

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

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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 2020, I show that incumbents are more likely to restrict their own discretion over the extractive sector when public support is high, but political opposition is strong. When rulers are safe in their seats, they can adopt long-run developmental strategies, rather than use public funds for short-term political survival. When there is a credible opposition, 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

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# 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.”<sup>1</sup> 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. Citizens in Guyana and elsewhere 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). 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’ 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 incumbents are more likely to restrict their own discretion over public revenue in general – and natural resource revenue in particular – in periods of high public support. 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, short-term political survival is not enough: incumbents must also be held accountable by a credible opposition pressuring for public goods provision. Taken together, high support and strong opposition provide space to implement long term-policy while generating enough short-term incentives to do so.

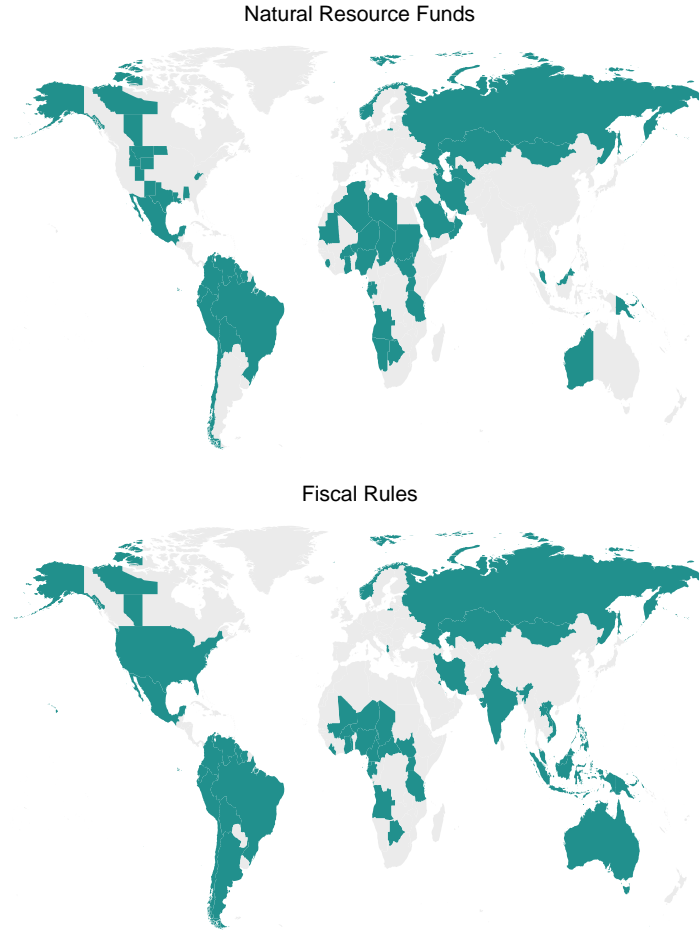
I test these predictions in 13 Latin American nations that are rich in non-renewable resources (like oil, natural gas, and minerals). To do so, I present a novel dataset about the legal emergence of two formal institutions that constrain government discretion: natural resource funds and fiscal rules. 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) 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

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<sup>1</sup>Act No. 12 of 2019 – Natural Resource Fund Act, Article 3. 23 January 2019.

**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 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.

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 time consistent 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.<sup>2</sup> 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 2020 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

According to extant research, 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 fewer women in the labor force (Ross, 2008).

To their credit, governments are typically aware of the existence of a “resource curse,” even before resource extraction begins.<sup>3</sup> 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

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<sup>2</sup>Jillian Ambrose. “Rise of Renewables May See Off Oil Firms Decades Earlier Than They Think.” *The Guardian*. 14 October 2019.

<sup>3</sup>For a recent example, see Michael Forsythe. “Mongolian Harvard Elites Aim for Wealth Without ‘Dutch Disease.’” *Bloomberg*. 15 February 2010.

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 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). I discuss the nature of such institutions below.

Sovereign wealth funds are state-owned investment vehicles that use domestic savings to purchase international assets (Chwioroth, 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, like 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 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 target the overall fiscal balance, often accounting for variations in commodity prices, aiming to lower the size of the public deficit. 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 mitigate the volatility of commodity prices and prolong the benefits of

resource extraction (Baunsgaard et al., 2012).

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). 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 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.

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 might have high electoral costs (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). Short-term political survival is the main factor driving incumbents’ behavior; secondarily, incumbents are willing to invest in long-term institutional development, but only if such an investment does not detract from their primary goal. This is how the time inconsistency phenomenon comes about.

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. 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 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 electoral uncertainty – at least in the short run.

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). After all, 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 public opinion is more likely

to matter for the adoption of this kind of SFI.

**Hypothesis 1 (public support):** *Higher levels of public support are associated with higher odds of adopting Special Fiscal Institutions, particularly natural resource funds.*

Of course, the threat of electoral punishment 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. Recall that 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. When politicians are secure under the status quo *and* face no credible opposition, 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 opponents through patronage. Bueno de Mesquita et al. (2002) make a similar argument: 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. 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. Again, I expect this to be particularly the case for natural resource funds, less so for fiscal rules, which are less visible and therefore less susceptible to pressure from the opposition.

