

Patronage by Credit: International Sources of Patronage Spending in Developing Countries*

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Abstract

To what extent do international financial fluctuations influence patronage politics in developing countries? While many scholars have analyzed the sources of patronage and how it can be detrimental for both economic development and democracy, patronage politics has been analyzed as a purely domestic phenomenon. This ignores, however, the consequences of international markets fluctuations, and in particular, how they may impact the financial resources available to a politician. In this paper, I argue that patronage activities can be funded by borrowing funds from the credit market, and consequently, international financial markets exert an indirect influence on patronage politics. I test this argument by examining the effects of the plausibly exogenous U.S. Federal Reserve policy on patronage policies at the subnational level in Argentina and Mexico. Evidence shows that (i) politicians use public debt to fund their public employment spending, and that (ii) the extent to which they are able to do so is influenced by the international financial market. Substantively, a 1 percentage point decrease in the Fed interest rate leads to a 3.6% [95% CI: 1.4 - 5.8] increase in public employment spending in Argentina and a 2% [0.7 - 3.4] increase in Mexico. Finally, I find no significant results when analyzing a placebo test on public goods spending.

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“The U.S. should worry about the effects of its policies on the rest of the world.”

– Raghuram Rajan, Reserve Bank of India Governor

“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.”

– Ben Bernanke, Former chairman of the Federal Reserve

1 Introduction

That international economic conditions have a direct impact on domestic politics is nothing but an incontrovertible claim. 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 inducing new preferences and political coalitions (e.g., Rogowski, 1987; Keohane and Milner, 1996) to triggering regime change (e.g., 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). These claims have been challenged and the explanations for the causal link remain contested (Kim, 2007). 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.

Office oriented politicians who face societal pressures will seek to implement distributive policies to construct the base of their political support. Facing periods of booms and busts, these politicians may encounter new opportunities and challenges in securing such base support and in implementing their policies. Despite inefficiencies, these policies often take the form of targeted redistribution, particularly in developing countries. That is, politi-

cians engage in patronage politics, opting out from policy performance in the provision of public goods or programmatic commitments.¹ 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 (e.g., [Alesina, Baqir, and Easterly, 2000](#); [Stokes et al., 2013](#)). In contrast, supply-side accounts explore factors constraining or enabling politicians to engage in targeted allocations –such as partisan biases in the fiscal and electoral institutions that influence access to public resources (e.g. [Calvo and Murillo, 2004](#); [Remmer, 2007](#)).

However, the literature on the supply side of patronage politics has yet to carefully analyze the potential consequences of international markets fluctuations, and in particular, how they may impact the budget available to the politician. 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 multiplied by three New York City’s debt without modifying the tax rate ([Scott, 1969](#)). To the best of my knowledge, these considerations have been largely ignored in the literature.

In this paper, I bring together two claims: one, the notion that patronage activities can be funded by borrowing funds from the credit market, and two, the influence that international financial markets have on the extent of this patronage behavior. This causal channel provides yet another mechanism via which international economic conditions influence domestic politics, but one that has been underemphasized in existing discussions of patronage in developing countries. Here, I aim to fill this gap by examining the effects of the U.S. Federal Reserve policy on the extent of patronage policies in developing countries.

The Federal Reserve statutory objectives for monetary policy involved maximum employ-

¹In such a patronage-prone context, there exist conditions which might still induce politicians to opt out of it ([Weitz-Shapiro, 2012](#)).

ment, stable prices, and moderate long-term interest rates. That is, the decision making process is focused on the U.S. economy, leaving aside considerations of how it might impact other economies. Indeed, the external effect of Fed policies has caused worries in emerging economies. India's central bank Governor, 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."² For the purpose of this paper, I leverage the exogeneity of U.S. monetary policy to identify its influence. Asset demand theory states that changes in U.S. interest rate influence the attractiveness of other assets, inducing investors to adjust their portfolios accordingly. For instance, a decrease in the Fed rate may induce new flows of money into other assets, including developing countries. There, politicians who seek to maximize the odds of staying in office, might take advantage of these new credit opportunities and increase their available budget to fund their policies. Since I am focusing on targeted redistribution, I refer to this phenomena as *patronage by credit*. Given this logic, the main hypothesis presented here is that decreases in federal funds rate from the U.S. Federal Reserve increase the extent of patronage behavior in the developing world. Complementing it, I also hypothesize that the underlying mechanism is given by public debt.

I test these claims examining the subnational politics of Argentina and Mexico. The choice of countries is dictated by the vast domestic patronage literature around them, and also by the specific data availability that would provide particular leverage for testing particular claims. Moreover, there are additional reasons for relying on within country analyses. First, important 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 are 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). Second, it allows to account for subnational politics, which are particularly relevant in federal systems –such as Argentina and Mexico. By extending the analysis to two different polities, this paper responds to one of the research

²<http://www.bloomberg.com/news/2014-01-30/rajan-warns-of-global-policy-breakdown-as-emerging-markets-slide.html> Last accessed: March, 2014.

challenges noted by [Golden and Min \(2013\)](#): to maintain data precision while also expand the number of cases analyzed –increasing confidence in the external validity of the results.

