Short-Term Politics, Long-Term Policy: Developing Institutions to Combat the Resource Curse

Iasmin Goes*

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Abstract

While some governments use natural resources for immediate political gain, others create transparent institutions that promote sustainable long-term development. What explains this variation? Using novel data for 13 Latin American countries between 1990 and 2019, I show that incumbents are more likely to restrict their own discretion over the extractive sector when public approval is high and political opposition is strong. When rulers are safe in their seats, they can use public funds for long-run developmental strategies, rather than for short-term political survival. But when there is a credible alternative, citizens can threaten to withhold support if the incumbent produces bad policy. The combination of high support and strong opposition provides space to implement long term-policy while generating enough short-term incentives to do so. These findings, illustrated by a case study of Mexico, suggest that a balance between job security and electoral risk drives resource-rich governments to adopt policies that – at least on paper – are more efficient in the long run.

Keywords: natural resources, extractive industries, electoral competition, institutional reform

*Research Fellow, Carlos III University of Madrid. Contact: `iasmin@utexas.edu`

1 Introduction

In May 2015, ExxonMobil announced a significant oil discovery off the coast of Guyana, with production scheduled to begin in January 2020. Ahead of production, President David Granger signed into law the Natural Resource Fund Act "to manage the natural resource wealth of Guyana for the present and future benefit of the people in an effective and efficient manner."[1] The law stipulates that resource wealth should be saved in a fund and managed in a transparent manner. Given that Guyana is one of the poorest countries in the Americas, with high unemployment rates and low levels of investment in education, concerns about the *future* benefit of its people are laudable, but surprising. After all, citizens have well-established preferences: they want high real income, high growth, low inflation, low unemployment, and are willing to punish any incumbent who fails to meet these expectations (Schultz, 1995). These pressures exist everywhere, but they are particularly salient in poor countries like Guyana, where 35 percent of the population lives below the poverty line.[2] Individuals living under scarcity have higher discount rates: they focus on immediate goals at the expense of future ones (Mullainathan and Shafir, 2013). In signing the Natural Resource Fund Act, the Guyanese government committed to saving most of its future oil revenue, instead of spending it immediately to meet citizens' pressing demands. As shown in Figure 1, Guyana is not alone: several nations have created formal institutions to promote long-term development through natural resource revenue. Under what conditions do states take up such commitments?

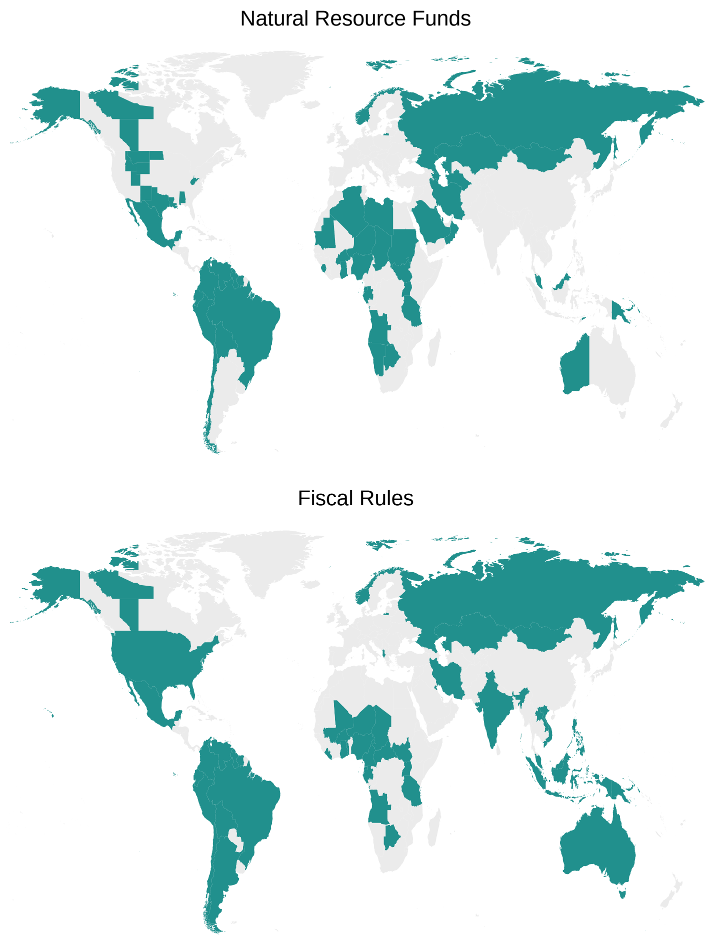
I argue that popular governments in contested environments are more likely to restrict their own discretion over natural resource revenue. Unpopular rulers need budgetary discretion to spend immediately, delivering broad benefits to secure public support for reelection. In contrast, rulers who are safe in their seats worry less about political survival: they can make decisions that are at odds with popular demands, adopting long-run developmental strategies rather than paying out short-term rents. Still, incumbents cannot be too confident: they must be held accountable by a credible opposition pressuring for public goods provision. Taken together, public support and political contestation provide space to implement long term-policy while generating enough short-term incentives to do so.

My argument is grounded in existing research. Wiens (2014, 203) suggests that rulers are more likely to provide public goods under two circumstances: when "the number of people on whom the ruler depends for support increases" and when "the credibility of the supporters' options for backing a leadership rival increases." I go one step further, operationalize these abstract concepts, and test these predictions empirically, using data on 13 Latin American nations that are rich in non-renewable resources (like oil, natural gas, and minerals). To do so, I introduce a novel dataset about the legal emergence of two formal institutions that constrain government discretion: natural resource funds and fiscal rules. In Guyana and elsewhere, natural resource funds are state-owned investment accounts that put resource revenue beyond the government's reach, while fiscal rules are multi-year numerical targets on fiscal policy (like how much to save, how much to spend, or how much to borrow). Together, resource funds and fiscal rules – often called "Special Fiscal Institutions" (SFI)

[1] Act No. 12 of 2019 – Natural Resource Fund Act, Article 3. 23 January 2019.

[2] Source: CIA World Factbook.

Figure 1: Countries With at Least One Special Fiscal Institution, as of 2020



This figure depicts all resource-rich countries with at least one natural resource fund (top) or one fiscal rule (bottom) as of December 2020. The figure also includes subnational measures – for example, resource funds and fiscal rules in the province of Alberta and the Northwest Territories, both in Canada.

by international organizations (e.g. Ossowski et al., 2008) – can mitigate the volatility of commodity prices and prolong the benefits of resource extraction, provided incumbents are prepared to pay a short-term political cost.

There is evidence that politically contested arenas produce larger quantities of public services, as incumbents fearing for their seats face a sense of urgency: they must deliver public goods to secure political support (Hobolt and Klemmensen, 2008; Lake and Baum, 2001). However, other studies indicate that competition has a countervailing effect on public services: it can *worsen* public goods provision by making legislative bargaining more difficult (Gottlieb and Kosec, 2019). Given these mixed findings, it is difficult to make predictions for resource-rich states, where political competition tends to be lower to begin with; after all, political elites with access to oil, gas, and mineral wealth often use these resources to strengthen their grip on power (Goldberg et al., 2008). My findings reconcile these seemingly disparate research agendas, showing that political opponents can push for public service delivery even in political arenas where one might expect to see limited contestation. Like Schuster (2020), I show that competition is a double-edged sword that can encourage or discourage reform, depending on the certainty of turnover.

This study speaks to an extensive literature linking natural resources to fiscal profligacy, rent-seeking behavior, and institutional failure, in what is called the resource curse (Ross, 2015). Resource wealth leads to a time inconsistency problem: it erodes the quality of institutions over the long run, but also increases the political capital of incumbents in the short run. The puzzle is not why the resource curse exists. Prioritizing tangible short-term benefits over uncertain future promises is a rational choice. The puzzle is why, despite all political benefits of increased current expenditure, the temptation of rent-seeking behavior, and the urge to disregard fiscal discipline, some incumbents escape the curse and act in a long-sighted manner. Instead of spending resource revenue as they please, pursuing policies that maximize present-day political support by delivering quicker social gains, these incumbents commit ahead of time to pursuing policies that deliver long-term gains, but at a slower pace (Jacobs, 2016).

From a fiscal standpoint, this puzzle is relevant because oil, gas, and mineral prices are difficult to forecast. Pandemics, commodity speculation, terrorist attacks on oil refineries, geological limitations, and time delays in extractive projects generate uncertainty about future prices (Hamilton, 2009). Furthermore, global demand for fossil fuels is in decline, as the world's biggest markets are moving towards clean energy.[3] To prolong the benefits of resource wealth, resource-rich states need to make forward-looking decisions. Like Dunning (2005), Jones Luong and Weinthal (2006), Brooks and Kurtz (2016), and Mahdavi (2019), I recognize the existence of a "conditional resource curse:" states adopt different patterns of extraction and production that condition whether resource wealth will be a blessing or a curse. To understand these patterns of extraction, I examine the origins of institutions that shape a government's relationship with its subsoil assets.

I begin by describing the objects of my study: natural resource funds and fiscal rules. Then, I develop an argument of why and when political leaders choose fiscal restraint over fiscal profligacy. After discussing the research design, I test the argument using quarterly data from 1990 to 2019 for 13 countries in Latin America. I discuss the results and illustrate them through a case study of Mexico, concluding with implications for future research.

2 Special Fiscal Institutions: A Primer

As previous research has shown, non-renewable natural resources can weaken institutional checks and balances (Vicente, 2010; Paler, 2013; Caselli and Michaels, 2013), raise political risk (Jensen and Johnston, 2011), increase the volatility of public spending (Venables, 2016), slow down economic growth (Sachs and Warner, 2001), and reduce the incentives to collect taxes, particularly value-added taxes (Gervasoni, 2010; McGuirk, 2013; Crivelli and Gupta, 2014). Oil wealth, in particular, is associated with bribery and patronage (Gonzalez, 2018; Mahdavi, 2020), increased military spending in non-democracies (Cotet and Tsui, 2013), and

[3] Jillian Ambrose. "Rise of Renewables May See Off Oil Firms Decades Earlier Than They Think." *The Guardian.* 14 October 2019.

fewer women in the labor force (Ross, 2008). An unexpected influx of foreign currency (due to an increase in oil prices, for example) can lead to real exchange rate appreciation, which in turn increases the price of exports and reduces the international competitiveness of the manufacturing sector, in what is called the Dutch Disease (Rudra and Jensen, 2011).

To their credit, governments are typically aware of the existence of a "resource curse," even before resource extraction begins.[4] But why would any office-seeking incumbent give up control over an important source of revenue that can be used for political gain? Low-income countries, for example, have limited capacity to collect revenue, and taxpayers do not trust the state with their money (Besley and Persson, 2014); why not use natural resource rents and eschew tax collection altogether? Wiens (2014, 197) argues that "where domestic institutions do not limit state leaders' discretion over policy *prior to becoming fiscally reliant on resources,* those leaders have little incentive in the wake of resource windfalls to establish institutional mechanisms that limit their discretion" (emphasis in the original). In support of this argument, Acemoglu et al. (2003), Venables (2016), Dunning (2005), Collier (2017), and others discuss the exemplary case of Botswana, which evaded the resource curse by establishing domestic institutions to limit leaders' discretion over natural resources in the late 1960s, *before* the extent of its diamond wealth was fully known. Botswana's leaders were only willing to create hand-tying institutions because a veil of "geological ignorance" prevented them from knowing the true electoral potential of their natural resource wealth (Collier, 2014). As a result of this ignorance, two types of hand-tying institutions emerged in Botswana: a sovereign wealth fund and a balanced budget rule (Collier, 2017).

Sovereign wealth funds are state-owned investment vehicles that use domestic savings to purchase international assets (Chwieroth, 2014). Natural resource funds, like Botswana's Pula Fund, are a particular kind of sovereign wealth fund financed exclusively through the extraction of non-renewable natural resources; they do not receive proceeds from privatization or central bank reserves. In simple terms, these funds operate like state-owned cookie jars that "prevent governments from relying on resource rents by putting those rents beyond their reach" (Karl, 2007, 271). Funds come in five different types and fulfill different (if non-exclusive) mandates (IMF, 2008). Stabilization funds aim to mitigate budget volatility caused by unexpected fluctuations in resource prices, while savings funds set resource rents aside for future generations. Other funds finance socio-economic projects (development funds) and pensions (pension reserve funds), or seek to increase the return on foreign exchange reserves (reserve investment corporations). Each type of fund follows a different investment strategy, depending on its time horizon. For example, according to a survey of funds conducted by Al-Hassan et al. (2014), stabilization funds tend to prioritize a highly liquid portfolio (with over 80 percent of all assets allocated to fixed income securities), whereas savings funds tend to have a higher risk-return profile, investing over 70 percent of their assets in equities.