**Hypothesis 2 (political opposition):** *Higher levels of political opposition are associated with higher odds of adopting Special Fiscal Institutions, particularly natural resource funds.*

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. In other words, the opposition should not pose a threat to incumbency, but it should be a nuisance that increases the opportunity cost of pure patronage. When public support is high, but political opposition exists, rulers have no incentive to overspend for electoral gain, but are still held accountable by their rivals. Put differently, electoral punishment needs to be credible, but unlikely. 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).<sup>4</sup> 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.

Second, nearly all Latin American nations have presidential systems,<sup>5</sup> 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 examine 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 analysis 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 collect this evidence, 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 be-

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<sup>4</sup>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).

<sup>5</sup>Exceptions are Trinidad and Tobago (a parliamentary republic) as well as Guyana and Suriname (which have assembly-elected presidents).

**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

tween 1980 and 2020.<sup>6</sup> Then, I use the Foreign Official Gazette Database (FOG), the Global

<sup>6</sup>Since both sources end their coverage before 2017, I corresponded with experts from the Natural Resource

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 mention extractive revenues explicitly. 8 documents cover both types of SFI. As of 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 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. The existence of a written document indicates that the decision to create natural resource institutions is political, not just technocratic.

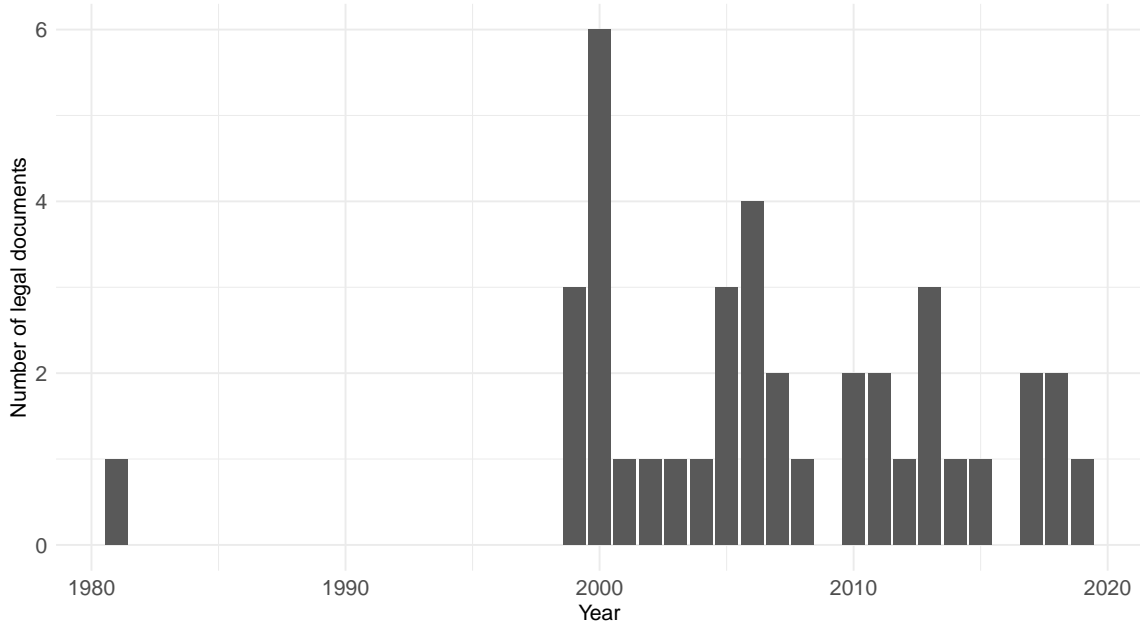
Figure 2 shows the distribution of these 39 legal documents over time. There is a significant temporal gap between 1981 and 1999, that is, between Chile’s Decreto Ley No. 3,653 (which created the Copper Compensation Fund) and Argentina’s Ley 25,152 de Administración de los Recursos Públicos (which introduced balanced budget and expenditure rules). This gap, coupled with the limited availability of data for several covariates, leads me to begin the statistical analysis in 1990.

Given that 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

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Governance Institute and the IMF Fiscal Affairs Department to ensure the accuracy of information for subsequent years.

**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.

are outlined by King and Zeng 2001). Thus, I focus on three binary dependent variables. For every country-year pair, *Resource fund* takes the value of one if the government in question passed any legal document related to development, stabilization, investment, savings, or pension funds, and zero otherwise. *Fiscal rule* does the same for the passage of any legal document related to balanced budget, debt, expenditure, or revenue rules. Lastly, *Resource-related fiscal rule* indicates the passage of any legal document pertaining to a specific subset of fiscal rules that set numerical targets using natural resource rents as a reference.<sup>7</sup> Following a statistical analysis with these three dependent 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 either *Resource fund* or *Fiscal rule*. 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 measure of “the marginal benefit of winning additional votes” (Schultz, 1995, 81), and hence the ideal measure to assess whether political uncertainty drives policy adoption. It is a forward-looking measure that captures not only the incumbent’s assessment of their current

<sup>7</sup>For example, Chile’s 2006 Fiscal Responsibility Law (Law No. 20,128) set a structural budget balance target that is informed by a 10-year forecast of copper and molybdenum revenues (as determined by an independent committee), if the economy were operating at full potential. For more information about Chile, see Ossowski and Halland (2016, 111).