Empirically, evidence from public employment policy supports the arguments of this paper. The Fed interest rate is negatively associated with public employment levels and expenditures in Argentina and Mexico. A decrease in the Fed interest rate of 1 percentage point corresponds to a 1.3% [95% CI: 0.03 - 2.2] increase in the Argentine level of public employees per 1000 habitants. The same 1 percentage point decrease in the Fed rate corresponds to a 3.6% [1.4 - 5.8] increase in spending in Argentina and a 2% [0.7 - 3.4] increase in Mexico. Moreover, this analysis is complemented by instrumental variable estimations where I further test the purported causal path going from Fed interest rates, to public debt, to patronage politics. The evidence strongly support my claims. As a final placebo test, I use public good spending available from Mexico and replicate the analyses. In this case, I find no significant results in a battery of public goods outcomes, increasing the confidence that the previous results are not spurious, but strong evidence of the “patronage by credit” mechanism purported here.

This paper contributes to the literature 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 U.S. Federal Reserve rates. Third, it relies on subnational analysis from two developing countries, thus bringing together both micro- and macro-oriented evidence. Finally, these insights shed light on the consequences of international finance, particularly demonstrating how domestic politics in the U.S. and its Federal Reserve can, via the international market, affect domestic politics in developing countries. This suggests ways in which the study of patronage politics may enhance our understanding of international political economy, and vice versa.

The rest of the paper is organized as follows. The next section expands on the logic of my argument. Then, the research design is described. The empirical strategy and results are presented afterwards. Finally, the closing section offers some concluding remarks and discuss

avenues for further research.

2 The Sources of Patronage Spending

Patronage politics are detrimental to democratic accountability. The citizen-politician linkages are based on direct exchange of political support in exchange of an expected flow of targeted benefits, instead giving rise to a “perverse accountability” (Stokes, 2005). Moreover, such patronage-ridden systems have also negative implications for economic growth and prospects of economic reform (Kitschelt and Wilkinson, 2007). Yet, it is a widespread phenomenon, that spans across continents and development levels, from the U.S to Italy to Argentina to Malaysia. Given both its negative implications and extensive presence, the study of patronage politics has received particular attention from scholars.

On the one hand, patronage behavior is accounted by a demand-side explanation. 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. On the other hand, the decision to engage in patronage behavior is also a strategic choice made by politicians. Supply-side explanations emphasize mechanisms via which such political exchange might be an optimal strategy or not (Calvo and Murillo, 2004; Magaloni, Diaz-Cayeros, and Estevez, 2007; Weitz-Shapiro, 2012). A burgeoning formal literature has carefully modeled both incentives and constraints together. Here, the emphasis is put on the potential commitment problems, and thus, understanding the conditions under which patronage behavior is indeed self-enforcing (Robinson and Verdier, 2013; Gallego, forthcoming).

Yet the literature on patronage spending leaves some crucial questions unanswered. Chief among them: How do politicians internalize international macroeconomic shocks into their budget constraints, and thus, into their patronage spending? Given the levels of trade and financial openness in the world, ignoring the international sources of patronage spending represents a shortcoming in this literature. The section describes the argument of this paper, which aims to shed light on this mechanism.

3 The International Sources of Patronage Spending

In this section I present the building blocks of my argument. Three key actors are involved. First, the U.S. Federal Reserve, which represents the source of international financial influence. Second, investors, who react to the Fed's policy and are willing to include in their portfolios public debt from developing countries. Third, local politicians, who by being office oriented may engage in targeted redistribution and might borrow funds from the credit market to do so. Each of them is briefly described below.

3.1 Building Blocks

The U.S. Federal Reserve. 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 Fed are set as follows:

The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall 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.

The objectives of 'maximum employment' and 'stable prices' are usually known as the Fed's dual mandate. Despite criticism, Federal Reserve authorities emphasize that their monetary policy focuses on the U.S. economy and should not take into account how it may impact other economies, which is particularly relevant for economies in the developing world. Nonetheless, international economic theory has clear predictions for the short run effects of the Fed's monetary policy. Take for instance, a decrease in the Fed interest rate. This has a direct impact on expected returns on some assets, inducing investors to (re)adjust their investments.

Investors. Investors build up their portfolios based on the expected returns of an asset, its riskiness, and its liquidity. By the same token, investors react to changes in the U.S. Federal policy by (re)adjusting their investment portfolios. This is because changes in the interest rate in the U.S. money market influence the expected returns of some assets, making some more

attractive than others. Take for instance a decrease in the Fed interest rate. By readjusting the new risk-and-return balance, money might flow in to places it would not have gone otherwise.

This represents a market opportunity for politicians eager to increase their resources, which leads us to the third key agent of the argument.

