-way clustered standard errors at the country and year level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: US Monetary Policy and Patronage in the Developing World: Dynamics

	Error Correction Model		Newey-West Estimation		
	Δ Public Employees (per 1,000)		Public Employees (per 1,000)		
	OLS		2SLS		
	(1)	(2)	(3)	(4)	(5)
Public Employees _{t-1}	-0.132*** (0.017)	-0.146*** (0.027)			
Fed _{t-1} × High Debt Service	-0.069 (0.061)	-0.164** (0.079)	-1.770*** (0.483)	-2.004*** (0.491)	
Δ Fed × High Debt Service	-0.425*** (0.121)	-0.419** (0.163)			
Sovereign Debt _{t-1} (Ln)					14.136*** (5.432)
Democracy _{t-1}	0.081* (0.045)	0.037 (0.051)	0.408*** (0.122)	0.160 (0.123)	0.518** (0.250)
Δ Democracy	0.072* (0.039)	0.042 (0.053)			
GDPpc _{t-1} (Ln)	1.837** (0.723)	1.572 (1.055)	12.002*** (2.602)	1.233 (4.295)	-3.358 (5.493)
Δ GDPpc (Ln)	2.235 (3.138)	-87.541** (42.509)			
Population _{t-1} (Ln)	-9.740*** (2.503)	-8.091** (3.278)	1.478 (10.841)	-8.634 (11.964)	72.415** (35.857)
Δ Population (Ln)	-19.167 (35.280)	-97.447** (36.936)			
Trade _{t-1} (% of GDP)		-0.008 (0.009)		0.036 (0.046)	0.080 (0.085)
Δ Trade (% of GDP)		0.001 (0.015)			
Non-Tax Revenue _{t-1} (% of GDP)		0.014 (0.025)		-0.322** (0.133)	-0.502** (0.205)
Δ Non-Tax Revenue (% of GDP)		-0.019 (0.039)			
GDP Growth _{t-1} (%)		0.821** (0.409)		-0.732*** (0.197)	-1.731*** (0.406)
Δ GDP Growth (%)		0.871** (0.422)			
Observations	1454	1127	1545	1218	1083
Country FE	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓

Clustered standard errors at the country level in parentheses in Columns 1 and 2.

Newey-West standard errors with first-order autocorrelation structure in parentheses in Columns 3-5.

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

Table A9: US Monetary Policy and Patronage in the Developing World: Different Operationalizations of Patronage

	Public Employees (per 1,000, Ln)		Public Employment (% of Gov. Expenditure)	
	(1)	(2)	(3)	(4)
Fed × High Debt Service	-0.017** (0.007)	-0.016** (0.008)	-0.627** (0.274)	-0.612** (0.303)
Democracy	0.007** (0.003)	0.006* (0.003)	0.099 (0.153)	0.114 (0.158)
GDPpc (Ln)	0.338*** (0.090)	0.182 (0.131)	3.395 (3.040)	4.138 (3.396)
Population (Ln)	0.050 (0.300)	0.106 (0.325)	-17.327* (9.947)	-4.592 (13.649)
Trade (% of GDP)		-0.000 (0.001)		-0.047 (0.032)
Non-Tax Revenue (% of GDP)		-0.002 (0.003)		-0.167*** (0.061)
GDP Growth (%)		-0.008*** (0.002)		0.054 (0.084)
Observations	1545	1218	1133	1031
Countries	67	64	83	79
R-squared	0.54	0.43	0.09	0.09
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓

Clustered standard errors at the country level in parentheses.