public support, but also their expectations of future electoral performance, conditioning how much room to move they have when setting natural resource policy.<sup>8</sup>

The variable *Executive approval* is not available for the three non-presidential systems (Trinidad and Tobago, Guyana, and Suriname). As a secondary measure of public support that includes these three countries, I examine whether there was any executive turnover in the preceding five years, using data from the Database of Political Institutions (Cruz et al., 2021). Like Berliner (2014), I focus on changes in *party* control, which is more indicative of political uncertainty (or lack thereof) than changes in *individual* control. After all, a transition of power from one individual to another might simply be a function of term limits, which are widespread in Latin America; in contrast, a transition from one party to another is more likely to reflect public dissatisfaction with the policies promoted by the ruler. Given that *Executive approval* varies on a quarterly basis, it captures more immediate changes in public support, whereas *Executive turnover* captures more long-term changes, as it varies on a yearly basis.

According to Hypothesis 2, political opposition is also a driving factor behind governments' choice to pass natural resource policy. First, I measure political opposition as *Opposition vote share*, the share of votes received by the largest opposition party in the lower (or only)<sup>9</sup> chamber of the legislature, drawing again 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 – not only to account for the three non-presidential systems, but also to measure the pressure exercised by a standing opposition that remains consistent throughout the tenure of the executive leader.<sup>10</sup>

Second, 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,<sup>11</sup> reflects a higher underlying dissatisfaction among citizens, which –

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<sup>8</sup>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).

<sup>9</sup>The following countries have unicameral legislatures: Ecuador, Guyana, Peru (since 1993), Suriname, and Venezuela (since 1999).

<sup>10</sup>One potential criticism of the resulting variable, *Opposition vote share*, is that it might capture the effect of legislative opposition, but says nothing about opposition faced by the executive in presidential systems. In robustness checks, I address such concerns by examining the effect of *Opposition vote share* when the party of the executive also controls the legislature. If this is the case, then *Opposition vote share* should be associated with an increase in the odds of observing either *Resource fund* or *Fiscal rule*. If, however, the party of the executive *does not* control the legislature, then *Opposition vote share* will not necessarily reflect the opposition faced by the ruler and should not have a clear effect on the dependent variable. I find support for these expectations.

<sup>11</sup>For example, the variables *Number of protests* and *Executive approval* are only weakly correlated ( $\rho = -0.17$ ). The two country-quarters with the highest number of protests – 15 – are Brazil in mid-2013 and Venezuela in mid-1992, with executive approval rates of 54.4 and 28.6 percent, respectively. This suggests

according to Hypothesis 2 – generates incentives to improve institutional performance. After all, leaders can use resource rents to buy off a small group of dissidents, but not as much to systematically suppress protests.

Both *Opposition vote share* and *Number of protests* are imperfect measures, but they capture different dimensions of political opposition: organized party competition and informal citizen dissent, respectively. Furthermore, *Opposition vote share* remains constant between elections, whereas *Number of protests* varies from one quarter to another, reflecting more immediate increases or decreases in opposition. Taken together, these two types of opposition – the short-run opposition from the streets, the long-run opposition from the ballot box – make a ruler’s life harder and increase the demands to provide effective public policy in the form of SFIs.

## 4.4 Control Variables

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) might similarly drive variation in *Resource fund* or *Fiscal rule*. 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, the incentives to regulate it might increase. 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.<sup>12</sup> To assess whether tying hands is driven by overoptimism when commodity prices are high, I control for *Oil price* (West Texas Intermediate), which is the cost of a barrel of crude oil, in current US dollars, on the last day of each quarter. 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 current

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that there is no robust connection between the number of protests and the perceived performance of the executive.

<sup>12</sup>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.

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.