Politicians. A vast literature shows how political agents use their control over government resources to improve their odds of remaining in office (e.g., [Bueno de Mesquita et al., 2003](#)). Key to this goal is the use of policies that link the utility of a voter to politician's success. This logic is at the core of redistributive politics. Recent research explicitly modeled the notion of redistributive politics as an exchange relationship. [Robinson and Verdier \(2013\)](#) point out a two-sided credibility problem where both politicians and voters might wish to commit to actions that are not ex post optimal. They argue that this problem is best solved by making use of public employment offers. This is because the distribution of public jobs is credible, targeted, and reversible. Hence, they formally support the vast literature that uses public employment to analyze patronage politics (e.g., [Calvo and Murillo, 2004](#); [Remmer, 2007](#)). Hence, to fully understand patronage politics one needs to understand how political agents use their available resources to support the public employment sector.

In reality, the resources available to a local politicians are a function of two sources: one, funds raised by collecting taxes, and two, funds obtained by borrowing from the credit market. While the classic way to think about a politician's budget is to think about the tax she collects from productive activities, politicians have often embraced opportunities to borrow funds from the credit market to enhance their reelection probability ([Aghion and Bolton, 1990](#); [Persson and Tabellini, 2002](#)).

3.2 The Causal Path

Building upon the previous section, the central argument of this paper is straightforward. The U.S. Federal reserve changes its monetary policy for domestic concerns. However, this induce investors to make new decisions. They readjust their portfolios and, consequently,

money might flow in or out of the U.S. Take a drop in the Federal funds rate. When investors face decreasing rates in the U.S., foreign assets become more attractive, and their investments will flow into those more attractive places. This is nothing but a funding opportunity for office seeking politicians, particularly in developing countries. Looking to secure their office, local politicians embrace the new opportunities in the credit market to increase their resources. These newly available resources are strategically spent in patronage activities, here defined as public employment spending.

3.3 Testable Hypotheses

Taking all into consideration, I hypothesize the following:

Hypothesis 1 (Patronage by credit). *Low federal funds rates from the U.S. Federal Reserve increase foreign public employment spending.*

Since the purported mechanism relies on public debt borrowing, I also posit the following complementary hypothesis:

Hypothesis 2 (Public Debt Mechanism). *Low federal funds rates from the U.S. Federal Reserve increase the levels of public debt, which in turns increase public employment spending.*

In the next section, I test these hypothesis examining patronage outcomes at the subnational level in both Argentina and Mexico.

4 Testing the Argument

Below, I proceed to test the arguments presented above. To do so, I rely on within country analyses of Argentina and Mexico. These two countries share a mix of qualities that makes them suitable for this analysis. On the one hand, they have strong patronage, and for that matter, paternalistic political tradition. And at the same time, they have a long history of

public debt borrowing. On the other hand, data availability is such that provides enough leverage to test my hypothesis while also analyze a set of smoking gun cases.

Overall, I test Hypothesis 1 using standard OLS methods where patronage behavior is the outcome variable and the Fed interest rate is the main independent variable. In contrast, to test Hypothesis 2, I rely on instrumental variables (IV) estimation. Here, I instrument public debt by the Fed rate (first stage), and then analyze the impact of debt on patronage behavior. I use this to provide evidence on the hypothesized casual path presented here. It is well known that the validity of the IV estimation relies on a stronger set of assumptions. However, the U.S. Federal Bank decision to shift rates is arguably orthogonal to the existence of patronage in the Argentine and Mexican provinces.

In the first part of the analysis, I focus on evidence from Argentine provinces from 1987 to 2011. I use data on both the number of public employees and their wage to bring new evidence on how politicians allocate their resources.

In the second part, I analyze the public employment spending from Mexican states from 1980 to 2011. In this case, not only I also find support for my argument, but I provide smoking gun evidence of its logic. Using a battery of public good outcomes, I show that the Fed interest and public debt have no significant effect on public good spending. This addresses the concern that my results are driven by spurious cycles in spending.

5 International Finance and Types of Patronage Politics: Evidence from Argentina

5.1 Data

The data available in Argentina allows me to contrast two similar, albeit theoretically different outcomes: first, the number of public employees per province, and second, the mean public sector wage.

I mostly rely on data from the “Dirección Nacional de Coordinación Fiscal con las Provincias,” hosted by the *Ministerio de Economía y Finanzas Públicas* which shows indicators by

province.³ I retrieved public employment data from 1987 through 2011 and debt stocks from 1996 through 2011. In the analyses below, I use the natural logarithm of the number of public employments per 1000 habitants and the expenditure level per employee as proxies for *patronage*, and the natural logarithm of consolidated total debt stock as my *credit* variable.

As argued before, the main explanatory variable should capture the potential influence of international finance. For this, I use the U.S. Federal Bank funds rate.⁴ The data is constructed by averaging the daily value over the course of the year and was obtained from the Board of Governors of the Federal Reserve System.⁵

I also add a series of control variables. I collected population data from the aforementioned Ministerio de Economía y Finanzas Públicas and Gross Geographic Product (GGP) from “Centro de Estudios para la Producción” hosted by the *Ministerio de Industria*.⁶ I complement this with information about party affiliation of the province Governor and the National Executive. Moreover, I control for election year (which include both mid-term and presidential elections) and also include lags and leads of the the Presidential election to control for political budget cycles (PBCs). I also control for partisan affiliation to the most relevant parties, namely *Partido Justicialista* (PJ or Peronism) and *Unión Cívica Radical* (UCR).⁷ Hence, the baseline category for Governors are other parties while for the national executive is UCR.