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

Table A10: Mexican Municipalities - Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Public Employment Spending (per cap)	617.877	629.375	0.144	9235.992	21941
Public Employment Spending (Ln)	15.843	1.527	5.644	21.495	21941
Wage Bonuses to Public Employees (Ln)	14.038	1.877	4.181	21.036	18372
Municipal Debt (Ln)	13.183	2.484	0.507	21.295	15022
Transfers (Ln)	9.381	1.256	0.298	14.553	21941
Tax Revenue (Ln)	13.242	2.303	2.897	20.692	21941
Population (Ln)	9.781	1.375	4.639	14.339	21941
Commodity Price Index	143.149	47.558	96.375	256.033	21941
Agricultural Production Value (Ln)	9.826	2.974	0	15.751	18630
PAN Incumbent	0.17	0.375	0	1	21941
PRI Incumbent	0.676	0.468	0	1	21941
PRD Incumbent	0.116	0.32	0	1	21941
PAN-PRD Incumbent	0.009	0.092	0	1	21941
Pres. Elections	0.197	0.398	0	1	21941
Congressional Elections	0.37	0.483	0	1	21941
Gob. Elections	0.423	0.494	0	1	21941
Public Investment (Ln)	6.213	1.489	0.198	11.889	3351
Investment in Housing (Ln)	6.262	3.896	0	15.347	18885
Education Expenditure (Ln)	5.228	1.808	0.029	11.523	4463
Political Alignment Forcing Var.	0.058	0.207	-1	1	7069
Political Alignment	0.596	0.491	0	1	21235

An observation is a municipality and year.

Table A11: US Monetary Policy, Municipal Debt, and Patronage Spending in Mexican Municipalities

	Public Employment Spending (per capita)					
	OLS			2SLS		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: Public Employment Spending (Ln)</i>						
Federal Funds Rate	-0.029*** (0.001)	-0.029*** (0.001)	-0.030*** (0.001)			
Municipal Debt (Ln)				0.420*** (0.073)	0.397*** (0.067)	0.480*** (0.091)
Transfers (Ln)	0.051*** (0.009)	0.051*** (0.009)	0.020*** (0.008)	-0.141*** (0.051)	-0.133*** (0.047)	-0.189*** (0.057)
Tax Revenue (Ln)	0.026*** (0.006)	0.027*** (0.006)	0.043*** (0.007)	0.001 (0.015)	0.004 (0.014)	0.029 (0.018)
Population (Ln)	0.549*** (0.052)	0.538*** (0.052)	0.680*** (0.063)	0.312*** (0.104)	0.298*** (0.100)	0.362*** (0.127)
Commodity Price Index	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001** (0.000)
Agr. Prod. Value (Ln)			-0.006*** (0.002)			0.022*** (0.007)
Kleibergen-Paap F-stat				35.28	37.87	29.17
Observations	23498	23498	20178	15999	15999	13659
Municipalities	1718	1718	1701	1650	1650	1573
R-squared	0.82	0.82	0.80			
<i>Panel B: Wage Bonuses to Public Employees (Ln)</i>						
Federal Funds Rate	-0.015*** (0.005)	-0.016*** (0.005)	-0.021*** (0.005)			
Municipal Debt (Ln)				0.154** (0.078)	0.201** (0.082)	0.290*** (0.091)
Transfers (Ln)	0.159*** (0.025)	0.160*** (0.025)	0.142*** (0.025)	0.071 (0.049)	0.051 (0.051)	-0.040 (0.058)
Tax Revenue (Ln)	0.084*** (0.018)	0.083*** (0.018)	0.112*** (0.020)	0.074*** (0.022)	0.075*** (0.023)	0.104*** (0.026)
Population (Ln)	0.468*** (0.123)	0.467*** (0.124)	0.521*** (0.144)	0.422*** (0.144)	0.380** (0.150)	0.457** (0.180)
Commodity Price Index	-0.001*** (0.000)	-0.001*** (0.000)	-0.001** (0.000)	-0.001** (0.000)	-0.001* (0.000)	-0.000 (0.001)
Agr. Prod. Value (Ln)			-0.008 (0.006)			0.015* (0.008)
Kleibergen-Paap F-stat				38.49	36.14	34.79
Observations	18372	18372	16399	12600	12600	11173
Municipalities	1699	1699	1666	1503	1503	1449
R-squared	0.25	0.25	0.23			
Party/Electoral Vars.		✓	✓		✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓
Cubic Time Poly.	✓	✓	✓	✓	✓	✓

Clustered standard errors at the municipal level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A12: US Monetary Policy, Municipal Debt, and Patronage Spending in Mexican Municipalities: Two-Way Clustering