## 5 Estimation Strategy and Results

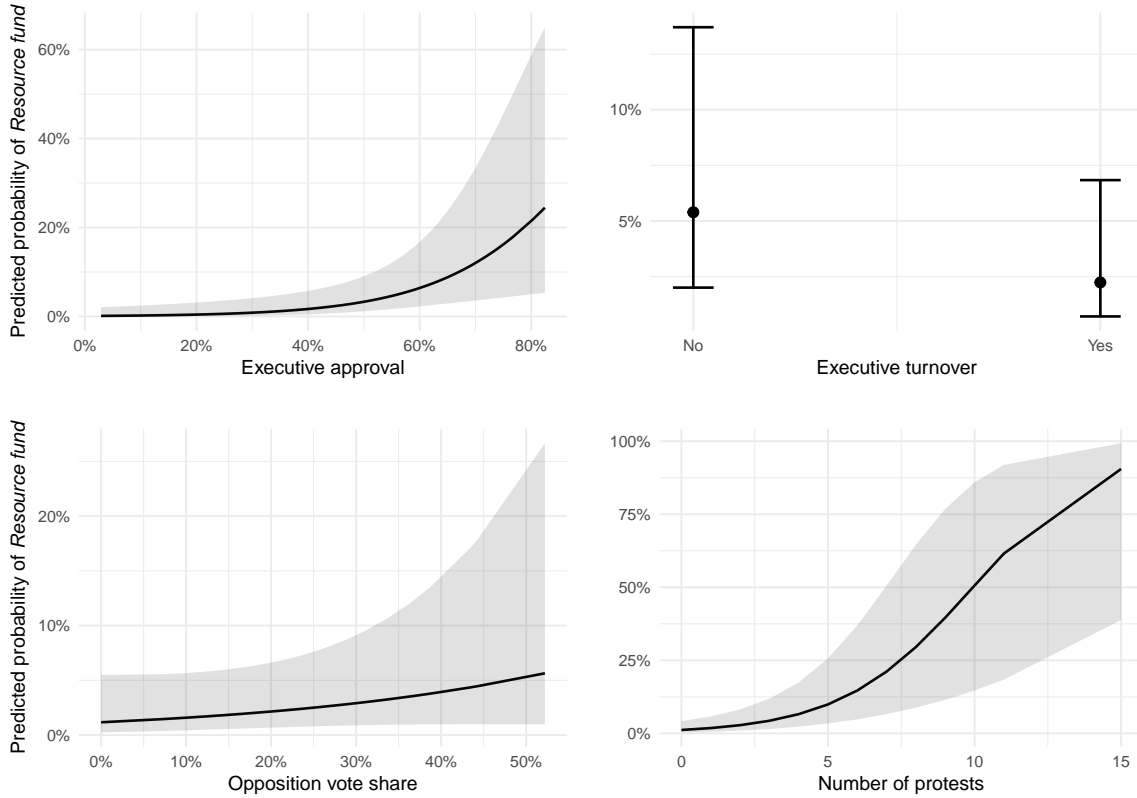
Since the three dependent variables *Resource fund*, *Fiscal rule*, and *Resource-related fiscal rule* are binary, I estimate logistic regressions, with cubic polynomials instead of time dummies to avoid issues of quasi-complete separation (Carter and Signorino, 2010). To control for unobserved unit-level heterogeneity, I include country-fixed effects. However, 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 *Resource fund*, which indicates whether or not the government in question passed any legal document related to natural resource funds in a given quarter. The coefficients are reported as log-odds. As a reminder, Hypothesis 1 predicts that higher levels of public support will be associated with higher odds of observing *Resource fund*. Models 1 and 2 provide evidence in favor of this hypothesis. All else equal, a one percent increase in *Executive approval* is associated with a 4.4 percent increase in the odds of observing the outcome of interest ( $e^{0.043} = 1.0439$ ). Additionally, incumbents are nearly 50 percent less likely to pass a legal document related to natural resource funds when the party controlling the executive changed at least once in the preceding five years ( $e^{-0.624} = 0.5357$ ). Taken together, the coefficients for *Executive approval* and *Executive turnover* – both statistically significant – suggest that executive leaders with public support can afford to tie their hands because they are confident about their (and their parties’) future election prospects.

Models 3 and 4 test Hypothesis 2, according to which a stronger opposition correlates with a higher likelihood of observing the outcome of interest. The logic is that governments facing a strong opposition would rather institutionalize the distribution of benefits than distribute these benefits through patronage. Model 3 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 6.5 percent increase in the odds of observing *Resource fund* ( $e^{0.063} = 1.0650$ ). Meanwhile, Model 4 examines the opposition coming from the streets: on average, every additional protest organized by society at large leads to a 21.3 percent increase in the odds of document passage ( $e^{0.193} = 1.2129$ ).

Lastly, Model 5 examines the effect of all four independent variables of interest (*Exec-*

**Figure 3:** Predicted Probability of *Resource Fund* at Different Values of Public Approval and Political Opposition



Based on Model 5 of Table 2 (re-estimated without country fixed effects), this figure simulates the predicted probability of observing *Resource fund*, with 95 percent confidence intervals, at different values of the independent variables of interest (clockwise from left): *Executive approval*, *Executive turnover*, *Number of protests*, and *Opposition vote share*. The remaining variables are held at their means (with dichotomous variables held at zero).

*utive approval*, *Executive turnover*, *Opposition vote share*, and *Number of protests*) on the dependent variable *Resource fund*. Since these variables have different geographical coverage, the sample size shrinks considerably, but results are still robust in size and significance. To illustrate these results, Figure 3 displays the predicted probabilities of *Resource fund* at different values for the independent variables of interest, based on Model 5 of Table 2 (re-estimated without country fixed effects). In sum, incumbents are more likely to create or regulate natural resource funds (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. They are also more likely to do so when oil prices are high, in election quarters, in times of GDP growth, or in the wake of an oil or gas field discovery.