Finally, I also include crisis data from [Reinhart and Rogoff \(2009\)](#). While this is not measured at the province level but at national level, it covers the degree of economic hardship in the country. For instance, it controls for the ‘Corralito’ crisis in December 2001. I use the “index” versions which sums indicators for whether a given country-year has experienced a given type of crisis.⁸ This allows for a broad consideration of economic problems and is standard in

³<http://www2.mecon.gov.ar/hacienda/dncfp/provincial.html> Last accessed March, 2014. Note that all monetary values are expressed in constant 1993 Argentine pesos.

⁴While the federal funds rate can be read as a short term rate, at the beginning of the yield curve, the results are the substantially the same if I use different rates such as the 5 or 10-year Treasury constant maturity .

⁵<http://www.federalreserve.gov/releases/h15/data.htm>. Last accessed in March, 2014.

⁶<http://www.industria.gob.ar/cep/informes-y-estadisticas/provinciales/> Last accessed March, 2014.

⁷I use the UCR label broadly since I code ‘Alianza’, the coalition between UCR and FrePaSo during 1997-2001, as UCR.

⁸These type are banking, currency, domestic default, external default, inflation, and stock market

the literature (e.g., [Davis and Pelc, 2013](#)).

Summary statistics are displayed in the Appendix (Table [A1](#)).

5.2 Reduced Form

To analyze the relationship between international finance and patronage behavior in the Argentine provinces, first I rely on the following OLS estimation:

$$Patronage_{it} = \beta Fed_t + \mathbf{X}'_{it}\gamma + \alpha_i + \epsilon_{it} \quad (1)$$

where $Patronage_{it}$ represents two outcome variables of interest, which proxy for the extent of patronage: (i) public employees and (ii) expenditure per employee. The direct relation of interest is between these measures of patronage and the Fed interest rate. The vector \mathbf{X} represents the battery of controls described in the previous section. Note that for a complete control of the state-federal relation, I interact partisan variables to accounting for times when, for instance, a Peronist governor is in power along with a Peronist president. Moreover, by employing province fixed effects (α_i) I control for time-invariant province characteristics that may be correlated with socioeconomic conditions and patronage outcomes. Finally, the error term ϵ_{it} is allowed to be arbitrarily correlated within provinces but independent otherwise. That is, I use cluster robust standard errors at the province level.⁹

5.2.1 Results

Results from the reduced form estimation are shown in [Table 1](#). The first three models analyze how the Federal funds rate influence the number of public employees and the last three focus on the expenditure per employee. For each case, the first column shows the results only using economic and demographic controls. Then, I include party affiliation of the Governor

crisis. Hence, the crisis index ranges from 0 to 6.

⁹Given the low number of provinces (i.e., clusters), I replicated the analysis using other specifications such nonparametric bootstrap and jackknife resampling (not shown). If anything, standard errors become more precise with these resampling schemes.

and the National Executive and its interaction. Finally, control for political budget cycles, I add dummies for election years dummy as well as its lag and lead.

[Table 1 about here.]

The evidence supports Hypothesis 1. The Fed interest rate is negatively associated with public employment levels and its expenditures. Thus, when the Fed decreases its rates, and money becomes available, politicians take advantage of that and use it for political purposes. This finding is not only statistically significant, but also of substantial magnitudes. A decrease in the Fed interest rate of 1 point corresponds to an increase of in public public employee per 1000 habitants of 1.3% [95% CI: 0.03 - 2.2]. This number may not sound large enough, but take for instance the Province of Buenos Aires. Here, it would imply an increase of 5,870 [95% CI: 1,800 - 9,970] public employees. The same decrease in the Fed rate corresponds to an increase in per employee spending of 3.6% [1.4 - 5.8].

These two findings provide strong evidence that politicians are, on average, engaging in two types of patronage. On the one hand, they increase their network of direct influence by hiring more employees. On the other, they reward these members with greater expenditure. The notion that politicians need not to engage in mutually exclusive forms of redistribution is referred in the literature as portfolio diversification (Magaloni, Diaz-Cayeros, and Estevez, 2007). While this argument has been applied to the decision of engaging in public goods versus patronage style distribution, I show that it also fits the logic behind the two types of patronage behavior presented here.

5.3 Instrumental Variable Estimation

The previous section showed evidence supporting the relation between Fed funds rate and patronage politics. This section aims to complement that by providing explicit evidence of the hypothesized mechanism. That is, evidence supporting the path between U.S. interest rate, domestic public debt, and patronage. To do so, I rely on the following instrumental variable estimation:

$$Debt_{it} = \lambda Fed_t + \mathbf{X}'_{it}\nu + \varphi_i + \eta_{it} \quad (2)$$

$$Patronage_{it} = \beta \widehat{Debt}_{it} + \mathbf{X}'_{it}\gamma + \alpha_i + \epsilon_{it} \quad (3)$$

where Equation (2) represents the first stage –debt is instrumented by the Fed variable– and Equation (3) describes the outcome of interest, namely patronage. Using this specification the sample size decreases slightly due to the availability of public debt data which starts in 1996. As before, I use a battery of control variables, province fixed effects, and rely on nonparametric bootstrap to get clustered standard errors at the province level.