	Patronage Spending					
	OLS			2SLS		
	(1)	(2)	(3)	(4)	(5)	(6)
Federal Funds Rate	-23.717*** (4.724)	-24.723*** (4.097)	-22.819*** (5.014)			
Municipal Debt (Ln)				346.293** (161.256)	343.218** (160.359)	362.441* (193.953)
Transfers (Ln)	12.956 (11.201)	11.226 (12.938)	9.036 (14.577)	-141.702 (91.522)	-144.150* (86.551)	-144.150* (80.014)
Tax Revenue (Ln)	15.952*** (5.869)	21.281*** (5.826)	36.810*** (7.492)	0.842 (13.908)	6.849 (13.110)	29.905** (14.778)
Population (Ln)	-654.207*** (83.926)	-703.308*** (85.977)	-602.647*** (96.137)	-817.896*** (170.140)	-880.661*** (181.247)	-807.249*** (201.562)
Commodity Price Index	1.563*** (0.384)	1.634*** (0.348)	1.548*** (0.394)	1.669* (1.009)	1.720* (0.891)	1.493 (0.951)
Agr. Prod. Value (Ln)			9.449** (4.104)			31.398** (15.318)
First Stage						
Federal Funds Rate				-0.071** (0.027)	-0.076** (0.030)	-0.068** (0.027)
Kleibergen-Paap F-stat						
Observations	21934	21934	18620	14984	14984	12634
Municipalities	15	15	15	15	15	15
R-squared	0.56	0.57	0.55	-1.99	-1.93	-2.77
Municipality FE	✓	✓	✓			
Cubic Time Poly.	✓	✓	✓			

Two-way clustered standard errors at the municipal and year level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A13: US Monetary Policy, Municipal Debt, and Patronage Spending in Mexican Municipalities: Dynamics

	Error Correction Model		Newey-West Estimation		
	Δ Public Employment Spending (per capita)		Public Employment Spending (per capita)		
	OLS				2SLS
	(1)	(2)	(3)	(4)	(5)
Employment Spending $_{t-1}$	-0.197*** (0.018)	-0.262*** (0.032)			
Federal Funds Rate $_{t-1}$	-11.430*** (1.082)	-8.622*** (1.614)	-25.530*** (2.554)	-26.326*** (2.728)	
Δ Federal Funds Rate	-10.817*** (0.841)	-7.719*** (1.007)			
Municipal Debt $_{t-1}$ (Ln)					402.962*** (84.181)
Transfers $_{t-1}$ (Ln)	16.531*** (4.307)	18.145*** (5.056)	384.439*** (13.931)	382.662*** (19.130)	97.689 (69.849)
Δ Transfers (Ln)	40.957*** (5.595)	40.993*** (6.367)			
Tax Revenue $_{t-1}$ (Ln)	10.232*** (2.738)	21.465*** (4.061)	92.535*** (3.766)	97.306*** (4.456)	46.501*** (14.137)
Δ Tax Revenue (Ln)	21.644*** (3.200)	30.683*** (4.003)			
Population $_{t-1}$ (Ln)	-177.000*** (21.829)	-190.960*** (32.491)	-534.553*** (14.087)	-555.420*** (17.998)	-670.879*** (32.220)
Δ Population (Ln)	-717.318*** (115.410)	-664.545*** (129.621)			
Commodity Price Index $_{t-1}$	1.271*** (0.136)	0.980*** (0.171)	1.324*** (0.097)	1.809*** (0.137)	1.684*** (0.248)
Δ Commodity Price Index	-0.761*** (0.095)	-0.885*** (0.113)		-8.446*** (1.739)	6.494 (4.351)
Agr. Prod. Value $_{t-1}$ (Ln)		3.643*** (1.102)			
Δ Agr. Prod. Value (Ln)		1.576 (1.073)			
Observations	21699	18350	21941	18630	12713
Party/Electoral Vars.		✓		✓	✓
Municipality FE	✓	✓	✓	✓	✓
Cubic Time Poly.	✓	✓	✓	✓	✓

Clustered standard errors at the country level in parentheses in Columns 1 and 2.

Newey-West standard errors with first-order autocorrelation structure in parentheses in Columns 3-5.