Meanwhile, a balanced budget rule like Botswana's is one type of fiscal rule: a multi-year numerical target on fiscal policy, specifying how much to save, how much to spend, or how much to borrow. There are four types of fiscal rules (Lledó et al., 2017). Expenditure rules set boundaries for current expenditure, preventing leaders from spending too much during

[4] For a recent example, see Michael Forsythe. "Mongolian Harvard Elites Aim for Wealth Without 'Dutch Disease'." *Bloomberg.* 15 February 2010.

price booms (or too little during price busts). Revenue rules limit the amount of resource revenue that enters the public budget. After all, when the economy is flooded by foreign currency, it is often unable to absorb this money all at once. In limiting the amount of money that enters the budget, revenue rules delay spending until policymakers can design policies that allocate this revenue efficiently. Debt rules impose a debt-to-GDP ratio as a fiscal anchor to prevent incumbents from borrowing excessively against their natural resource wealth; in Botswana, for example, total domestic and foreign debt are each capped at 20 percent of GDP (Lledó et al., 2017). Lastly, balanced budget rules set targets the overall fiscal balance, often adjusting such target to account for variations in commodity prices. While fiscal rules exist in several nations with no relevant extractive sector, they fulfill a special role when resource revenue is large relative to total revenue, as in Botswana: they are designed to prolong the benefits of resource extraction, long after these resources are depleted (Baunsgaard et al., 2012).[5]

Overall, the International Monetary Fund (IMF) recommends that resource-rich countries establish a fiscal rule as a short- to medium-term fiscal anchor, complementing such rule with a natural resource fund to "enhance the transparency and credibility of fiscal policy, making resource revenues and associated savings more visible" (Baunsgaard et al., 2012, 20). Indeed, fiscal rules and resource funds – or "Special Fiscal Institutions" (SFIs), in the parlance of the World Bank and the IMF (e.g. Ossowski and Halland, 2016; Ossowski et al., 2008) – are often adopted jointly.

It is remarkable that states make a public commitment to adopt such institutions in the first place, given the associated political costs. Granted, incumbents might write long and specific legislation that they never plan to implement, creating funds and fiscal rules that look great on paper but do not exist in practice. Yet a written commitment to institutional reform is the clearest indicator of policymakers' intentions, and the necessary first step for a government to credibly tie its hands. Public commitments to create SFIs increase the cost of non-compliance by drawing attention to misconduct. For this reason, legislation is a good predictor of behavior: for example, Amick et al. (2020) find that both constitutional and statutory rules mandating a balanced budget are associated with higher fiscal discipline. When leaders create SFIs, they signal at least the intention to refrain from using natural resource wealth for political gain. This commitment is particularly strong in the case of funds, which address natural resource revenue directly.

The proliferation of SFIs, particularly after 2000, is remarkable for three additional reasons. First, fiscal rules and resource funds require laws, bureaucracies, and regulatory bodies that states with low institutional capacity might be unable to develop. Second, even when states are able and willing to create SFIs, there is mixed evidence as to whether these measures succeed in smoothing government expenditure (Sugawara, 2014) or not (Ossowski et al., 2008). In fact, Humphreys and Sandbu (2007, 194, 199) stress that these are political and not economic institutions, as their economic benefits are "surprisingly weak." Third, while Botswana created such institutions *prior* to the onset of resource dependence (as predicted by Wiens 2014), Timor-Leste, Trinidad and Tobago, Colombia, Burkina Faso, and

[5] Expenditure, revenue, and debt rules can also help mitigate the volatility of commodity prices – unlike balanced budget rules, which are procyclical: they allow governments to increase spending in times of boom and decrease spending in times of bust (Mihalyi and Fernández, 2018).

many others created funds and fiscal rules when they were already fiscally reliant on resource wealth (in 2005, 2007, 2011, and 2015, respectively). In other words, these governments *knew* how much political capital they were giving up on, and still chose to do so. In the following section, I develop a theory to explain why and when some political leaders institutionalize mechanisms that limit their own discretion over natural resource revenue.

3 Theorizing the Emergence of Special Fiscal Institutions

When do rational, self-interested, office-seeking incumbents overcome the pressure of using natural resource revenue for short-term gain, instead pursuing policies that are costly in the short term but bring long-term rewards? The crux of my explanation is that some rulers make time consistent decisions because domestic politics allows them to do so. I argue that the decision to tie hands is more likely to arise when short-term political uncertainty is low, as this reduces the value of budgetary discretion. For rulers to tie their hands, they must be secure enough to enact long-run policies without jeopardizing their future political prospects, but not so secure that they can afford to eschew institutional development altogether.[6]

To illustrate this argument, suppose the head of state of an oil-producing country is up for reelection, and their challenger is a political outsider promising to use future oil revenue to cut taxes or increase public consumption. The incumbent has privileged information about the current state of the public finances and knows that cutting taxes or increasing public consumption will harm the economy. They would prefer not to distribute short-term benefits to buy off voters, since clientelism can have high electoral costs: it increases support from poor constituents, but reduces support from nonpoor constituents (Weitz-Shapiro, 2012).

However, heads of state who say no to their constituency risk losing political support. The central mechanism behind this argument is electoral sanctioning: citizens reward the incumbent for positive outcomes and punish the incumbent for negative outcomes (Ashworth, 2012). If political support is low to begin with, rulers cannot afford to lose even more support and face no incentive to lock in policies that might work against them in times of need. Instead, they will use natural resource wealth to meet the expectations of the citizenry, delivering short-run policy benefits to key constituencies to boost political support and secure reelection. For example, they will increase personnel spending and distribute excludable goods, like food or medicine. Even if these isolated allocation decisions worsen public service provision in the long run (Gottlieb and Kosec, 2019), they might be perceived as necessary to reduce extreme poverty – and, thus, win votes – in the short run. This time inconsistency phenomenon is particularly pronounced in poor countries, as voters are unlikely to reward forward-looking policy if they have immediate needs.[7] In sum, short-term political survival is the main factor driving incumbents' behavior; secondarily, incumbents

[6] Relatedly, Kendall-Taylor (2011) theorizes that authoritarian regimes with long time horizons are more likely to save natural resource windfalls. My argument is similar, but my scope is limited to regimes with electoral competition.

[7] In the words of Jacobs and Matthews (2012, 921), "patience increases with financial resources, possibly because poverty blinds individuals to future needs or limits children's future capacity to delay gratification."

are willing to invest in long-term institutional development, but only if such an investment does not detract from their primary goal.

If, on the other hand, rulers are confident about their future electoral prospects, they can afford to institutionalize the allocation of natural resources. Job security prolongs the time horizons of politicians, allowing them to reform the extractive sector and lock in policies that are beneficial for the public finances in the long run, without risking political losses in the short run. The longer the time horizons, the lower the marginal benefit of manipulating resource revenue for immediate political gain. Instead of delivering excludable goods on an informal basis, a confident ruler can commit to institutionalizing the distribution of public resources. Indeed, Schultz (1995) finds that governments do not always manipulate the economy ahead of elections, only when their incumbency is at risk.[8] If the incumbent has broad political support and is likely to be re-elected, there is no need to induce business cycles that carry reputational costs and harm future economic performance. Rulers might even be willing to create resource funds and fiscal rules ahead of elections, provided they have enough short-run political capital to implement these policy changes and stomach potential losses in public support. In line with this reasoning, Hypothesis 1 predicts that rulers are more likely to adopt SFIs when their public support is high, as this reflects a low degree of short-term electoral uncertainty – or, as Humphreys and Sandbu (2007, 203) put it, a "lower likelihood of an imminent change."

> **Hypothesis 1 (public support):** *Higher levels of public support are associated with higher odds of adopting Special Fiscal Institutions.*

Recall that the central mechanism behind Hypothesis 1 is electoral sanctioning. Of course, the threat of electoral sanctioning is only credible when there are political alternatives and today's winners might be tomorrow's losers. When there is no exit option, voters are not able to sanction the incumbent, even if they want to. Institutional development is costly: in developing extractive institutions, rulers must estimate the size of available reserves, establish rules for public procurement, stipulate the subnational distribution of resource rents, determine how much of these rents should be saved or spent, and create regulatory bodies that can enforce compliance, to name only a few tasks. Worse, voters are often suspicious of the government and might misinterpret technocratic reforms in the extractive sector as "elite looting of revenues" (Collier, 2017, 223). When incumbents are secure under the status quo *and* face no credible political competition, why should they make a public commitment to adopt institutions that are ambitious and difficult to implement?

As the strength of the opposition grows, the ruler needs to co-opt and appease an increasing number of political actors to remain in power. If there is a political opponent who can credibly demand access to resource revenues, it is cheaper to deliver broad public services than narrow individual benefits, and it pays off to make public commitments institutionalizing the future allocation of natural resource revenue, rather than pay off important political

[8] In a formal model of natural resource fund creation, Humphreys and Sandbu (2007, 203) come to a similar conclusion: "The less stable the government – in the sense that there is a higher likelihood of an imminent change in government – the stronger the incentive for spending a lot today." Conversely, so their argument, a lower likelihood of imminent change prolongs the time horizons of incumbents and generates incentives to smooth spending over time – for example, by creating a natural resource fund.

opponents through patronage. This logic is formalized in previous research: according to Bueno de Mesquita et al. (2002) and Wiens (2014), the larger the winning coalition (that is, the group of people whose support the ruler needs in order to stay in office), the bigger the incentives to provide effective public policy. Therefore, to institutionalize natural resource policy, rulers must face at least "mild constraints" (Doner et al., 2005, 329) that make it difficult for them to remain in power without improving institutional performance. The opposition might not pose a threat to incumbency, but it should be a nuisance that increases the opportunity cost of pure patronage. This prediction, outlined by Hypothesis 2, does not contradict the previous hypothesis; after all, even popular incumbents could face a close margin in the legislature. Higher levels of political competition simply indicate that there is a credible alternative if the incumbent loses public support.

> **Hypothesis 2 (political competition):** *Higher levels of political competition are associated with higher odds of adopting Special Fiscal Institutions.*

As discussed in the previous section, the IMF advises countries to adopt both types of SFI, but also notes that natural resource funds are particularly important in "making resource revenues and associated savings more visible" (Baunsgaard et al., 2012, 20). Resource funds draw direct attention to oil, gas, or mining revenue, whereas most fiscal rules set numerical targets for the economy as a whole; to the extent that these rules affect resource revenue, they only do so indirectly. Given that funds are more visible and more directly connected to the natural resource sector, I expect that Hypotheses 1 and 2 are more likely to matter for the adoption of this kind of SFI.

In sum, rulers are more likely to adopt SFIs – particularly natural resource funds – when they are confident that doing so will not jeopardize their tenure, but not so confident that they can pocket the money or buy political support without facing any kind of sanctioning. When public support is high, but political competition exists, rulers have no incentive to overspend for electoral gain, but are still held accountable by their rivals. Under these circumstances, they face the necessary incentives to build institutions that insulate the extractive sector from discretionary spending.

4 Data

4.1 Sample

Latin America is the ideal setting to test my hypotheses, for two reasons. First, it is a region known for its resource nationalism: citizens value popular sovereignty over the extractive sector and oppose agreements allowing foreign businesses to "steal" their resource wealth (Weyland, 2009).[9] The salience of natural resource governance means we can plausibly expect incumbents to make SFI-related decisions with an eye on how the public perceives such reforms. Indeed, such institutions are widespread in the region, as Figure 1 shows.

[9]For instance, in response to public pressures, Mexico nationalized its oil industry in 1938, as did Brazil in 1953. For a study of the economic consequences of resource nationalism, see Click and Weiner (2010).

Second, nearly all Latin American nations have presidential systems,[10] which means that clarity of responsibility is high. As Powell and Whitten (1993), Samuels (2004), Hellwig and Samuels (2007), and several others show, when the electorate can discern between political actors and identify who is responsible for the state of the economy, it rewards or punishes the responsible actor correctly. If the economy is doing well, voters reward the incumbent; if not, they punish the incumbent by voting for the opposition. It is easier to assign policy responsibility and act based on this assignment when the executive and the legislative are elected independently, as in presidential systems. If there are conflicts between different branches of the government, these branches reveal more information to the public, allowing voters to identify correctly who is responsible for what. Since it is easier to identify the "guilty" political actor in presidential systems, it is easier to hold incumbents accountable: presidents can serve as a focal point for electoral punishment. Thus, presidents are particularly responsive to the mechanism at the core of my theory – electoral sanctioning – because they are particularly afraid of being punished at the ballot box. In Latin America, presidents have the final say about the content of laws and the timing of policy adoption (Tsebelis and Alemán, 2005), so the decision to create SFIs is ultimately theirs.

4.2 Dependent Variable

I assemble all legal documents creating or regulating SFIs in 13 Latin American countries classified as resource rich by the IMF (Venables, 2016), the Natural Resource Governance Institute (2017), or both: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guatemala, Guyana, Mexico, Peru, Suriname, Trinidad and Tobago, and Venezuela. I limit the data to resource-rich countries because discovering and extracting oil, gas, and minerals is a necessary condition for passing natural resource policy; we cannot observe this policy in countries that have not discovered any subsoil assets or have chosen not to develop the extractive sector.

To generate this new dataset, I proceed in two steps. First, using the Natural Resource Governance Institute (2017) and the IMF Fiscal Rules at a Glance Dataset (Lledó et al., 2017), I identify all natural resource funds and fiscal rules that existed in these 13 countries between 1980 and 2019.[11] Then, I use the Foreign Official Gazette Database (FOG), the Global Legal Information Network (GLIN), and government websites to obtain all relevant legal documents (laws, decrees, and acts) published in Official Gazettes during the period of interest. As indicated by Table 1, the resulting corpus consists of 39 legal documents in four languages (Spanish, Portuguese, English, and Dutch), each coded according to the type of SFI it creates or regulates. Of these 39 documents, 26 relate to natural resource funds. 21 pertain to fiscal rules, though only 9 single out extractive revenues; the remaining 12 set targets for the overall budget. 8 documents cover both types of SFI. As of December 2020, Guatemala is the only resource-rich country in Latin America with no SFI of any kind.