5.3.1 Results

Results are displayed in Table 2 just as they were in Table 1. They strongly support Hypothesis 2. One can clearly see the purported mechanism at play: The interests rate set by the Federal Reserve are strongly and negatively associated with domestic public debt, where public debt increases the extent of patronage politics. This relationship is extremely consistent, and the F-Tests, ranging from 33.92 to 39.51, points to the strength of the instrumentation (Staiger and Stock, 1997). In the second stage, the evidence supports the mechanism showing that debt has a direct positive effect on public administrative spending.

[Table 2 about here.]

6 International Finance and Types of Redistribution: Evidence from Mexico

The information available at the state level in Mexico is rich enough for the main tests: first, replicating the patronage estimation and analyze whether the results hold, and second, analyzing the same relationship between the decisions made by the Federal Reserve and other redistributive outcomes (i.e., public goods provision). The latter constitute a set of placebo

tests. If redistributive policies, both patronage and public goods provision, are following the same pattern then, the main results might be simply picking up other economic and political trends. However, if the only type of redistribution supported by the data is patronage, we can increase confidence in the findings.

6.1 Data

As before, I proxy patronage by spendings related to public employment. I use the natural logarithm of *public administrative spending* from 1980 to 2011, retrieved from the Centro de Estudios de las Finanzas Públicas (CEFP) maintained by the Cámara de Diputados.¹⁰ Public administrative spending covers public employment spending (referred to as ‘personal services’) and miscellaneous administrative spending such as office supplies. Ideally, I would like to use ‘personal services’ by itself. Unfortunately, data available with information for each category limits the time coverage. However, in the sample, ‘personal services’ corresponds on average to approximately 80% of public administrative spending. Hence, acknowledging some noise in this measure, I use it as my main dependent variable for patronage.

To look at different outcomes, I collect a series of public goods measures from the Sistema Estatal y Municipal de Bases de Datos (SIMBAD) hosted by the Instituto Nacional de Estadísticas y Geografía (INEGI).¹¹ They cover a wide range of areas, such as social investment, urbanization, health, and education. Regarding social investment I analyze public investment exercised in social development, economic development, and amount of the sale of reconstituted milk by the social supply program of LICONSA. Regarding urbanization, I look at the investment exercised in urbanization and environment as well as the number of households connected to water pipelines. Next, when looking at health services, I analyze the number of people who receive health services in public institutions under social security programs, and also look at the number of physicians per medical unit. Finally, as a measure for investment in education I analyze the number of school classrooms per capita (Ln).

¹⁰http://www.cefp.gob.mx/Pub_Ingresos_Estadisticas.htm. Last Accessed: March 2014. All monetary values are expressed in constant 1993 Mexican pesos.

¹¹<http://sc.inegi.org.mx/sistemas/cobdem/contenido.jsp?rf=false&solicitud=> Last Accessed: March, 2014

I also retrieve data about the second key variable, public debt stocks, from CEFP. As before, I complement these with the third key variable, namely Fed interests rates.

The series of controls included is similar to the previous analysis. CEFP also provides data on GDP and population by state and. I also control for partisan affiliation of the executive at the state and federal level as well as state election years dummies. I include both its lag and its lead to account for potential PBCs. As a final control, I include the Mexican’s yearly economic crisis index from [Reinhart and Rogoff \(2009\)](#).

Summary statistics are displayed in the Appendix (Table [A2](#)).

6.2 Main Results: Patronage Distribution

This section discuss the evidence regarding the link between international finance and patronage policies in the context of Mexico. For consistency, I replicate the structure of the analysis from the previous section. Thus, I rely on the following OLS estimation

$$Patronage_{it} = \beta Fed_t + \mathbf{X}'_{it}\gamma + \alpha_i + \epsilon_{it} \quad (4)$$

and IV estimation where Equation (5) represents the first stage –debt is instrumented by the Fed variable– and Equation (6) describes the outcome of interest

$$Debt_{it} = \lambda Fed_t + \mathbf{X}'_{it}\nu + \varphi_i + \eta_{it} \quad (5)$$

$$Patronage_{it} = \beta \widehat{Debt}_{it} + \mathbf{X}'_{it}\gamma + \alpha_i + \epsilon_{it} \quad (6)$$

where $Patronage_{it}$ represents the outcome variables of interest, which is proxied by the natural logarithm of public administrative spending. The main variable of interest is the Federal Reserve funds rate, and for the IV estimation, the natural logarithm of public debt stocks. The vector \mathbf{X} represents the battery of controls described in the previous section. Note that for a complete control of the state-federal relation, I interact partisan variables to accounting for

times when, for instance, a PRI governor is in power along with a PRI president. Moreover, by employing province fixed effects (α_i) I control for time-invariant province characteristics that may be correlated with socioeconomic conditions and patronage outcomes. Finally, the error term ϵ_{it} is allowed to be arbitrarily correlated within provinces but independent otherwise. That is, I use cluster robust standard errors at the province level.