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

Table A14: Validity of the RD Design: Placebo Tests

	Population (Ln)		Tax Revenue (Ln)		Agr. Prod. Value (Ln)	
	(1)	(2)	(3)	(4)	(5)	(6)
Party Alignment \times Fed	0.040 (0.048)	0.049 (0.058)	0.029 (0.065)	0.039 (0.079)	-0.004 (0.042)	0.018 (0.049)
Observations	2260	1557	2552	1771	2530	1751
Interval	[-7.5; 7.5]	[-5; 5]	[-7.5; 7.5]	[-5; 5]	[-7.5; 7.5]	[-5; 5]
State FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓

Clustered standard errors at the municipal level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A15: Political Alignment, US Monetary Policy and Public Goods Spending

	Public Investment (Ln)		Investment in Housing (Ln)		Education Expenditure (Ln)	
	(1)	(2)	(3)	(4)	(5)	(6)
Party Alignment \times Fed	-0.092 (0.087)	-0.156 (0.108)	0.072 (0.128)	0.128 (0.154)	0.005 (0.128)	0.024 (0.164)
Observations	431	299	2278	1570	539	372
Interval	[-7.5; 7.5]	[-5; 5]	[-7.5; 7.5]	[-5; 5]	[-7.5; 7.5]	[-5; 5]
State FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓

Clustered standard errors at the municipal level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A1: Probability of September 2016 Fed rate hike: 06 Sep 2016 - 09 Sep 2016

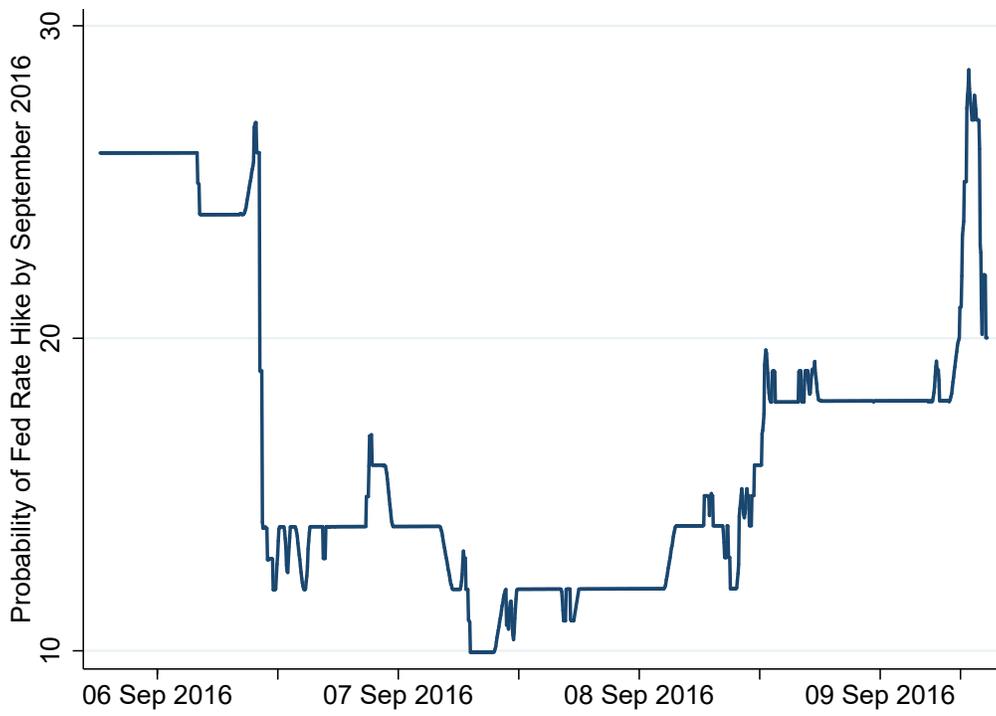


Figure A2: US Federal Funds Rate and Public Employment in the Developing World since 1970