Hypotheses 1 and 2 predict that public support and political opposition should have a stronger effect on the odds of observing *Resource fund* than on the odds of observing *Fiscal rule*; after all, the former dependent variable reflects an SFI that is directly and visibly related to the extractive sector, whereas the latter typically does not. In Table 3, Models 1

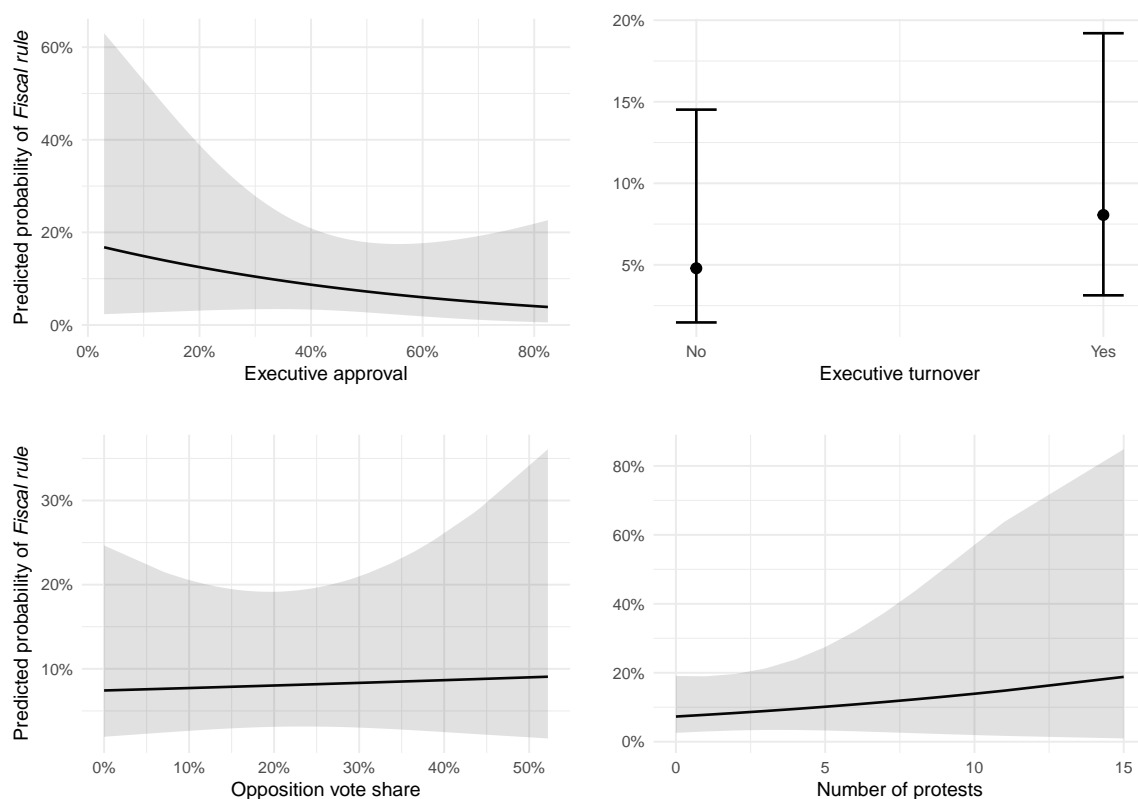


**Table 2:** Determinants of Natural Resource Fund Creation or Regulation, 1990–2020

	<i>Dependent variable:</i>				
	Resource fund				
	(1)	(2)	(3)	(4)	(5)
Executive approval (%)	0.043*** (0.016)				0.062*** (0.014)
Executive turnover (5 years)		−0.624** (0.301)			−0.866*** (0.314)
Opposition vote share (%)			0.063*** (0.017)		0.037*** (0.012)
Number of protests				0.193*** (0.052)	0.403*** (0.068)
Democracy	0.033 (0.098)	−0.002 (0.097)	−0.090 (0.087)	−0.060 (0.096)	0.060 (0.091)
Left executive = 1	−0.568 (0.491)	−0.293 (0.358)	−0.249 (0.361)	−0.176 (0.366)	−3.018*** (0.756)
Election quarter = 1	0.232 (0.395)	0.208 (0.400)	0.775* (0.400)	0.310 (0.429)	0.842** (0.379)
Resource rents (%)	−0.077* (0.046)	0.038 (0.037)	−0.137*** (0.034)	0.020 (0.036)	−0.271*** (0.052)
Field discovery = 1	0.432 (0.466)	0.863* (0.502)	0.721 (0.494)	0.668 (0.539)	1.597*** (0.460)
Oil price (USD)	0.019* (0.011)	0.014 (0.010)	0.033*** (0.009)	0.013 (0.010)	0.029*** (0.010)
GDP per capita (1,000 USD)	−0.022 (0.077)	−0.043 (0.068)	0.237*** (0.089)	−0.047 (0.075)	−0.311*** (0.097)
GDP growth (%)	0.119** (0.059)	0.062 (0.053)	0.175*** (0.052)	0.080 (0.054)	0.136*** (0.045)
IMF program = 1	−0.374 (0.427)	0.263 (0.486)	0.344 (0.504)	0.172 (0.474)	−0.501 (0.464)
Crisis = 1	0.774 (0.483)	0.773** (0.390)	−0.372 (0.480)	0.573 (0.389)	−0.755 (0.715)
Constant	−8.741*** (1.531)	−6.270*** (1.124)	−10.400*** (1.546)	−6.244*** (1.141)	−5.125*** (1.521)
Observations	1,058	1,420	1,004	1,452	654
Log Likelihood	−86.194	−95.734	−56.414	−99.540	−42.817

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 4:** Predicted Probability of *Fiscal Rule* at Different Values of Public Approval and Political Opposition



Based on Model 5 of Table 3 (re-estimated without country fixed effects), this figure simulates the predicted probability of observing *Fiscal rule*, with 95 percent confidence intervals, at different values of the independent variables of interest (clockwise from left): *Executive approval*, *Executive turnover*, *Number of protests*, and *Opposition vote share*. The remaining variables are held at their means (with dichotomous variables held at zero).

to 5 corroborate this expectation: the independent variables of interest have no significant effect on the odds of passing a legal document related to *Fiscal rules*. To drive this point home, Figure 4 displays the predicted probabilities of *Fiscal rule* at different values for the independent variables of interest, based on Model 5 of Table 3 (re-estimated without country fixed effects). This figure confirms that the four independent variables of interest have a minimal effect on the passage of legal documents related to fiscal rules; rather, fiscal rules seem more likely to emerge among countries with a higher GDP per capita or when oil prices are high.