Results are shown in Table 3. Through columns 1 through 3, I estimate an OLS model as Equation (4). Columns 4 through 6 estimate the IV specification, following in Equation (6) and Equation (5).

[Table 3 about here.]

The OLS results strongly support Hypothesis 1. Lower Fed interest rate are associated with increases in patronage spending, and this relation is highly statistically significant. Substantially, a 1 percentage point decrease in the Fed funds rate corresponds to a 2% [0.7 - 3.4] increase in the expected public administrative spending.

By the same token, and even with a reduced sample due to limitations in the public debt data available, the findings of the IV estimations support Hypothesis 2. Federal funds directly influence state debt levels. This relationship is extremely consistent, and the F-Tests once again suggest the strength of the instrumentation (Staiger and Stock, 1997). In the second stage, the evidence supports the mechanism showing that debt has a direct positive effect on public administrative spending.

6.3 Smoking Guns: Public Goods Spending

While the relation between patronage spending and internationally induced public debt is strong, one might argue that the ‘patronage spending’ is only but one type of spending. A concern is that the previous results are simply picking up an overall spending increase that occurs when politicians enjoy a bigger budget. The purpose of this section is to address this concern by looking at a set of public good related spending. If the same relationship is found, then the ‘patronage spending’ is likely to be part of an overall increased spending.

If, however, public good spending is not influenced in the same way as patronage spending, then one can be more confident about the argument of this paper. Moreover, [Robinson and Verdier \(2013\)](#) argue that the patronage politics should also result in the underprovision of investment or public goods spending. This is essentially a way to make patronage policies even more attractive to voters.

I analyze a set of eight different outcomes, the first four monetary and the last four non-monetary, as follows: (1) Public investment exercised in social development (Ln), (2) Public investment pursued in economic development, (3) Public investment exercised in urbanization and environment (Ln), (4) Amount of the sale of reconstituted milk by the social supply program of LICONSA (Ln), (5) Household Water Pipelines Connections (Ln), (6) Social Security users per 1000 habitants (Ln), (7) Physicians per Medical Unit (Ln), and (8) Total number of school classrooms per capita (Ln). OLS results are shown in [Table 4](#) and IV results in [Table 5](#).¹²

[Table 4 about here.]

[Table 5 about here.]

Across the board, I find no statistically significant relation between Fed interest rate and public goods provision. Regarding the IV results, while the first stage is statistically significant like the previous section, there is no supporting evidence linking public debt with the provision of these particular public goods.

Interpretation of these results should be taken with caution given the reduced sample size. (Due to data availability, the time frame covered here is only between 1994 and 2011.) Nonetheless, even in this reduced time window results from the previous section remain unchanged (see [Appendix, Table A3](#)). Taking all into consideration, these findings provide more confidence to the ‘patronage spending’ argument.

¹²For simplicity, I show the estimation using only socioeconomic controls. Results do not change when I add the controls from the previous section.

7 Concluding Remarks

Is there a link between international financial fluctuations and the patronage behavior? Is it the case that decisions made by Ben Bernanke influenced the patronage behavior in places such as Oaxaca in Mexico or La Rioja in Argentina? In this paper, I bring new evidence that answers positively to those questions. By explicitly incorporating the notion that politicians embrace borrowing opportunities in the credit market, I am able to link fluctuations in the U.S. Federal Reserve interest rate and patronage behavior in within country analyses –here, the subnational politics of Argentina and Mexico.

In short, empirical evidence strongly supports the ‘patronage by credit’ argument. Not only politicians use public debt to fund their public employment spending, but the extent to which they are able to do so is influenced by the international financial market. Based on the results presented here, a 1 percentage point decrease in the Fed rate corresponds to a 3.6% [95% CI: 1.4 - 5.8] increase in public employment spending in Argentina and a 2% [0.7 - 3.4] increase in Mexico. In contrast, no statistically significant effects are found when instead of looking at patronage outcomes, I analyze public good spending. Ironically, by implementing monetary policy focusing on U.S. employment, the Federal Reserve is also, indirectly, influencing the employment market in developing countries.

Overall, these findings can be linked to other strands of the literature. For instance, the notion that politicians will use newly available resources to their electoral advantage is nothing but new. Indeed, it is a recurrent theme of research addressing the so called “resource curse” ([Ross, 1999](#)) the pervasive effects of foreign aid ([Bueno de Mesquita and Smith, 2009](#)), and the potential negative consequences of price commodity shocks ([Dube and Vargas, 2013](#)). However, the patronage literature has largely ignored its potential international sources. At the same time, the findings here also join the debate of the domestic consequences of globalization. Given the well known pernicious consequences of patronage politics to democratic quality and accountability (for a review see [Hicken, 2011](#)) the channel put forward here represents an indirect channel via which international market forces influence the political institutions in the developing world.