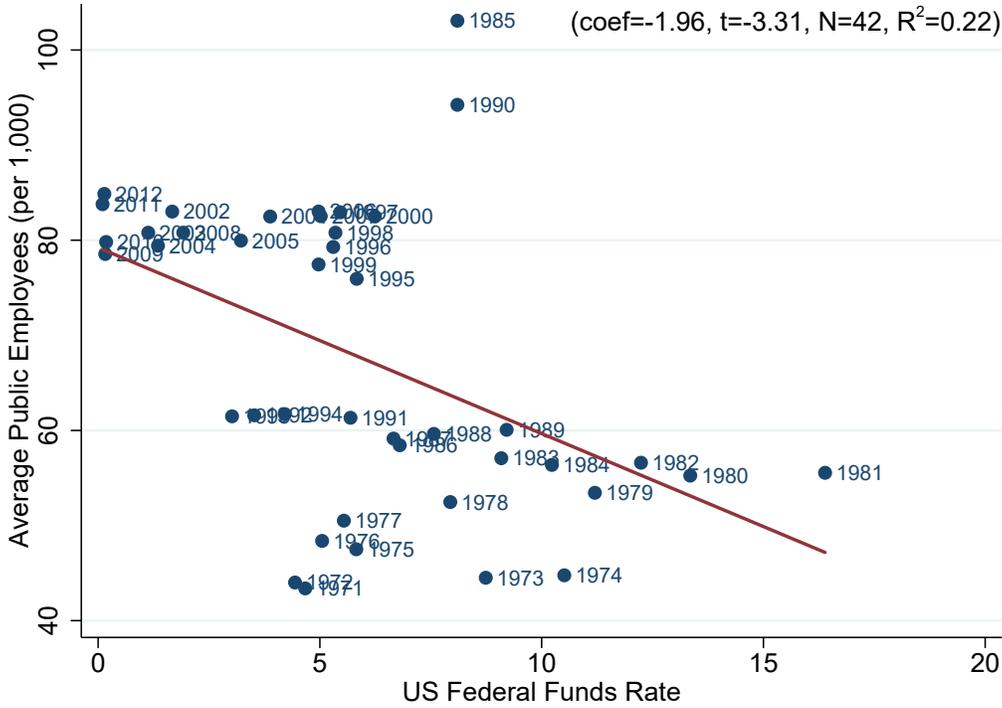


Figure A3: US Federal Funds Rate and Public Employment in the Developing World since 1970

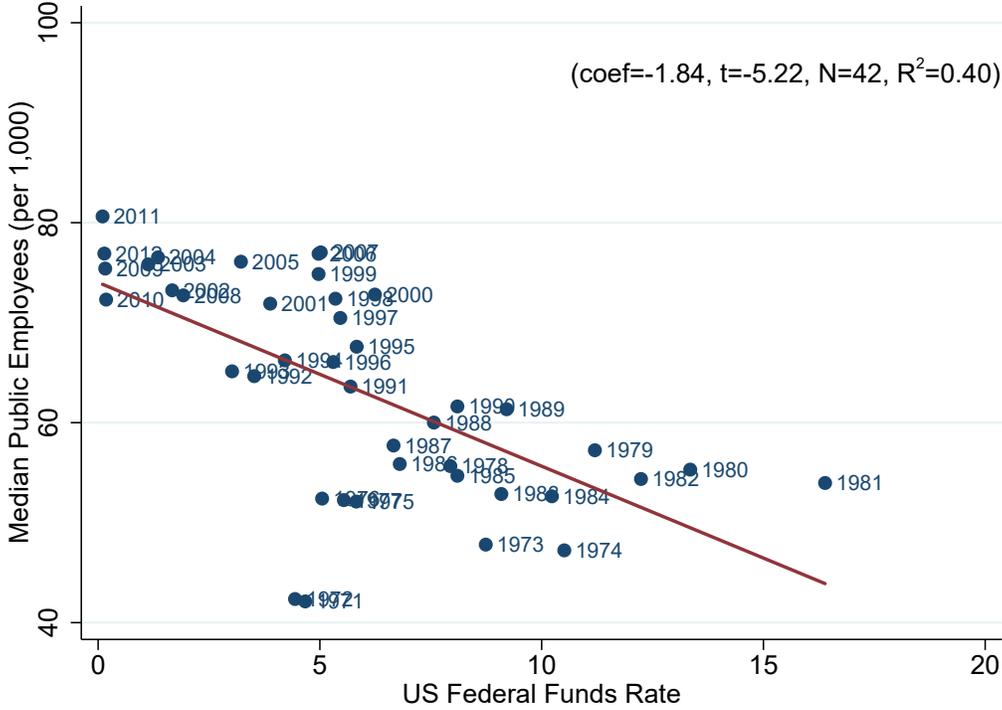


Figure A4: US Federal Funds Rate and Changes in Median Public Employment