As an illustration, consider the most recent legal document in the sample: Guyana's Natural Resource Fund Act, mentioned at the beginning of this study. According to Article

[10] Exceptions are Trinidad and Tobago (a parliamentary republic) as well as Guyana and Suriname (which have assembly-elected presidents).

[11] Since both sources end their coverage before 2017, I corresponded with experts from the Natural Resource Governance Institute and the IMF Fiscal Affairs Department to ensure the accuracy of information for subsequent years.

Table 1: Overview of Legal Documents by Country

Country	# of Documents	Types of Fund	Types of Rule
Argentina	3	–	Balanced budget, expenditure
Bolivia	1	Investment	Revenue
Brazil	2	Development	Debt, expenditure
Chile	3	Development, stabilization, pension	Balanced budget
Colombia	4	Stabilization, savings	Balanced budget, expenditure
Ecuador	8	Development, stabilization, investment	Balanced budget, debt, expenditure
Guatemala	0	–	–
Guyana	1	Development, stabilization, investment, savings	Revenue
Mexico	7	Development, stabilization	Balanced budget, expenditure
Peru	3	Stabilization	Balanced budget, debt, expenditure
Suriname	1	Stabilization, savings	Revenue
Trinidad and Tobago	1	Stabilization, savings	Revenue
Venezuela	5	Development, stabilization	Balanced budget, debt, expenditure, revenue

3 of this document, Guyana's Natural Resource Fund has four purposes. First, it should serve as a stabilization fund, "ensuring that volatility in natural resource revenues do[es] not lead to

volatile public spending.” Second, it should act as an investment fund, “ensuring that natural resource revenues do not lead to a loss of economic competitiveness.” Third, it should function as a savings fund, “fairly transferring natural resource wealth across generations to ensure that future generations benefit from natural resource wealth.” Lastly, the Natural Resource Fund should work as a development fund, “using natural resource wealth to finance national development priorities including any initiative aimed at realising an inclusive green economy.” The Act also stipulates a maximum amount that can leave the Fund and enter the public budget each fiscal year (a revenue rule); this “Fiscally Sustainable Amount” is calculated yearly by the Minister of Finance, who serves as the Fund’s manager. In addition, the Natural Resource Fund Act creates the Public Accountability and Oversight Committee to monitor “whether the Fund has been managed in accordance with the principles of transparency, good governance and international best practices” (Article 6); and stipulates that the Fund “shall only be invested in eligible asset classes” (Article 31) – for example, “bank deposits held in United States Dollars with foreign financial institutions that have a long-term bank deposit rating in a category which is equal to, or the equivalent of, A(–) or above from at least two of” three credit rating agencies (Fitch, Moody’s, and S&P).

As the case of Guyana shows, most legal documents are quite specific in terms of what objectives the government wants to accomplish and what measures it intends to put in place to ensure compliance. I focus on SFIs enacted and regulated by written legal documents, like Guyana’s Natural Resource Fund, because this statutory character reflects a higher level of commitment than informal agreements.

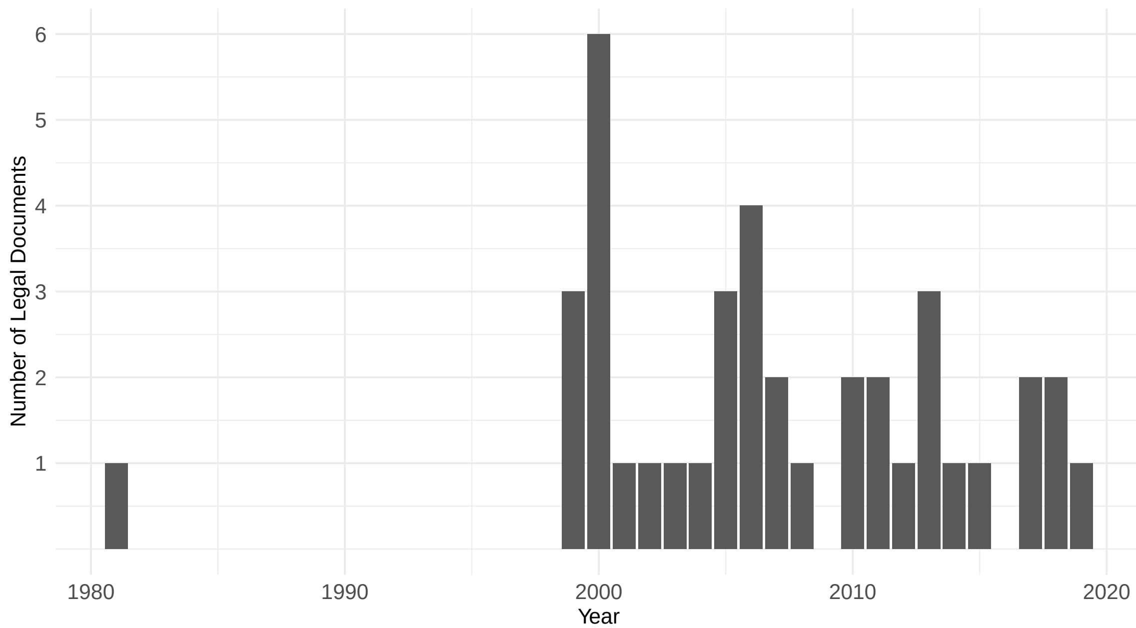
Figure 2 shows the distribution of these 39 legal documents over time. There is a significant temporal gap between 1981 and 1999, that is, between Chile’s Decreto Ley No. 3,653 (which created the Copper Compensation Fund) and Argentina’s Ley 25,152 de Administración de los Recursos Públicos (which introduced balanced budget and expenditure rules). For this reason, I restrict the statistical analysis to the period between 1990 and 2019, using quarterly data.

Since the outcome of interest is a rare event, a statistical analysis disaggregating natural resource funds and fiscal rules by type would have severe limitations (some of which are outlined by King and Zeng 2001). This is why I collapse all outcomes into two binary dependent variables. For every quarter, *Any document* takes the value of one if the government in question passed any legal document related to a SFI (as listed in Table 1), and zero otherwise. Meanwhile, *Fund document* indicates the passage of a legal document that is specifically related to one type of SFI: a natural resource fund. I expect that public support and political competition will have a stronger effect on this subset of documents, as natural resource funds (unlike fiscal rules) draw explicit attention to natural resource revenue. Following a statistical analysis with these outcome variables, a qualitative study of Mexico explores further variation across different types of funds and fiscal rules.

4.3 Independent Variables

Hypothesis 1 predicts that stronger public support will be associated with higher odds of observing the dependent variables. I operationalize public support as the approval rating of the chief executive, that is, the percentage of support expressed for the president. This variable, reported by the Executive Approval Database (Carlin et al., 2019), is the most direct

Figure 2: Number of Legal Documents Passed Every Year, 1980–2020



This figure depicts the temporal distribution of the 39 legal documents collected for the analysis. As the lone document passed before 1999, Chile's Decreto Ley No. 3,653 is excluded from the statistical analysis.

measure of "the marginal benefit of winning additional votes" (Schultz, 1995, 81) because it varies on a quarterly basis, and not just every four to five years, as would be the case with election returns. *Executive approval* is a forward-looking measure that captures not only the incumbent's assessment of their current public support, but also their expectations of future electoral performance, conditioning how much room to move they have when setting natural resource policy. Hence, it is the ideal measure to assess whether public opinion drives policy adoption.[12]

According to Hypothesis 2, political competition is also a driving factor behind governments' choice to pass natural resource policy. I measure political competition in two ways. *Opposition vote share* is the share of votes received by the largest opposition party in the lower (or only)[13] chamber of the legislature, drawing from the Database of Political Institutions (Cruz et al., 2021). I examine the vote share of the opposition in the legislature – rather than in the executive – so as to capture the pressure exercised by a standing opposition that remains consistent throughout the tenure of the executive leader. After elections, presidential candidates from the opposition might disappear from the political landscape, but legislators from the opposition have political power and can still demand access to public

[12] Arguably, there is a temporal gap between proposing a bill and passing a law; laws coming into effect today have been under consideration for many months, and the chief executive might need to consider their approval rating throughout this entire period. Even if this is the case, results are robust to lagging *Executive approval* at one to five quarters (see appendix).

[13] Unicameral legislatures exist in Ecuador, Peru (since 1993), and Venezuela (since 1999).

resources.[14]

The disadvantage of *Opposition vote share* is that it remains constant between elections. To capture more immediate increases or decreases in opposition, I tally the *Number of protests* recorded by the Mass Mobilization Project every quarter (Clark and Regan, 2020). A protest is defined by the authors as "a gathering of 50 or more people to make a demand of the government," excluding protests that target the policies of other countries. The vast majority of protests make demands regarding "the political process that determines who rules and how, who can participate in elections or decisions, choices made by leaders that influence a range of political outcomes from domestic subsidies to foreign policy." A higher number of protests, while not directly related to the performance of the chief executive,[15] reflects a higher underlying dissatisfaction among citizens, which – according to Hypothesis 2 – generates incentives to improve institutional performance. Since resource rents enable rulers to spend more on internal security to prevent popular uprisings (in what Ross 2001 calls the "repression effect"), this variable offers a conservative estimate of the citizens' grievances; still, I expect the number of protests to have a positive effect on the dependent variable, even after controlling for a government's resource wealth.

Though *Opposition vote share* and *Number of protests* are imperfect measures, they capture different dimensions of political competition: organized opposition in the legislature and informal citizen dissent, respectively. Taken together, these two types of political pressure – the long-run pressure from the ballot box, the short-run pressure from the streets – make a ruler's life harder and increase the demands to provide effective public policy in the form of SFIs.

4.4 Alternative Explanations and Control Variables

In addition to a lagged dependent variable, models include several indicators that account for alternative explanations. Schuster (2020) examines the relationship between political competition and institutional reforms, identifying one particular window of opportunity for reform: when an exit from office is certain. When it is clear that incumbents will lose power, they might adopt SFIs in order to curtail their successors' ability to spend resource rents. If this logic holds, then rulers will be more likely to tie their hands – and, most importantly, their successors' hands – during "lame duck sessions," that is, after an electoral defeat, but before leaving office. To test this, I use data on election timing and executive turnover (Cruz et al., 2021) to generate the dichotomous variable *Lame duck*. It takes the value of one for

[14] In robustness checks, I examine the effect of *Opposition vote share* when the party of the executive also controls the legislature. If this is the case, *Opposition vote share* will directly reflect the opposition faced by the executive ruler, and should thus have a positive effect on the dependent variables. If, however, the party of the executive *does not* control the legislature, the effect of *Opposition vote share* should be mixed. I find support for these expectations. I also examine the effect of executive opposition, denoted as the vote share of all opposition candidates in the first (or only) round of presidential elections, again based on data from Cruz et al. (2021). This variable has a mixed effect on the creation of SFIs, confirming the importance of a standing opposition in the legislature – not just a one-off opposition in presidential elections.

[15] The variables *Number of protests* and *Executive approval* are only weakly correlated (see appendix for a correlation matrix). The two country-quarters with the highest number of protests (15) are Brazil in mid-2013 and Venezuela in mid-1992, with very different executive approval rates (54.4 and 28.6 percent, respectively).

all quarters after an executive election and before a change in the party that controls the executive.[16]

Since strong, established parties have longer time horizons, they might be more likely to adopt SFIs. To account for this possibility, I operationalize party system strength as the average *Age of parties* in country (Cruz et al., 2021). Likewise, regime type might drive variation in natural resource policy. Sanctioning the incumbent is less risky, less costly, and more likely under democracy. Democracies produce higher levels of public goods than autocracies (Lake and Baum, 2001) and are more willing to disseminate policy-relevant data (Hollyer et al., 2011). Since democratic institutions have more checks and balances, democracies may be more likely to tie their hands than autocracies, increasing transparency in an otherwise opaque sector. Though there is limited variation in regime type across the countries and years included in the sample, I test for this alternative explanation using the Polity 2 index. The resulting variable, *Democracy*, ranges from −10 (hereditary monarchy) to +10 (consolidated democracy). Partisanship (captured by the dichotomous variable *Left executive*, coded by Cruz et al. 2021) may similarly drive variation in the outcomes of interest. And to assess whether the choice to tie hands is motivated by election cycles, I control for *Election quarter*, which represents the occurrence of any election (legislative or executive).

As the size of the extractive sector increases, so might the incentives to regulate it. I operationalize the size of the extractive sector as *Resource rents* (as a percentage of the GDP, reported by the World Bank). *Field discovery* indicates whether a giant, supergiant, or megagiant oil and gas field – that is, a field with over 500 million recoverable barrels of oil or over 3 trillion cubic feet of gas – was discovered (Horn, 2014). The discovery of such a field might compel governments to regulate their resource sector, as Guyana did.[17] To assess whether tying hands is driven by overoptimism when commodity prices are high, I control for *Oil price*, which is the refiner average imported crude oil acquisition cost, in constant 2021 US dollars, as reported by the US Energy Information Administration. Real oil prices range from 17.52 to 142.48 US dollars (in the last quarter of 1998 and second quarter of 2008, respectively), which is why I log these values. Though not all countries in the analysis are oil producers, I use oil as a proxy for all commodities because different prices tend to be correlated and follow similar trends over time (World Bank, 2014).