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Table 1: **Types of Patronage in Argentina: 1987-2011 (OLS)**

	Public Employees (Ln)			Expenditure per Public Employee (Ln)		
	(1)	(2)	(3)	(4)	(5)	(6)
Fed interest rate	-0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)	-0.06*** (0.01)	-0.04** (0.02)	-0.04* (0.02)
Population (Ln)	-0.45* (0.23)	-0.47* (0.23)	-0.45* (0.25)	0.18 (0.63)	0.32 (0.63)	0.50 (0.65)
GGP (Ln)	0.27*** (0.09)	0.27*** (0.09)	0.27** (0.10)	1.22*** (0.32)	1.18*** (0.31)	1.17*** (0.32)
Economic Crisis	-0.00 (0.00)	-0.01 (0.00)	-0.01 (0.01)	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.02)
PJ Governor		0.02 (0.04)	0.01 (0.04)		0.08 (0.16)	0.07 (0.15)
PJ President		-0.01 (0.04)	-0.01 (0.04)		0.14 (0.13)	0.18 (0.13)
PJ Gov \times PJ Pres		0.00 (0.05)	0.01 (0.05)		-0.02 (0.15)	-0.03 (0.15)
UCR Governor		0.01 (0.04)	0.01 (0.04)		-0.14 (0.14)	-0.15 (0.14)
UCR Gov \times UCR Pres		0.01 (0.05)	0.01 (0.05)		0.08 (0.15)	0.09 (0.14)
Election _{t-1}			-0.01 (0.01)			-0.07*** (0.02)
Election			-0.00 (0.01)			-0.10** (0.04)
Election _{t+1}			0.00 (0.01)			-0.07* (0.04)
Province FE	✓	✓	✓	✓	✓	✓
N	375	375	375	375	375	375
$\hat{\sigma}$	0.09	0.09	0.09	0.30	0.30	0.29

Clustered robust standard errors at the province level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Types of Patronage in Argentina: 1996-2011 (IV)

	Public Employees (Ln)			Expenditure per Public Employee (Ln)		
	(1)	(2)	(3)	(4)	(5)	(6)
Debt (Ln)	0.08*** (0.03)	0.09*** (0.03)	0.09*** (0.03)	0.43*** (0.10)	0.45*** (0.12)	0.41*** (0.11)
Population (Ln)	-0.75*** (0.25)	-0.81*** (0.24)	-0.72*** (0.24)	-1.19 (0.97)	-1.27 (0.99)	-0.88 (0.91)
GGP (Ln)	0.24*** (0.07)	0.23*** (0.07)	0.23*** (0.07)	1.31*** (0.26)	1.31*** (0.26)	1.31*** (0.27)
Economic Crisis	-0.01** (0.01)	-0.02** (0.01)	-0.01** (0.01)	-0.08*** (0.02)	-0.09*** (0.02)	-0.08*** (0.03)
PJ Governor		0.00 (0.05)	0.00 (0.05)		0.02 (0.14)	0.02 (0.14)
PJ President		-0.02 (0.05)	-0.02 (0.05)		0.13 (0.09)	0.17* (0.09)
PJ Gov × PJ Pres		0.01 (0.06)	0.01 (0.06)		-0.16 (0.10)	-0.16 (0.10)
UCR Governor		0.01 (0.04)	0.01 (0.04)		-0.12 (0.19)	-0.12 (0.18)
UCR Gov × UCR Pres		0.01 (0.06)	0.01 (0.06)		0.23* (0.12)	0.22* (0.12)
Election _{t-1}			-0.02*** (0.01)			-0.04** (0.02)
Election			-0.03*** (0.01)			-0.10*** (0.03)
Election _{t+1}			-0.01** (0.01)			-0.05** (0.02)
First Stage						
Fed interest rate	-0.12*** (0.02)	-0.12*** (0.02)	-0.12** (0.02)	-0.12*** (0.02)	-0.12*** (0.02)	-0.12*** (0.02)
F-Test	39.51	33.92	35.45	39.51	33.92	35.45
Province FE	✓	✓	✓	✓	✓	✓
N	301	301	301	301	301	301
$\hat{\sigma}$	0.07	0.07	0.07	0.25	0.26	0.24

Clustered robust standard errors at the province level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Patronage Spending in Mexico: 1980-2011