**Table 3:** Determinants of Fiscal Rule Creation or Regulation, 1990–2020

	<i>Dependent variable:</i>									
	Fiscal rule (Models 1–5)					Resource-related fiscal rule (Models 6–10)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Executive approval (%)	0.013 (0.011)				0.001 (0.011)	0.070*** (0.011)				0.044*** (0.006)
Executive turnover (5 years)		0.383 (0.323)			0.452 (0.291)		−0.047 (0.274)			0.474** (0.185)
Opposition vote share (%)			0.011 (0.015)		−0.008 (0.014)			0.040*** (0.011)		0.003 (0.008)
Number of protests				0.052 (0.066)	0.080 (0.069)				0.048 (0.085)	0.153** (0.067)
Democracy	−0.029 (0.080)	−0.095 (0.078)	−0.038 (0.079)	−0.062 (0.084)	0.017 (0.066)	0.147*** (0.034)	0.172*** (0.054)	0.078*** (0.030)	0.173*** (0.059)	0.108*** (0.028)
Left executive = 1	0.098 (0.602)	0.229 (0.472)	0.504 (0.546)	0.080 (0.462)	0.689* (0.369)	0.172 (0.211)	0.047 (0.288)	−0.670** (0.265)	0.066 (0.303)	−0.242** (0.119)
Election quarter = 1	0.273 (0.378)	0.410 (0.384)	0.389 (0.356)	0.290 (0.400)	0.573* (0.332)	0.652** (0.321)	0.879*** (0.341)	0.971*** (0.263)	0.898*** (0.336)	0.997*** (0.272)
Resource rents (%)	−0.049 (0.033)	0.021 (0.028)	−0.001 (0.018)	0.025 (0.027)	−0.029 (0.018)	−0.018 (0.025)	0.048* (0.029)	−0.043** (0.018)	0.046 (0.028)	−0.079*** (0.014)
Field discovery = 1	−0.618* (0.342)	−0.535 (0.338)	−0.391 (0.339)	−0.495 (0.340)	−0.196 (0.322)	0.471** (0.199)	0.480*** (0.173)	0.819*** (0.191)	0.462** (0.197)	0.422** (0.198)
Oil price (USD)	0.022** (0.010)	0.011 (0.010)	0.032*** (0.007)	0.011 (0.009)	0.033*** (0.008)	0.008 (0.011)	−0.008 (0.011)	0.024*** (0.008)	−0.008 (0.011)	0.043*** (0.005)
GDP per capita (1,000 USD)	−0.060 (0.080)	−0.027 (0.062)	0.198*** (0.034)	−0.048 (0.061)	0.170*** (0.062)	−0.023 (0.037)	−0.087** (0.037)	0.087*** (0.032)	−0.090** (0.039)	0.075* (0.043)
GDP growth (%)	−0.054 (0.038)	−0.044 (0.038)	−0.050 (0.041)	−0.049 (0.038)	−0.121*** (0.030)	−0.139*** (0.024)	−0.063 (0.040)	−0.070** (0.035)	−0.062 (0.041)	−0.138*** (0.021)
IMF program = 1	−0.091 (0.386)	0.431 (0.371)	−0.289 (0.359)	0.335 (0.373)	0.046 (0.327)	−0.064 (0.167)	0.629** (0.285)	−0.924*** (0.121)	0.676** (0.274)	−0.295** (0.134)
Crisis = 1	0.080 (0.316)	−0.003 (0.310)	0.233 (0.406)	0.028 (0.305)	0.047 (0.415)	1.200*** (0.228)	1.390*** (0.212)	1.422*** (0.163)	1.379*** (0.205)	1.695*** (0.089)
Constant	−4.418*** (1.243)	−4.006*** (1.075)	−7.544*** (0.906)	−3.718*** (1.067)	−6.796*** (1.483)	−9.649*** (0.752)	−6.167*** (0.871)	−7.594*** (0.592)	−6.305*** (0.831)	−9.790*** (0.966)
Observations	1,058	1,420	1,004	1,452	654	1,058	1,420	1,004	1,452	654
Log Likelihood	−82.971	−90.544	−54.467	−95.871	−48.080	−33.425	−46.593	−30.818	−46.606	−23.890

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.