To assess whether a country is more likely to create SFIs as it becomes wealthier or in times of economic expansion, models include *GDP per capita*, in thousands of constant 2010 US dollars, and *GDP growth*, in percent, reported by the World Bank. *IMF agreement* is a dichotomous variable indicating if the country-quarter in question was under an IMF agreement (using data from Bauer et al. 2012 and the IMF MONA Database). Finally, since economic shocks might affect incumbents' willingness to reform the extractive sector, the dichotomous variable *Crisis* is coded one in quarters of banking, debt, or currency crisis onset and zero otherwise (Laeven and Valencia, 2020). The macroeconomic indicators *Resource rents*, *GDP per capita*, and *GDP growth* are available only on a yearly basis and lagged at one year to reduce simultaneity bias.

[16] I focus on changes in *party* control because a transition of power from one individual to another could simply be a function of term limits, which are widespread in Latin America.

[17] Horn's coverage ends in 2014; James Cust and Alexis Rivera Ballesteros from the World Bank extended this coverage until 2019. Since discovery data are only available on a yearly basis, I used LexisNexis to uncover the exact month each discovery was announced.

5 Estimation Strategy and Results

Since the dependent variables are binary, I estimate logistic regressions, with cubic polynomials instead of time dummies to avoid issues of quasi-complete separation (Carter and Signorino, 2010). To control for unobserved unit-level heterogeneity, I include country-fixed effects. Natural resource policy passage is a rare event, and fixed effects can be problematic for rare event binary time series cross sectional data: when units never experience the event, there is no variation in the dependent variable, so these observations drop from the sample, generating selection bias. To overcome this issue, I use the penalized maximum likelihood estimator proposed by Cook et al. (2020), which includes fixed effects, but uses a modified score function to retain the units that have not experienced the event.

Table 2 presents the results for penalized likelihood models using the dependent variable *Any document*, which indicates whether or not the government in question passed any legal document related to SFIs in a given quarter. Table 3 does the same for the dependent variable *Fund document*, which indicates the passage of a legal document that is specifically related to natural resource funds. The coefficients are reported as log-odds.

In each table, Model 1 tests Hypothesis 1, which predicts that higher levels of public support will be associated with higher odds of observing *Any document* and – in particular – *Fund document*. According to Model 1 in Table 2, a one percent increase in *Executive approval* is associated with a 3 percent increase in the odds of passing any document ($e^{0.032} = 1.032518$). Meanwhile, according to Model 1 in Table 3, a one percent increase in *Executive approval* is associated with a 4.6 percent increase in the odds of passing fund-related documents ($e^{0.045} = 1.046028$). Both coefficients are statistically significant, providing evidence in favor of Hypothesis 1: popular executive leaders can afford to tie their hands because they are confident about their (and their parties') future election prospects.

According to Hypothesis 2, high levels of political competition correlate with a higher likelihood of observing the outcomes of interest. The logic is that governments facing strong political competition would rather institutionalize the distribution of benefits than distribute these benefits through patronage. In each table, Model 2 examines the effect of political competition in the legislature. A one percent increase in the vote share of the largest opposition party in the lower (or only) chamber of the legislative is associated with a 3.5 percent increase in the odds of observing *Any document* ($e^{0.034} = 1.034585$), and a 3.9 percent increase in the odds of observing *Fund document* ($e^{0.038} = 1.038731$). Additionally, Model 3 in each table examines the opposition coming from the streets: on average, every additional protest organized by society at large leads to a nearly 12 percent increase in the odds of passing any document ($e^{0.113} = 1.119632$) and an 18.4 percent increase in the odds of passing fund-related documents ($e^{0.169} = 1.18412$).

Model 4 examines the simultaneous effect of all key independent variables (*Executive approval*, *Opposition vote share*, and *Number of protests*) on the outcomes of interest, whereas Model 5 includes all control variables. Though the sample size shrinks considerably, results are robust to controlling for alternative explanations. To better communicate the substantive meaning of these results, Figure 3 displays the predicted probabilities of *Any document* and *Fund document* at different values of *Executive approval*, based on Model 5 of Table 2 and Model 5 of Table 3, respectively (re-estimated without country fixed effects). When public approval is at its minimum (2.9 percent, as in Peru in early 2004), the predicted

Table 2: Determinants of SFI Creation or Regulation, 1990–2019

	Dependent variable:				
	Any document				
	(1)	(2)	(3)	(4)	(5)
Executive approval (%)	0.032**			0.035*	0.026*
	(0.015)			(0.018)	(0.014)
Opposition vote share (%)		0.035**		0.043**	0.022
		(0.017)		(0.018)	(0.023)
Number of protests			0.118**	0.215***	0.209***
			(0.057)	(0.067)	(0.059)
Any document, t–1					0.688
					(0.595)
Lame duck = 1					−0.240
					(0.601)
Party age					0.001
					(0.013)
Democracy					0.042
					(0.100)
Left executive = 1					−0.051
					(0.554)
Election quarter = 1					1.040**
					(0.434)
Resource rents (%)					−0.087**
					(0.034)
Field discovery = 1					0.799
					(0.538)
Oil price (USD, log)					2.678***
					(0.595)
GDP per capita (1,000 USD)					0.368***
					(0.095)
GDP growth (%)					−0.011
					(0.048)
IMF program = 1					−0.344
					(0.380)
Crisis = 1					0.262
					(0.567)
Constant	−5.714***	−4.875***	−4.355***	−6.781***	−19.432***
	(0.903)	(0.980)	(0.509)	(1.445)	(3.071)
Observations	1,116	1,056	1,560	709	630
Log Likelihood	−126.988	−89.177	−146.658	−74.829	−64.463

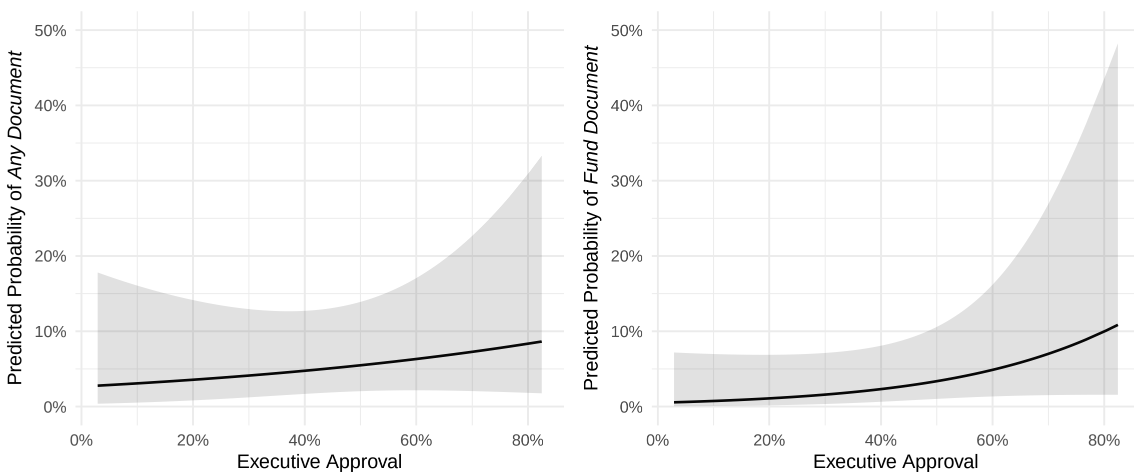
This table reports the results of penalized likelihood models with third-order polynomials, country fixed effects, and standard errors clustered by country. Coefficients represent log odds. *p<0.1; **p<0.05; ***p<0.01.

Table 3: Determinants of Natural Resource Fund Creation or Regulation, 1990–2019

	Dependent variable:				
	Fund document				
	(1)	(2)	(3)	(4)	(5)
Executive approval (%)	0.045**			0.079***	0.061***
	(0.018)			(0.022)	(0.013)
Opposition vote share (%)		0.039**		0.053***	0.095***
		(0.016)		(0.015)	(0.022)
Number of protests			0.174***	0.359***	0.407***
			(0.055)	(0.070)	(0.064)
Fund document, t–1					1.162
					(0.792)
Lame duck = 1					0.303
					(0.656)
Party age					0.033***
					(0.009)
Democracy					−0.151*
					(0.088)
Left executive = 1					−1.216**
					(0.479)
Election quarter = 1					0.981**
					(0.443)
Resource rents (%)					−0.109**
					(0.044)
Field discovery = 1					2.589***
					(0.425)
Oil price (USD, log)					2.824***
					(0.785)
GDP per capita (1,000 USD)					0.447***
					(0.118)
GDP growth (%)					0.019
					(0.054)
IMF program = 1					−0.567
					(0.446)
Crisis = 1					1.627***
					(0.579)
Constant	−8.392***	−6.323***	−6.511***	−10.495***	−24.597***
	(0.912)	(0.408)	(0.255)	(1.144)	(4.119)
Observations	1,116	1,056	1,560	709	630
Log Likelihood	−91.619	−65.846	−110.297	−47.044	−42.417

This table reports the results of penalized likelihood models with third-order polynomials, country fixed effects, and standard errors clustered by country. Coefficients represent log odds. *p<0.1; **p<0.05; ***p<0.01.

Figure 3: Predicted Probability of *Any Document* and *Fund Document* at Different Values of Public Approval



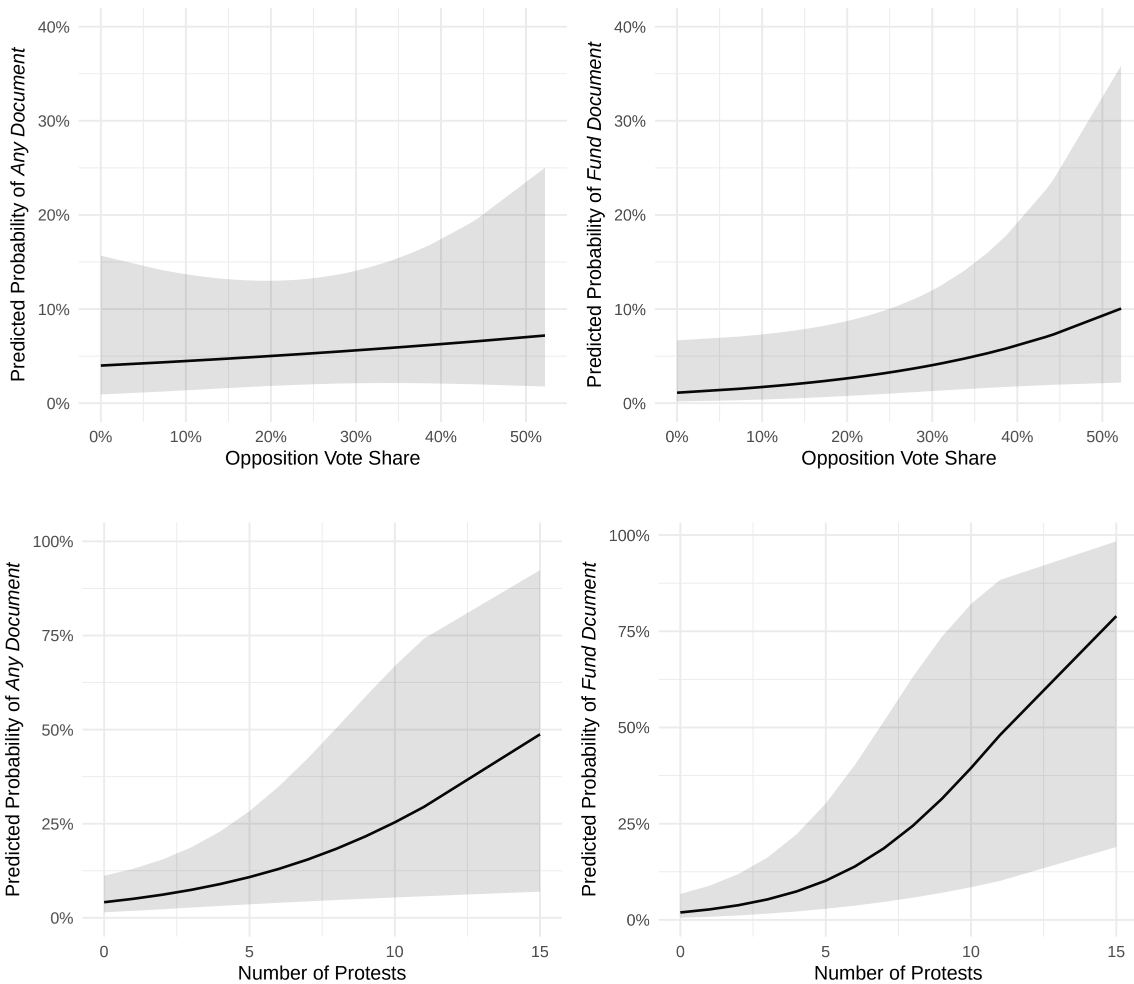
Based on Model 5 of Table 2 (re-estimated without country fixed effects), the left panel simulates the predicted probability of observing *Any document*, with 95 percent confidence intervals, at different values of *Executive approval*. The remaining variables are held at their means (with dichotomous variables held at zero). The right panel does the same for the predicted probability of observing *Fund document*, based on Model 5 of Table 3.

probability of observing either *Any document* or *Fund document* is virtually zero. In contrast, when public approval is at its maximum (82.45 percent, as in Ecuador in late 2013), the predicted probability of observing either dependent variable is about 7 percent. Passing natural resource policy is a rare event, but high levels of public approval make this event significantly less rare.