	Public Administrative Spending (Ln)					
	OLS			IV		
	(1)	(2)	(3)	(4)	(5)	(6)
Fed interest rate	-0.02*** (0.01)	-0.02*** (0.01)	-0.02*** (0.01)			
Debt (Ln)				0.16*** (0.05)	0.19*** (0.07)	0.20*** (0.08)
GDP (Ln)	0.04 (0.16)	-0.07 (0.15)	-0.07 (0.16)	-0.02 (0.33)	-0.03 (0.33)	-0.06 (0.35)
Population (Ln)	0.10 (0.28)	0.03 (0.24)	0.04 (0.25)	-0.24 (0.55)	-0.34 (0.54)	-0.34 (0.56)
Economic Crisis	-0.02** (0.01)	0.02** (0.01)	0.02** (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.02 (0.01)
PAN Governor		-0.02 (0.13)	-0.02 (0.13)		-0.05 (0.12)	-0.05 (0.12)
PAN Gov × PAN Pres		0.05 (0.13)	0.05 (0.12)		0.14 (0.11)	0.15 (0.11)
PRI Governor		0.11 (0.15)	0.11 (0.15)		0.12 (0.10)	0.12 (0.10)
PRI President		0.01 (0.11)	0.02 (0.11)		0.22** (0.09)	0.25** (0.10)
PRI Gov × PRI Pres		-0.30** (0.12)	-0.30** (0.12)		-0.24* (0.13)	-0.24* (0.13)
Election _{t-1}			0.00 (0.01)			-0.04** (0.02)
Election Year			-0.01 (0.01)			-0.01 (0.03)
Election _{t+1}			-0.01 (0.01)			-0.04* (0.02)
First Stage						
Fed interest rate				-0.12*** (0.03)	-0.09*** (0.02)	-0.09*** (0.02)
F-Test				24.04	20.92	18.73
State FE	✓	✓	✓	✓	✓	✓
N	992	917	905	558	554	554
$\hat{\sigma}$	0.23	0.21	0.22	0.23	0.24	0.24

Clustered robust standard errors at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: **Public Good Spending in Mexico: 1994-2011 (OLS)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fed interest rate	-0.08 (0.05)	-0.05 (0.05)	-0.05 (0.09)	0.00 (0.01)	0.01 (0.02)	0.01 (0.00)	-0.00 (0.00)	-0.01 (0.00)
GDP (Ln)	-0.34 (1.82)	-0.21 (2.08)	0.97 (1.76)	1.99*** (0.29)	0.54 (0.47)	0.25 (0.25)	0.42*** (0.15)	0.58** (0.24)
Population (Ln)	5.85** (2.84)	3.86 (3.04)	-1.14 (2.20)	-1.61** (0.71)	0.45 (1.07)	1.22** (0.46)	0.25 (0.26)	-0.27 (0.38)
Economic Crisis	-0.10 (0.09)	-0.03 (0.13)	-0.34** (0.15)	-0.23*** (0.01)	-0.00 (0.03)	-0.03*** (0.01)	0.00 (0.01)	0.02 (0.02)
State FE	✓	✓	✓	✓	✓	✓	✓	✓
N	403	405	401	540	494	530	540	360
$\hat{\sigma}$	1.55	1.70	2.43	0.31	0.64	0.21	0.13	0.26

Dependent variables: (1) Public investment exercised in social development (Ln), (2) Public investment pursued in economic development, (3) Public investment exercised in urbanization and environment (Ln), (4) Amount of the sale of reconstituted milk by the social supply program of LICONSA (Ln), (5) Household Water Pipelines Connections (Ln), (6) Social Security users per 1000 habitants (Ln), (7) Physicians per Medical Unit (Ln), (8) Total number of school classrooms per capita (Ln). Clustered robust standard errors at the state level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: **Public Good Spending in Mexico: 1994-2011 (IV)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Debt (Ln)	0.59 (0.36)	0.41 (0.39)	0.59 (0.65)	-0.02 (0.06)	-0.07 (0.16)	-0.05 (0.04)	0.02 (0.03)	0.05 (0.03)
GDP (Ln)	-1.95 (1.64)	-1.19 (2.10)	-0.65 (2.47)	2.00*** (0.26)	0.74 (0.81)	0.40* (0.21)	0.38* (0.20)	0.48** (0.22)
Population (Ln)	5.91** (2.71)	3.48 (2.90)	-0.95 (1.99)	-1.45** (0.63)	0.48 (0.96)	1.23*** (0.46)	0.20 (0.26)	-0.39 (0.39)
Economic Crisis	-0.11 (0.09)	-0.03 (0.12)	-0.36** (0.15)	-0.23*** (0.01)	0.00 (0.02)	-0.02** (0.01)	-0.00 (0.01)	0.02 (0.03)
First Stage								
Fed interest rate	-0.14*** (0.03)	-0.14** (0.03)	-0.14** (0.03)	-0.13*** (0.03)	-0.12*** (0.02)	-0.13*** (0.03)	-0.13*** (0.03)	-0.13*** (0.03)
F-Test	19.61	19.67	19.56	25.12	25.61	23.15	24.47	18.57
State FE	✓	✓	✓	✓	✓	✓	✓	✓
N	389	389	387	523	493	513	523	353
$\hat{\sigma}$	1.54	1.78	2.50	0.31	0.66	0.22	0.13	0.28

Dependent variables: (1) Public investment exercised in social development (Ln), (2) Public investment pursued in economic development, (3) Public investment exercised in urbanization and environment (Ln), (4) Amount of the sale of reconstituted milk by the social supply program of LICONSA (Ln), (5) Household Water Pipelines Connections (Ln), (6) Social Security users per 1000 habitants (Ln), (7) Physicians per Medical Unit (Ln), (8) Total number of school classrooms per capita (Ln). Clustered robust standard errors at the state level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$