At the same time, there is qualified support for Hypotheses 1 and 2 once I narrow the focus to the 9 rule-related documents that explicitly mention resource revenue. This is what Models 6 to 10 indicate. In these models, the coefficients for the “short-run” indicators of public approval and political opposition – *Executive approval* and *Number of protests*, respectively – offer consistent support for my predictions, whereas the “long-run” indicators – *Executive turnover* and *Opposition vote share* – have mixed effects. The implication is that states might create SFIs for all kinds of reasons, but SFIs setting explicit goals for the extractive sector (as indicated by *Resource fund* and *Resource-related fiscal rule*) are indeed more likely to emerge when public support and political opposition are high.<sup>13</sup>

## 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)<sup>14</sup> – 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.

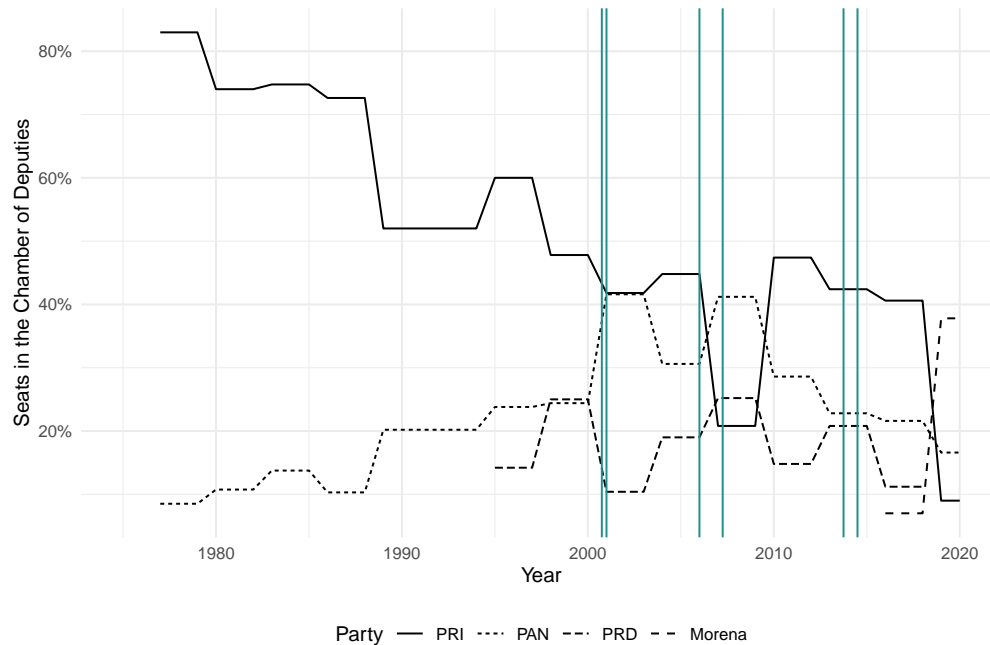
At the height of the PRI’s dominance, in 1976, the party’s presidential candidate ran unopposed and received 100% of the votes. As Figure 5 shows, this dominance declined in

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<sup>13</sup>Additional results, reported in the appendix, suggest that there is no consistent relationship between public support and political opposition, as the interaction between both concepts – however they are measured – has small effect sizes and is generally not significant.

<sup>14</sup>The PRI was initially known as National Revolutionary Party (1929-1938) and Party of the Mexican Revolution (1938-1946).

**Figure 5:** Distribution of seats in the Chamber of Deputies, 1977–2020



Using data from Cruz et al. (2021), this figure depicts the percentage of seats in the lower chamber held by the largest political parties in Mexico: the Institutional Revolutionary Party (PRI), the National Action Party (PAN), and the Party of the Democratic Revolution (PRD). The PRD first ran in the 1994 election. The National Regeneration Movement (Morena) first ran in the 2015 election. Vertical lines indicate quarters in which natural resource policy was passed.

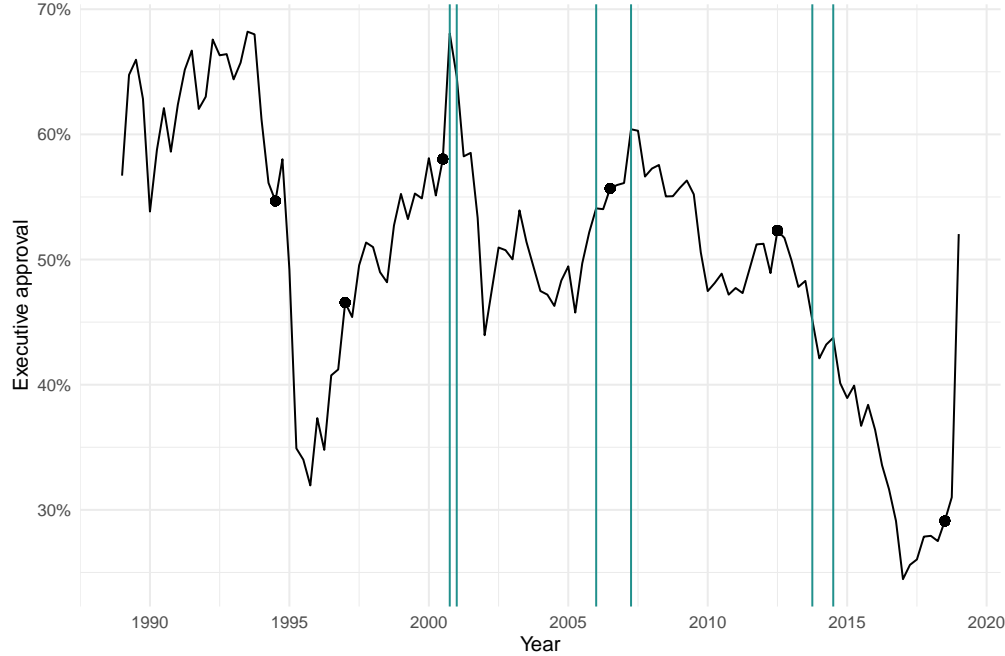
the 1980s and 1990s – partly because the 1982 debt crisis forced the government to privatize state-owned enterprises, reduce the size of the bureaucracy, and cut back on tariffs, depriving the PRI of funds for patronage (Greene, 2010). In 1997, the party failed to win a majority in the Chamber of Deputies 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 opposition 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.<sup>15</sup> To fulfill this purpose, the Oil Revenues Stabilization Fund (FEIP) was created in December 2000,<sup>16</sup> 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