Likewise, Figure 4 displays the predicted probabilities of *Any document* and *Fund document* at different values of *Opposition vote share* and *Number of protests*, the two measures of political competition. Though *Opposition vote share* has a modest effect on the overall passage of SFI-related documents, this effect is larger and significant when the analysis is restricted to documents related to natural resource funds. When legislative opposition is nonexistent (that is, when the largest opposition party receives no votes in legislative elections), the predicted probability of passing fund-related documents is nearly zero; in contrast, when the largest opposition party receives 52.2 percent of the vote,[18] the predicted probability of observing *Fund document* jumps to 8 percent. Lastly, the effect of *Number of protests* on the outcomes of interest is particularly strong: in quarters with 15 protests (the maximum value), the probability of observing SFI-related laws in general and fund-related laws in particular is 55 and 87 percent, respectively. In resource-rich countries, rulers might spend rents on internal security to block popular uprisings; but even if there is an upper bound to the number of protests that take place in these countries, Figure 4 shows that this

[18]This does not mean that the largest opposition party actually holds 52.2 percent of the *seats*. Legislative malapportionment is widespread in Latin America, though it is more widespread in the upper chamber than in the lower chamber, which is what I examine here (Snyder and Samuels, 2001).

Figure 4: Predicted Probability of *Any Document* and *Fund Document* at Different Values of Political Competition



Based on Model 5 of Table 2 (re-estimated without country fixed effects), the left column simulates the predicted probability of observing *Any document*, with 95 percent confidence intervals, at different values of *Opposition vote share* (top) and *Number of protests* (bottom). The remaining variables are held at their means (with dichotomous variables held at zero). The right column does the same for the predicted probability of observing *Fund document*, based on Model 5 of Table 3.

upper bound already has a meaningful effect on natural resource sector reform.

In sum, these results broadly support my conjecture that incumbents are more likely to create or regulate SFIs (thereby engaging in long-term planning for the extractive sector) when they enjoy high political support and face a strong opposition – either in the legislature or on the streets. Additional results, reported in the appendix, suggest that these effects are independent of each other. There is no consistent relationship between public support and political competition, as the interaction between both concepts – however they are measured – has small effect sizes and is generally not significant. Incumbents also tend to promote reforms when oil prices are high, in election quarters, or in the wake of an oil or gas field discovery.

6 Special Fiscal Institutions in Mexico

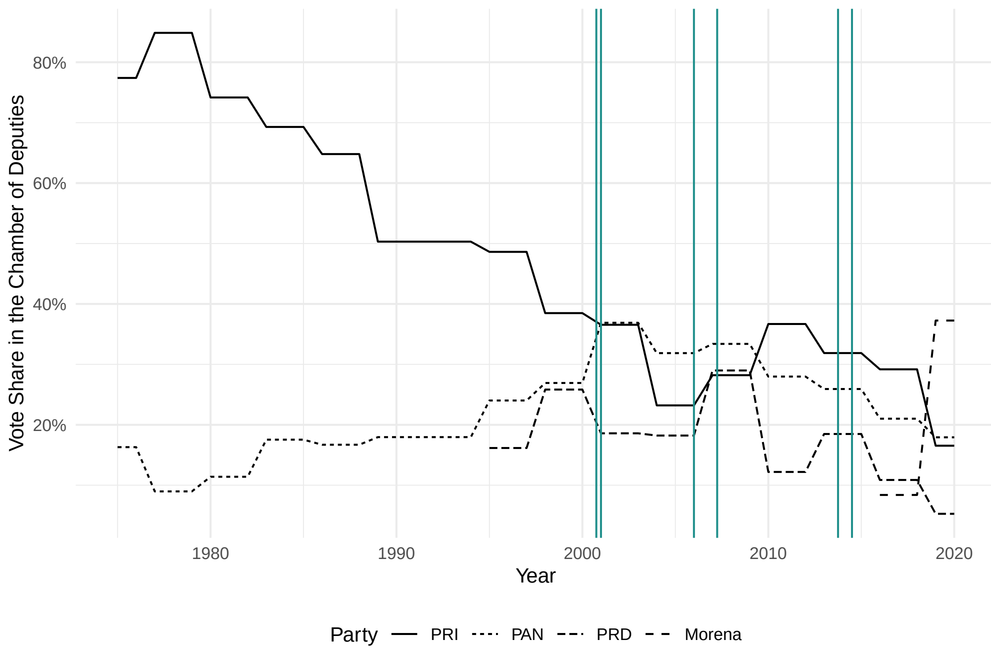
I argue that high public support and high political competition increase the odds that resource-rich governments restrict their own discretion over the extractive sector. To probe this causal mechanism, I follow Seawright and Gerring (2008) and discuss the typical case that best illustrates my argument. In 1901, Mexico discovered its first giant oil field, Panuco (Horn, 2014). In response to public pressure and following several other discoveries, President Lázaro Cárdenas seized the assets of foreign companies, creating the national oil company Pemex in 1938. Cárdenas's Institutional Revolutionary Party (PRI)[19] – which won every presidential election from 1929 to 2000, held the majority in Congress until 1997, and controlled every state government until 1989 (Greene, 2007) – struggled with subsequent attempts to liberalize the oil sector, even though Pemex needed foreign capital to acquire technology and managerial expertise. The unionization rate in the Mexican oil sector is exceptionally high, and the Oil Workers Union (which has strong ties to the PRI) opposed reforms challenging popular sovereignty over the extractive sector (Jones Luong and Sierra, 2015).

There was no political benefit to breaking with the status quo to modernize the oil sector, establish rules for public procurement, or determine the allocation of rents ahead of time. The PRI faced no oversight by opposition forces, international organizations, or the media, and had complete control over the Mexican bureaucracy. Consistent with my expectations, the PRI's dominance of all major political institutions generated little incentive to implement long-term, pro-development natural resource policies. Instead, the party used resource revenues to insulate itself from any real competition. Revenue from state-owned enterprises (notably Pemex) was used to buy off key supporters, and fraudulent elections eliminated credible political rivals (Cantú, 2019). Politicians from the PRI were secure in their seats and saw no need to develop extractive institutions that would carry unnecessary political costs.

At the height of the PRI's dominance, in 1976, the party's presidential candidate ran unopposed and received 100% of the votes. As Figure 5 shows, this dominance declined in the 1980s and 1990s – partly because the 1982 debt crisis forced the government to privatize state-owned enterprises, reduce the size of the bureaucracy, and cut back on tariffs, depriving

[19]The PRI was initially known as National Revolutionary Party (1929-1938) and Party of the Mexican Revolution (1938-1946).

Figure 5: Vote Share in Legislative Elections, 1975–2020



Using data from Cruz et al. (2021), complemented by data from the Instituto Nacional Electoral (previously Instituto Federal Electoral), this figure depicts the percentage of votes received by the largest political parties in Mexico – the Institutional Revolutionary Party (PRI), the National Action Party (PAN), the Party of the Democratic Revolution (PRD), and the National Regeneration Movement (Morena) – in elections for the Chamber of Deputies (which take place every three years). The PRD first ran in the 1994 election. Morena first ran in the 2015 election. Vertical lines indicate quarters in which natural resource policy was passed.

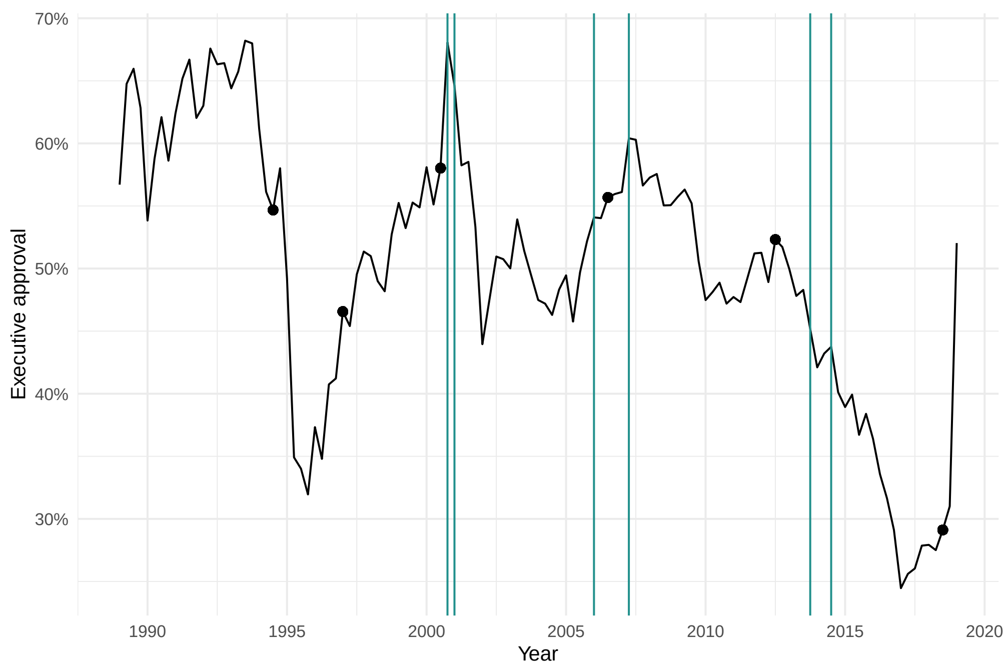
the PRI of funds for patronage (Greene, 2010). In 1997, the party failed to win a majority in the Chamber of Deputies for the first time in history; in 2000, it lost the presidential election to the conservative National Action Party (PAN). Except for the 2007-2009 legislative period, the PRI continued to be the largest party in the Chamber of Deputies, but its dominance was no longer absolute. In line with my theory, this decline in single-party dominance and increase in political competition coincided with a series of reforms in the oil sector.

At the beginning of every fiscal year, the government calculates its expected future revenue based on a reference price for a barrel of crude oil. At the end of the fiscal year, 40% of the surplus (if applicable) must be deposited into a fund to offset the negative effects of oil price fluctuation on public finances.[20] To fulfill this purpose, the Oil Revenues Stabilization Fund (FEIP) was created in December 2000,[21] the same month President Vicente Fox took office. The fund's proceeds should be invested in low-risk financial instruments, and the government could withdraw up to 50% of the fund if the actual price for an oil barrel fell at least 1.50 US dollars below the reference price. Fox could afford to make such reforms: he

[20] Presupuesto de Egresos de la Federación para el ejercicio fiscal del año 2000, Article 35. 31 December 1999.

[21] Acuerdo por el que se expiden las Reglas de Operación del Fondo de Estabilización de los Ingresos Petroleros. 31 December 2000.

Figure 6: Executive Approval in Mexico, 1989–2019



Using data from Carlin et al. (2019), this figure depicts the approval ratings of Mexican presidents between 1989 and 2019. The round markers indicate presidential elections (which take place every six years), while vertical lines indicate quarters in which natural resource policy was passed.

rose to power during an increase in oil prices and had high approval ratings, being the first president in 71 years who was not a member of the PRI. Though the FEIP represented an important first step in curtailing policymakers' ability to use resource revenue for political gain, it did not have clear regulations. As a result, incumbents quickly rewrote the rules to meet their short-term needs: the share of revenue surplus to be deposited in the fund was reduced from 40% in 2000 to 33% and 25% in 2001 and 2003, respectively.

In March 2006, Fox signed a fiscal reform mandating a balanced budget for the federal public sector, including public enterprises like Pemex.[22] At the time, his approval rating was over 50% and his party faced meaningful competition – two conditions anticipated by my theory. In 2006, Fox's former Secretary of Energy and fellow member of the PAN, Felipe Calderón, won the presidential election by a narrow margin. Calderón continued the reforms of his predecessor, passing new regulation disclosing the FEIP's total asset value and creating a technical committee to manage the fund.[23] This regulation coincided with a period of high executive approval, when over 60% of all Mexicans approved of President Calderón's administration, as Figure 6 shows. His administration faced the optimal conditions to reform the extractive sector without risking the loss of public support.

The PAN controlled the presidency from 2000 to 2012. When the PRI won the presidency

[22]Decreto por el que se expide la Ley Federal de Presupuesto y Responsabilidad Hacendaria. 30 March 2006.

[23]Acuerdo por el que se establecen las Reglas de Operación del Fondo de Estabilización de los Ingresos Petroleros. 31 May 2007.

in 2012 and regained its status as the largest party in the legislative, it deepened these reforms. In 2013 and 2014, President Enrique Peña Nieto signed legislation capping structural current spending, restructuring the oil sector, and replacing the FEIP with the Mexican Oil Stabilization and Development Fund (FMPED).[24] The FMPED is funded through revenue earned by Pemex from contracts for exploration and production of hydrocarbons. This revenue is managed by a technical committee that publishes monthly financial statements and meets at least five times every year; the minutes of each meeting are available online. These and other economic reforms were largely unpopular,[25] leading to a decline in Peña Nieto's approval ratings – a decline he was able to stomach, as he had enough political space to undertake such costly reforms. After all, his PRI was again the largest party in the Chamber of Deputies by that point, with a 20% lead over the runner-up, the PAN.

The PRI is an ideologically diffuse party, and Peña Nieto ran on a center-right platform that promoted state retrenchment. This could indicate that conservative presidents, like Fox and Peña Nieto, are more likely to reform the extractive sector than centrist or leftist presidents. But in its 71 years of dominance, from 1929 until 2000, the PRI did not implement any major reforms in the oil sector. The party was only compelled to introduce a new regulatory framework after suffering electoral losses. Thus, the timing of natural resource policy in Mexico suggests that ideology alone is not a sufficient explanation. For Latin American presidents to tie their hands, they need to have high approval rates and face a credible opposition.

7 Conclusion

This study finds that incumbents are more likely to pass legal documents related to Special Fiscal Institutions when public support is high, but political competition is strong. Given that natural resources boost the political capital of incumbents, rulers only dispense with this boost when they are secure in their incumbency; under these circumstances, there is no sense of urgency, and SFIs do not deprive the incumbent of much needed political capital ahead of elections. At the same time, rulers must also face a credible political opposition, or there will be no incentives to remain accountable to the citizenry by developing institutions in the first place. Leaders are more likely to adopt forward-looking natural resource policies when they are not so secure that they can ignore public demands for accountability.

To be clear, tying hands does not impede patronage and corruption. In fact, natural resource policy may be an efficient way to institutionalize side payments. Rulers might create a natural resource fund and place political allies on the investment board; they might amend extant measures, replace old measures with new measures, engage in creative accounting, or simply fail to comply altogether, without formally untying their hands. There is a gap between de jure policy and de facto behavior; good policy cannot implement itself. I identify an optimal set of circumstances at which rulers are safe enough to tie their hands without

[24] Decreto por el que se reforman, adicionan y derogan diversas disposiciones de la Ley Federal de Presupuesto y Responsabilidad Hacendaria. 13 December 2013. See also Ley del Fondo Mexicano del Petróleo para la Estabilización y el Desarrollo. 11 August 2014.

[25] I thank an anonymous reviewer for highlighting this. See Pew Research Center. "Mexican President Peña Nieto's Ratings Slip with Economic Reform." 26 August 2014.

risking their seats, but unsafe enough that they would rather institutionalize the distribution of resource rents than distribute these rents informally. The central implication is that incumbents are more likely to institutionalize commitments in first place – even if these commitments are hollow – when they are safe in the knowledge that such commitment will satisfy demands for accountability in the long term without costing them their office in the short term. This study does not investigate the gap between policy adoption and law enforcement, and my findings cannot predict whether these laws will truly be implemented. In the words of Humphreys and Sandbu (2007, 195), "setting up a natural resource fund does not automatically change the political economy incentives for 'misbehavior.'"

Nonetheless, evidence from Brazil suggests that electoral uncertainty decreases not only the odds of policy adoption, but also of compliance. Melo et al. (2014) find that political volatility reduces compliance with fiscal rules: frequent turnover in the party controlling the state government and high party fragmentation in the legislative both motivate incumbents to resort to creative accounting to increase spending for electoral purposes. This suggests that incumbents facing low political uncertainty are both more likely to pass natural resource legislation and more likely to comply with it. Even when incumbents do not follow through (either because they do not want to or because they lack the state capacity to do so), fiscal institutions increase the cost of non-compliance by drawing attention to misbehavior (Amick et al., 2020). Breaking rules to spend money freely carries economic and reputational costs; economic mismanagement may strengthen support for political alternatives, while non-compliance with fiscal rules might jeopardize the disbursal of IMF loans or prompt bondholders to charge higher risk premiums (Kelemen et al., 2014). Future studies can examine how these commitments are implemented and under what circumstances, if any, they are formally reversed. My results also encourage further research on the role of watchdog institutions, which document and enforce compliance even in the absence of political uncertainty.

References

Acemoglu D, Johnson S, Robinson JA (2003) An African Success Story. In: Rodrik D (ed) In Search of Prosperity: Analytic Narratives on Economic Growth, Princeton University Press, Princeton, pp 80–119

Al-Hassan A, Papaioannou M, Skancke M, Sung CC (2014) Sovereign Wealth Funds: Aspects of Governance Structures and Investment Management. IMF Working Paper 13(231):1–33, DOI 10.5089/9781475518610.001

Amick J, Chapman T, Elkins Z (2020) On Constitutionalizing a Balanced Budget. Journal of Politics 82(3):1078–1096, DOI 10.1086/707618

Ashworth S (2012) Electoral Accountability: Recent Theoretical and Empirical Work. Annual Review of Political Science 15(1):183–201, DOI 10.1146/annurev-polisci-031710-103823

Bauer ME, Cruz C, Graham BA (2012) Democracies Only: When do IMF Agreements

Serve as a Seal of Approval? Review of International Organizations 7(1):33–58, DOI 10.1007/s11558-011-9122-9

Baunsgaard T, Villafuerte M, Poplawski-Ribeiro M, Richmond C (2012) Fiscal Frameworks for Resource Rich Developing Countries. IMF Staff Discussion Notes 12(4), DOI 10.5089/9781475510065.006

Besley T, Persson T (2014) Why Do Developing Countries Tax So Little? Journal of Economic Perspectives 28(4):99–120, DOI 10.1257/jep.28.4.99

Brooks SM, Kurtz MJ (2016) Oil and Democracy: Endogenous Natural Resources and the Political Resource Curse. International Organization 70(2):279–311, DOI 10.1017/S0020818316000072

Bueno de Mesquita B, Morrow JD, Siverson RM, Smith A (2002) Political Institutions, Policy Choice and the Survival of Leaders. British Journal of Political Science 32(4):559–590, DOI 10.1017/S0007123402000236

Cantú F (2019) The Fingerprints of Fraud: Evidence from Mexico's 1988 Presidential Election. American Political Science Review 113(3):710–726, DOI 10.1017/S0003055419000285

Carlin RE, Hartlyn J, Hellwig T, Love GJ, Martinez-Gallardo C, Singer MM (2019) Executive Approval Database 2.0. URL http://www.executiveapproval.org/

Carter DB, Signorino CS (2010) Back to the Future: Modeling Time Dependence in Binary Data. Political Analysis 18(3):271–292, DOI 10.1093/pan/mpq013

Caselli F, Michaels G (2013) Do Oil Windfalls Improve Living Standards? Evidence from Brazil. American Economic Journal: Applied Economics 5(1):208–238, DOI 10.1257/app.5.1.208

Chwieroth JM (2014) Fashions and Fads in Finance: The Political Foundations of Sovereign Wealth Fund Creation. International Studies Quarterly 58(4):752–763, DOI 10.1111/isqu.12140

Clark D, Regan P (2020) Mass Mobilization Protest Data. DOI 10.7910/DVN/HTTWYL

Click RW, Weiner RJ (2010) Resource Nationalism Meets the Market: Political Risk and the Value of Petroleum Reserves. Journal of International Business Studies 41(5):783–803, DOI 10.1057/jibs.2009.90

Collier P (2014) The Ethics of Natural Assets. Journal of Global Ethics 10(1):45–52, DOI 10.1080/17449626.2014.896573

Collier P (2017) The Institutional and Psychological Foundations of Natural Resource Policies. Journal of Development Studies 53(2):217–228, DOI 10.1080/00220388.2016.1160067

Cook SJ, Hays JC, Franzese RJ (2020) Fixed Effects in Rare Events Data: A Penalized Maximum Likelihood Solution. Political Science Research and Methods 8(1):92–105, DOI 10.1017/psrm.2018.40

Cotet AM, Tsui KK (2013) Oil and Conflict: What Does the Cross Country Evidence Really Show? American Economic Journal: Macroeconomics 5(1):49–80, DOI 10.1257/mac.5.1.49

Crivelli E, Gupta S (2014) Resource Blessing, Revenue Curse? Domestic Revenue Effort in Resource-Rich Countries. European Journal of Political Economy 35:88–101, DOI 0.1016/j.ejpoleco.2014.04.001

Cruz C, Keefer P, Scartascini C (2021) Database of Political Institutions 2020. DOI 10.18235/0003049

Doner RF, Ritchie BK, Slater D (2005) Systemic Vulnerability and the Origins of Developmental States: Northeast and Southeast Asia in Comparative Perspective. International Organization 59(2):327–361, DOI 10.1017/S0020818305050113

Dunning T (2005) Resource Dependence, Economic Performance, and Political Stability. Journal of Conflict Resolution 49(4):451–482, DOI 10.1177/0022002705277521

Gervasoni C (2010) A Rentier Theory of Subnational Regimes: Fiscal Federalism, Democracy, and Authoritarianism in the Argentine Provinces. World Politics 62(2):302–340, DOI 10.1017/S0043887110000067

Goldberg E, Wibbels E, Mvukiyehe E (2008) Lessons from Strange Cases: Democracy, Development, and the Resource Curse in the US States. Comparative Political Studies 41(4/5):477–514, DOI 10.1177/0010414007313123

Gonzalez LI (2018) Oil Rents and Patronage: The Fiscal Effects of Oil Booms in the Argentine Provinces. Comparative Politics 51(1):101–119, DOI 10.5129/001041518824414629

Gottlieb J, Kosec K (2019) The Countervailing Effects of Competition on Public Goods Provision: When Bargaining Inefficiencies Lead to Bad Outcomes. American Political Science Review 113(1):88–107, DOI 10.1017/S0003055418000667

Greene KF (2007) Why Dominant Parties Lose: Mexico's Democratization in Comparative Perspective. Cambridge University Press, New York

Greene KF (2010) The Political Economy of Authoritarian Single-Party Dominance. Comparative Political Studies 43(7):807–834, DOI 10.1177/0010414009332462

Hamilton JD (2009) Understanding Crude Oil Prices. The Energy Journal 30(2):179–206, DOI 10.5547/ISSN0195-6574-EJ-Vol30-No2-9

Hellwig T, Samuels D (2007) Electoral Accountability and the Variety of Democratic Regimes. British Journal of Political Science 38(1):65–90, DOI 10.1017/S0007123408000045

Hobolt SB, Klemmensen R (2008) Government Responsiveness and Political Competition in Comparative Perspective. Comparative Political Studies 41(3):309–337, DOI 10.1177/0010414006297169

Hollyer JR, Rosendorff BP, Vreeland JR (2011) Democracy and Transparency. Journal of Politics 73(4):1191–1205, DOI 10.1017/S0022381611000880

Horn MK (2014) Giant Oil and Gas Fields of the World. URL `https://edx.netl.doe.gov/dataset/aapg-datapages-giant-oil-and-gas-fields-of-the-world`

Humphreys M, Sandbu ME (2007) The Political Economy of Natural Resource Funds. In: Humphreys M, Sachs J, Stiglitz J (eds) Escaping The Resource Curse, Columbia University Press, New York, pp 194–233

IMF (2008) Sovereign Wealth Funds – A Work Agenda. IMF Policy Paper pp 1–38

Jacobs AM (2016) Policy Making for the Long Term in Advanced Democracies. Annual Review of Political Science 19(1):433–454, DOI 10.1146/annurev-polisci-110813-034103

Jacobs AM, Matthews JS (2012) Why Do Citizens Discount the Future? Public Opinion and the Timing of Policy Consequences. British Journal of Political Science 42(4):903–935, DOI 10.1017/S0007123412000117

Jensen NM, Johnston NP (2011) Political Risk, Reputation, and the Resource Curse. Comparative Political Studies 44(6):662–688, DOI 10.1177/0010414011401208

Jones Luong P, Sierra J (2015) The Domestic Political Conditions for International Economic Expansion: Lessons From Latin American National Oil Companies. Comparative Political Studies 48(14):2010–2043, DOI 10.1177/0010414015592647

Jones Luong P, Weinthal E (2006) Rethinking the Resource Curse: Ownership Structure, Institutional Capacity, and Domestic Constraints. Annual Review of Political Science 9(1):241–263, DOI 10.1146/annurev.polisci.9.062404.170436

Karl TL (2007) Ensuring Fairness: The Case for a Transparent Fiscal Contract. In: Humphreys M, Sachs JD, Stiglitz JE (eds) Escaping the Resource Curse, Columbia University Press, New York, pp 256–285

Kelemen RD, Teo TK, Kelemen RD, Teo TK (2014) Law, Focal Points, and Fiscal Discipline in the United States and the European Union. American Political Science Review 108(2):355–370, DOI 10.1017/S0003055414000100

Kendall-Taylor A (2011) Instability and Oil: How Political Time Horizons Affect Oil Revenue Management. Studies in Comparative International Development 46(3):321–348, DOI 10.1007/s12116-011-9089-9

King G, Zeng L (2001) Explaining Rare Events in International Relations. International Organization 55(3):693–715, DOI 10.1162/00208180152507597

Laeven L, Valencia F (2020) Systemic Banking Crises Database II. IMF Economic Review 68:307–361

Lake DA, Baum MA (2001) The Invisible Hand of Democracy: Political Control and the Provision of Public Services. Comparative Political Studies 34(6):587–621, DOI 10.1177/0010414001034006001

Lledó V, Yoon S, Fang X, Mbaye S, Kim Y (2017) Fiscal Rules at a Glance. International Monetary Fund, Washington DC

Mahdavi P (2019) Institutions and the 'Resource Curse': Evidence From Cases of Oil-Related Bribery. Comparative Political Studies 53(1):3–39, DOI 10.1177/0010414019830727

Mahdavi P (2020) Institutions and the "Resource Curse": Evidence From Cases of Oil-Related Bribery. Comparative Political Studies 53(1):3–39, DOI 10.1177/0010414019830727

McGuirk EF (2013) The Illusory Leader: Natural Resources, Taxation and Accountability. Public Choice 154:285–313, DOI 10.1007/s11127-011-9820-0

Melo MA, Pereira C, Souza S (2014) Why Do Some Governments Resort to 'Creative Accounting' But Not Others? Fiscal Governance in the Brazilian Federation. International Political Science Review 35(5):595–612, DOI 10.1177/0192512114543160

Mihalyi D, Fernández L (2018) How Did Fiscal Rules Hold Up in the Commodity Price Crash? Natural Resource Governance Institute, New York, URL `https://resourcegovernance.org/sites/default/files/documents/fiscal-rules-commodity-crash.pdf`

Mullainathan S, Shafir E (2013) Scarcity: Why Having Too Little Means So Much. Macmillan, London

Natural Resource Governance Institute (2017) Resource Governance Index. URL `http://www.resourcegovernanceindex.org/`

Ossowski R, Villafuerte M, Medas PA, Thomas T (2008) Managing the Oil Revenue Boom: The Role of Fiscal Institutions. International Monetary Fund, Washington DC, DOI 10.5089/9781589067189.084

Ossowski RJ, Halland H (2016) Fiscal Management in Resource-Rich Countries: Essentials for Economists, Public Finance Professionals, and Policy Makers. World Bank, Washington DC, DOI 10.1596/978-1-4648-0495-3

Paler L (2013) Keeping the Public Purse: An Experiment in Windfalls, Taxes, and the Incentives to Restrain Government. American Political Science Review 107(4):706–725, DOI 10.1017/S0003055413000415

Powell GBJ, Whitten GD (1993) A Cross-National Analysis of Economic Voting: Taking Account of the Political Context. American Journal of Political Science 37(2):391–414, DOI 10.2307/2111378

Ross ML (2001) Does Oil Hinder Democracy? World Politics 53(3):325–361, DOI 10.1353/wp.2001.0011

Ross ML (2008) Oil, Islam, and Women. American Political Science Review 102(1):107–123, DOI 10.1017/S0003055408080040

Ross ML (2015) What Have We Learned about the Resource Curse? Annual Review of Political Science 18(1):239–259, DOI 10.1146/annurev-polisci-052213-040359

Rudra N, Jensen NM (2011) Globalization and the Politics of Natural Resources. Comparative Political Studies 44(6):639–661, DOI 10.1177/0010414011401207

Sachs JD, Warner AM (2001) The Curse of Natural Resources. European Economic Review 45:827–838, DOI 10.1016/S0014-2921(01)00125-8

Samuels D (2004) Presidentialism and Accountability for the Economy in Comparative Perspective. American Political Science Review 98(3):1–12, DOI 10.1017/S000305540400125X

Schultz KA (1995) The Politics of the Political Business Cycle. British Journal of Political Science 25(1):79–99, DOI 10.1017/S0007123400007079

Schuster C (2020) Patrons Against Clients: Electoral Uncertainty and Bureaucratic Tenure in Politicized States. Regulation and Governance 14(1):26–43, DOI 10.1111/rego.12186

Seawright J, Gerring J (2008) Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options. Political Research Quarterly 61(2):294–308, DOI 10.1177/1065912907313077

Snyder R, Samuels D (2001) Devaluing the Vote in Latin America. Journal of Democracy 12(1):146–159, DOI 10.1353/jod.2001.0016

Sugawara N (2014) From Volatility to Stability in Expenditure: Stabilization Funds in Resource-Rich Countries. IMF Working Papers 14(43):1–48, DOI 10.5089/9781475515275.001

Tsebelis G, Alemán E (2005) Presidential Conditional Agenda Setting in Latin America. World Politics 57(3):396–420, DOI 10.1353/wp.2006.0005

Venables AJ (2016) Using Natural Resources for Development: Why Has It Proven So Difficult? Journal of Economic Perspectives 30(1):161–184, DOI 10.1257/jep.30.1.161

Vicente PC (2010) Does Oil Corrupt? Evidence from a Natural Experiment in West Africa. Journal of Development Economics 92(1):28–38, DOI 10.1016/j.jdeveco.2009.01.005

Weitz-Shapiro R (2012) What Wins Votes: Why Some Politicians Opt Out of Clientelism. American Journal of Political Science 56(3):568–583, DOI 10.1111/j.1540-5907.2011.00578.x

Weyland K (2009) The Rise of Latin America's Two Lefts: Insights from Rentier State Theory. Comparative Politics 41(2):145–164, DOI 10.5129/001041509X12911362971918

Wiens D (2014) Natural Resources and Institutional Development. Journal of Theoretical Politics 26(2):197–221, DOI 10.1177/0951629813493835

World Bank (2014) Commodity Markets Outlook. URL https://www.worldbank.org/en/research/commodity-markets

Appendix

A Countries Included in the Analysis

Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guatemala, Guyana, Mexico, Peru, Trinidad and Tobago, Suriname, Venezuela.

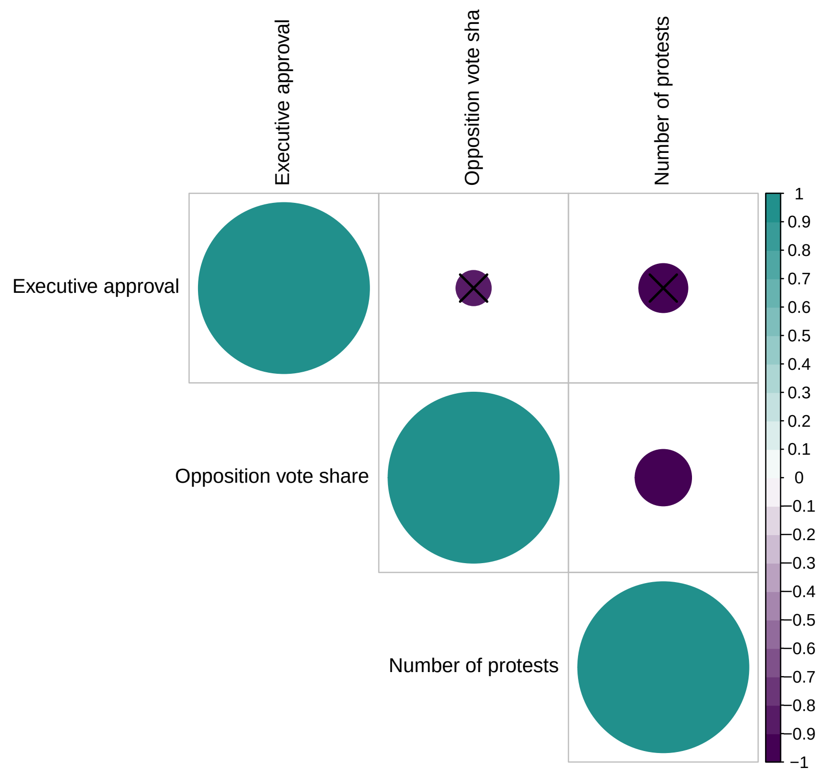
B Summary Statistics

Table B.1: Descriptive Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Year	1560	2004.500	8.658	1990	2019
Any document	1560	0.022	0.148	0	1
Fund document	1560	0.016	0.126	0	1
Executive approval (%)	1116	45.251	14.842	2.903	82.766
Opposition vote share (%)	1056	25.572	12.585	0.000	52.200
Number of protests	1560	1.141	1.777	0	15
Lame duck	1560	0.046	0.208	0	1
Party age	1480	32.191	31.907	1.000	183.000
Democracy	1508	6.931	2.719	−7.000	10.000
Left executive	1532	0.402	0.490	0	1
Election quarter	1560	0.083	0.276	0	1
Resource rents (%)	1528	8.642	7.066	0.495	33.590
Field discovery	1560	0.027	0.162	0	1
Oil price (USD, log)	1560	3.928	0.519	2.863	4.959
GDP per capita (1,000 USD)	1500	7.155	3.934	1.391	17.065
GDP growth (%)	1528	3.122	3.856	−12.312	18.287
IMF program	1560	0.237	0.425	0	1
Crisis	1560	0.016	0.126	0	1

C Correlation Matrix for the Main Independent Variables

Figure C.1: Correlation Matrix for the Main Independent Variables



This figure shows the correlation between the independent variables of interest, crossing off all correlations that are not statistically significant.

D Robustness Checks

Table D.1 re-estimates some of the main models, excluding outliers for *Number of protests*. After all, only 30 out of 1,560 country-quarters experienced over six protests, so these 30 observations could be driving the results. Table D.1 provides some reassurance that this is not the case, as the results are robust to dropping these observations.

Table D.2 presents the results of models that interact public support (measured as *Executive approval*) with political opposition (measured either as *Opposition vote share* or as *Number of protests*). Figures D.1 and D.2 plot the marginal effects of these interaction terms.

Though the interaction between *Executive approval* and *Number of protests* has a negative and significant coefficient, this effect disappears once I exclude the 30 above-mentioned outliers.

Table D.3 examines the effect of the independent variable *Executive approval* when lagged at one to five quarters. The dependent variable is *Any document* for Models 1–5 and *Fund document* for Models 6–10. The results are robust to these changes. In fact, *Executive approval* has the largest effect on *Any document* at time $t-2$, and it has the largest effect on *Fund document* at time at time $t-1$; both effects are statistically significant.

Lastly, Table D.4 tests for the effect of *Executive opposition vote share*, measured as the vote share of all opposition candidates in the first (or only) round of presidential elections. This variable has a small and inconsistent effect on SFI creation and regulation, suggesting that the mechanism at play is not only the existence of an opposition, but a *standing* opposition.

Table D.1: Determinants of SFI and Resource Fund Creation or Regulation, 1990–2019, Excluding Extreme Values for Protests

	Dependent variable:			
	Any document		Fund document	
	(1)	(2)	(3)	(4)
Executive approval (%)		0.031**		0.064***
		(0.012)		(0.010)
Opposition vote share (%)		0.023		0.094***
		(0.023)		(0.020)
Number of protests	0.163*	0.290***	0.253***	0.619***
	(0.092)	(0.101)	(0.092)	(0.079)
Any document, t-1		0.955*		
		(0.555)		
Fund document, t-1				1.901***
				(0.718)
Lame duck = 1		−0.360		0.120
		(0.556)		(0.563)
Party age		0.001		0.029***
		(0.012)		(0.007)
Democracy		0.045		−0.111
		(0.099)		(0.073)
Left executive = 1		−0.066		−1.074**
		(0.557)		(0.501)
Election quarter = 1		1.051***		0.956**
		(0.408)		(0.390)
Resource rents (%)		−0.085**		−0.095**
		(0.034)		(0.040)
Field discovery = 1		0.482		1.421***
		(0.495)		(0.367)
Oil price (USD, log)		2.124***		1.393**
		(0.572)		(0.648)
GDP per capita (1,000 USD)		0.354***		0.448***
		(0.102)		(0.149)
GDP growth (%)		0.009		0.016
		(0.044)		(0.048)
IMF program = 1		0.273		0.981***
		(0.334)		(0.313)
Crisis = 1		0.227		0.500
		(0.475)		(0.340)
Constant	−4.387***	−17.708***	−6.588***	−20.044***
	(0.507)	(2.943)	(0.282)	(3.323)
Observations	1,530	612	1,530	612
Log Likelihood	−139.444	−59.492	−103.225	−36.612

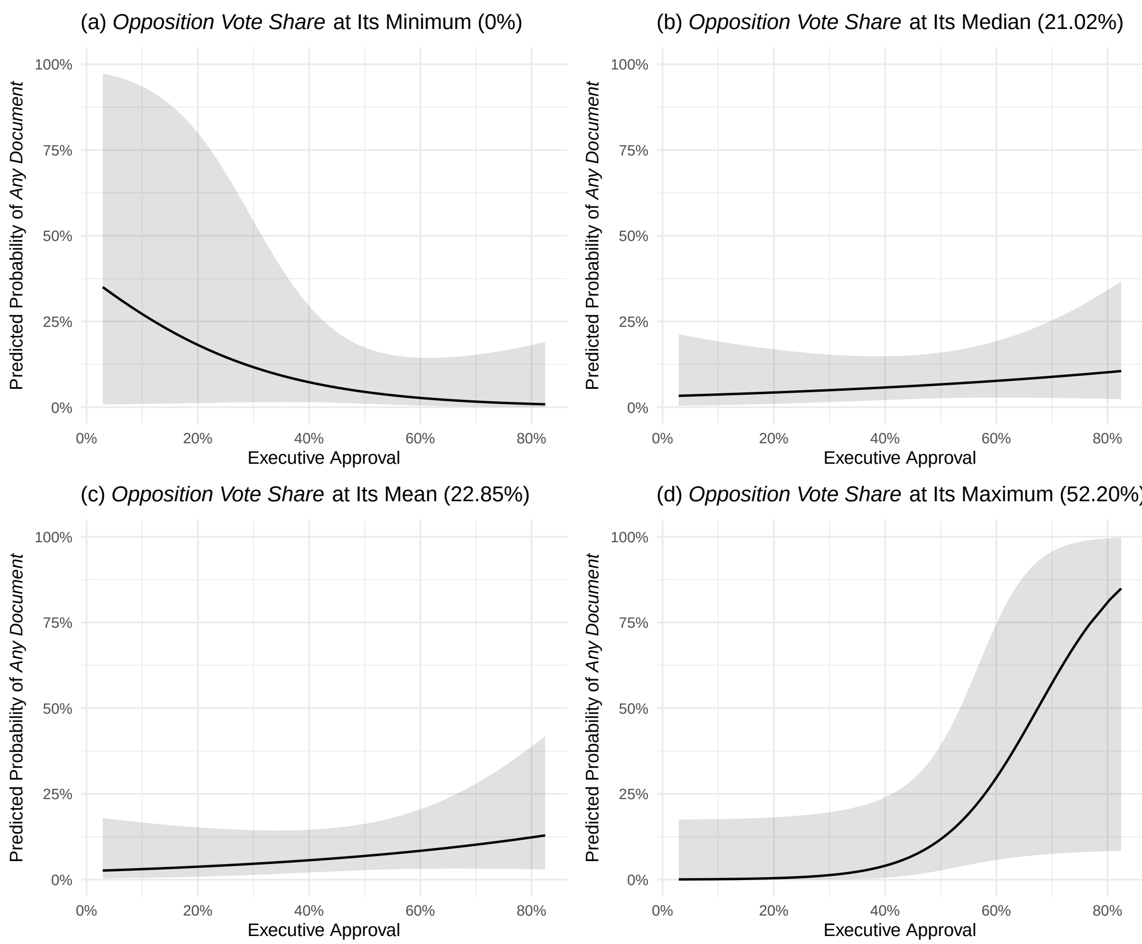
This table reports the results of penalized likelihood models with third-order polynomials, country fixed effects, and standard errors clustered by country. Coefficients represent log odds. *p<0.1; **p<0.05; ***p<0.01.

Table D.2: Determinants of SFI and Resource Fund Creation or Regulation, 1990–2019, With Interactions Between Public Support and Political Competition

	Dependent variable:			
	Any document		Fund document	
	(1)	(2)	(3)	(4)
Executive approval (%)	−0.061*	0.059***	0.024	0.108***
	(0.034)	(0.021)	(0.032)	(0.019)
Opposition vote share (%)	−0.193**	0.014	0.021	0.052***
	(0.078)	(0.021)	(0.047)	(0.017)
Executive approval × Opposition vote share	0.004***		0.001	
	(0.001)		(0.001)	
Number of protests	0.232***	0.892***	0.405***	1.292***
	(0.066)	(0.300)	(0.070)	(0.231)
Executive approval × Number of protests		−0.014**		−0.017***
		(0.006)		(0.004)
Democracy	0.095	0.008	−0.032	−0.106
	(0.093)	(0.089)	(0.076)	(0.076)
Left executive = 1	−0.325	0.174	−1.266**	−0.963***
	(0.688)	(0.549)	(0.495)	(0.300)
Election quarter = 1	0.892**	0.952**	1.147***	1.093**
	(0.448)	(0.418)	(0.433)	(0.452)
Resource rents (%)	−0.101***	−0.101***	−0.128***	−0.159***
	(0.036)	(0.038)	(0.047)	(0.054)
Field discovery = 1	1.068**	0.540	2.442***	2.189***
	(0.485)	(0.509)	(0.407)	(0.372)
Oil price (USD, log)	3.070***	3.261***	2.712***	3.199***
	(0.552)	(0.625)	(0.648)	(0.728)
GDP per capita (1,000 USD)	0.425***	0.428***	0.437***	0.453***
	(0.102)	(0.094)	(0.110)	(0.115)
GDP growth (%)	−0.007	−0.007	0.037	0.053
	(0.054)	(0.057)	(0.066)	(0.075)
IMF program = 1	−0.636*	−0.629	−0.458	−0.656
	(0.378)	(0.406)	(0.433)	(0.455)
Crisis = 1	−0.007	0.233	0.870	0.908*
	(0.577)	(0.532)	(0.587)	(0.541)
Constant	−17.098***	−23.455***	−21.909***	−27.400***
Observations	669	669	669	669
Log Likelihood	−62.442	−62.554	−44.094	−41.269

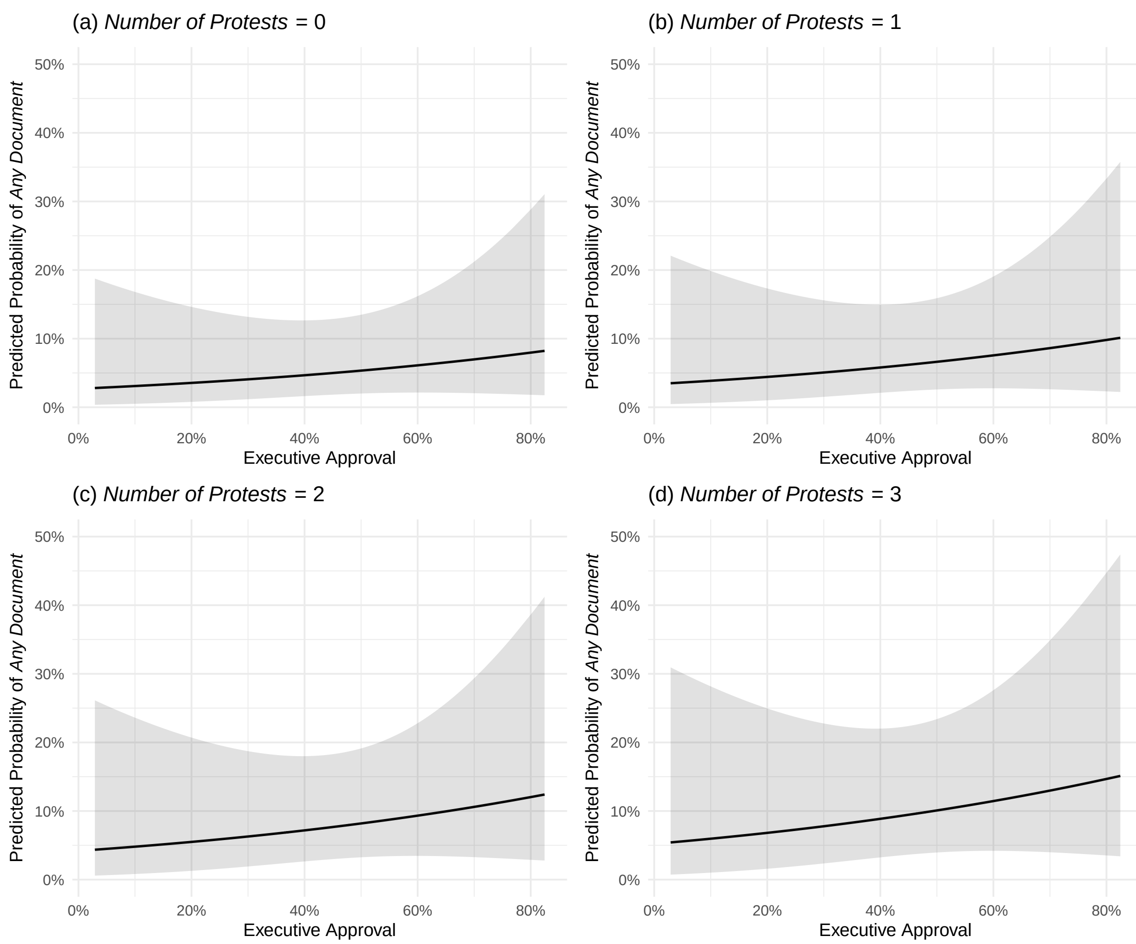
This table reports the results of penalized likelihood models with third-order polynomials, country fixed effects, and standard errors clustered by country. Coefficients represent log odds. *p<0.1; **p<0.05; ***p<0.01.

Figure D.1: Predicted Probability of *Any Document* at Different Values of Public Approval, Conditional on *Opposition Vote Share*



Based on Model 1 of Table D.2 (re-estimated without country fixed effects), these figures simulate the predicted probability of observing *Any document*, with 95 percent confidence intervals, at different values of *Executive approval*, conditional on *Opposition vote share* at its minimum (a), median (b), mean (c), or maximum (d) value. The remaining variables are held at their means (with dichotomous variables held at zero).

Figure D.2: Predicted Probability of *Any Document* at Different Values of Public Approval, Conditional on *Number of Protests*



Based on Model 2 of Table D.2 (re-estimated without country fixed effects), these figures simulate the predicted probability of observing *Any document*, with 95 percent confidence intervals, at different values of *Executive approval*, conditional on *Number of protests* at its four most frequent values (0, 1, 2, and 3). The remaining variables are held at their means (with dichotomous variables held at zero).

Table D.3: Determinants of SFI and Natural Resource Fund Creation or Regulation, 1990–2019, With Lagged Executive Approval

	Dependent variable:									
	Any document (Models 1–5)					Fund document (Models 6–10)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Executive approval (% t–1)	0.037***					0.045***				
	(0.014)					(0.017)				
Executive approval (% t–2)		0.041***					0.043**			
		(0.015)					(0.018)			
Executive approval (% t–3)			0.034**					0.041**		
			(0.015)					(0.016)		
Executive approval (% t–4)				0.035**					0.039**	
				(0.015)					(0.015)	
Executive approval (% t–5)					0.026**					0.033***
					(0.011)					(0.012)
Democracy	0.077	0.073	0.066	0.063	0.061	0.021	0.016	0.010	0.005	0.001
	(0.081)	(0.080)	(0.080)	(0.079)	(0.082)	(0.078)	(0.079)	(0.079)	(0.077)	(0.077)
Left executive = 1	−0.215	−0.193	−0.146	−0.116	−0.060	−0.465	−0.391	−0.353	−0.286	−0.229
	(0.496)	(0.497)	(0.481)	(0.479)	(0.460)	(0.444)	(0.442)	(0.434)	(0.420)	(0.405)
Election quarter = 1	0.565	0.582	0.588	0.576	0.580	0.321	0.327	0.331	0.336	0.342
	(0.367)	(0.371)	(0.373)	(0.374)	(0.376)	(0.418)	(0.422)	(0.425)	(0.436)	(0.436)
Resource rents (%)	−0.055	−0.050	−0.047	−0.044	−0.045	−0.036	−0.034	−0.029	−0.026	−0.023
	(0.034)	(0.034)	(0.036)	(0.038)	(0.038)	(0.041)	(0.041)	(0.043)	(0.045)	(0.046)
Field discovery = 1	0.332	0.433	0.434	0.476	0.506	1.155***	1.216***	1.159**	1.209**	1.355***
	(0.563)	(0.569)	(0.568)	(0.578)	(0.612)	(0.426)	(0.442)	(0.460)	(0.474)	(0.502)
Oil price (USD, log)	2.091***	2.056***	2.093***	2.101***	2.148***	1.789**	1.804**	1.829**	1.831**	1.875**
	(0.708)	(0.705)	(0.706)	(0.691)	(0.701)	(0.827)	(0.826)	(0.824)	(0.804)	(0.815)
GDP per capita (1,000 USD)	0.145	0.148	0.150	0.150	0.153	0.200	0.200	0.199	0.200	0.203
	(0.132)	(0.129)	(0.128)	(0.127)	(0.128)	(0.140)	(0.137)	(0.137)	(0.136)	(0.135)
GDP growth (%)	−0.037	−0.040	−0.041	−0.041	−0.040	−0.005	−0.004	−0.004	−0.005	−0.007
	(0.049)	(0.049)	(0.050)	(0.051)	(0.051)	(0.069)	(0.069)	(0.070)	(0.071)	(0.072)
IMF program = 1	−0.361	−0.355	−0.350	−0.330	−0.319	−0.520	−0.510	−0.503	−0.486	−0.472
	(0.400)	(0.406)	(0.401)	(0.397)	(0.389)	(0.433)	(0.442)	(0.441)	(0.437)	(0.427)
Crisis = 1	0.342	0.271	0.102	0.055	0.092	1.211***	1.037**	0.862**	0.731**	0.859**
	(0.328)	(0.332)	(0.321)	(0.306)	(0.310)	(0.392)	(0.412)	(0.398)	(0.366)	(0.354)
Constant	−15.473***	−15.544***	−15.381***	−15.464***	−15.277***	−16.375***	−16.453***	−16.453***	−16.404***	−16.336***
	(3.376)	(3.305)	(3.311)	(3.242)	(3.289)	(3.840)	(3.764)	(3.713)	(3.604)	(3.616)
Observations	1,038	1,035	1,032	1,029	1,025	1,038	1,035	1,032	1,029	1,025
Log Likelihood	−111.330	−110.818	−111.675	−111.612	−112.529	−83.677	−83.667	−83.838	−84.014	−84.502

This table reports the results of penalized likelihood models with third-order polynomials, country fixed effects, and standard errors clustered by country. Coefficients represent log odds. *p<0.1; **p<0.05; ***p<0.01.

Table D.4: Determinants of SFI and Resource Fund Creation or Regulation, 1990–2019, Including the Effect of Executive Opposition

	Dependent variable:			
	Any document		Resource document	
	(1)	(2)	(3)	(4)
Executive approval (%)		0.043***		0.063***
		(0.014)		(0.015)
Executive opposition vote share (%)	−0.009	−0.002	−0.008	0.015
	(0.013)	(0.011)	(0.014)	(0.011)
Number of protests		0.190***		0.283***
		(0.054)		(0.055)
Democracy		0.079		−0.013
		(0.079)		(0.068)
Left executive = 1		−0.556		−0.587
		(0.447)		(0.438)
Election quarter = 1		0.687*		0.393
		(0.379)		(0.445)
Resource rents (%)		−0.066**		−0.075**
		(0.033)		(0.038)
Field discovery = 1		0.488		1.547***
		(0.578)		(0.433)
Oil price (USD, log)		1.958***		1.556**
		(0.661)		(0.730)
GDP per capita (1,000 USD)		0.167		0.169
		(0.125)		(0.137)
GDP growth (%)		−0.043		0.008
		(0.049)		(0.063)
IMF program = 1		−0.623		−0.784*
		(0.419)		(0.437)
Crisis = 1		0.229		0.968***
		(0.338)		(0.361)
Constant	−3.509***	−14.925***	−5.130***	−16.051***
	(0.811)	(3.316)	(0.782)	(3.779)
Observations	1,148	995	1,148	995
Log Likelihood	−123.006	−104.409	−91.813	−79.467

This table reports the results of penalized likelihood models with third-order polynomials, country fixed effects, and standard errors clustered by country. Coefficients represent log odds. *p<0.1; **p<0.05; ***p<0.01.