<sup>15</sup>Presupuesto de Egresos de la Federación para el ejercicio fiscal del año 2000, Article 35. 31 December 1999.

<sup>16</sup>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, while vertical lines indicate quarters in which natural resource policy was passed.

least 1.50 US dollars below the reference price. Fox could afford to make such reforms: he 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.<sup>17</sup> 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.<sup>18</sup> This regulation coincided with a period of high oil production and high executive approval. Between April and June 2007, Mexico produced 3.5 million barrels/day, selling each barrel for about 65 US dollars; during the same period, over 60% of all Mexicans approved of President Calderón's administration,

<sup>17</sup>Decreto por el que se expide la Ley Federal de Presupuesto y Responsabilidad Hacendaria. 30 March 2006.

<sup>18</sup>Acuerdo por el que se establecen las Reglas de Operación del Fondo de Estabilización de los Ingresos Petroleros. 31 May 2007.

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, which could suggest that conservative presidents reform the extractive sector, rather than centrist or leftist presidents. But when the centrist PRI won the presidency 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).<sup>19</sup> 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. By that point, oil prices and oil production were in decline, as was Peña Nieto's public approval, but the PRI was again the largest party in the Chamber of Deputies, with a 20% lead over the runner-up, the PAN. The timing of natural resource policy in Mexico suggests that administrations across the political spectrum can commit to tying their hands, provided there is credible competition and the executive has high approval rates.

## 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 opposition 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 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

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<sup>19</sup>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.

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.

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 disbursement 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.

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# Appendix

## A Countries Included in the Analysis

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

## B Summary Statistics

**Table B.1:** Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Year	1560	2004.500	8.658	1990	2019
Resource fund	1560	0.016	0.126	0	1
Fiscal rule	1560	0.013	0.115	0	1
Resource-related fiscal rule	1560	0.006	0.076	0	1
Executive approval (%)	1116	45.251	14.842	2.903	82.766
Executive turnover (5 years)	1528	0.641	0.480	0.000	1.000
Opposition vote share (%)	1056	25.572	12.585	0.000	52.200
Number of protests	1560	1.141	1.777	0	15
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 ((%)	1524	9.192	7.214	0.497	35.749
Field discovery	1560	0.027	0.162	0	1
Oil price (USD)	1560	47.754	29.019	12.840	123.963
GDP per capita (1,000 USD)	1524	5.307	4.245	0.468	21.204
GDP growth (%)	1524	3.169	3.816	−12.312	18.287
IMF program	1560	0.237	0.425	0	1
Crisis	1560	0.016	0.126	0	1

## C Robustness Checks

Table C.1 examines the effect of the independent variable *Executive approval* when lagged at one to five quarters. The dependent variable is *Resource fund* for Models 1–5 and *Fiscal rule* for Models 6–10. The results are robust to these changes; in fact, *Executive approval* at time  $t - 2$  has the largest effect on *Fiscal rule*, and this effect is statistically significant.

The variable *Opposition vote share* captures the strength of the largest opposition party in the legislature. However, in a presidential system, this says nothing about the opposition faced by the executive. Under separation of powers, the president’s party might not control

the legislature – in fact, the president’s party might actually be the largest opposition party. To address these concerns, Table C.2 examines the effect of *Opposition vote share* when the party of the executive also controls the legislature. When the same party controls both powers, *Opposition vote share* represents the opposition faced by the executive ruler. Therefore, the interaction between *Opposition vote share* and *Same party controls executive and legislative* should have a positive and significant effect on the dependent variables. This is confirmed by the three models in Table C.2.

Finally, Table C.3 presents the results of models that interact public support (measured either as *Executive approval* or *Executive turnover*) with political opposition (either *Opposition vote share* or *Number of protests*). Most of these interactions have small effect sizes and are not statistically significant, suggesting that there is no robust relationship between public support and political opposition.

**Table C.1:** Determinants of Natural Resource Fund and Fiscal Rule Creation or Regulation, 1990–2020, With Lagged Executive Approval

	<i>Dependent variable:</i>									
	Resource fund (Models 1–5)					Fiscal rule (Models 6–10)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Executive approval (%), $t - 1$	0.039** (0.017)					0.019 (0.012)				
Executive approval (%), $t - 2$		0.044** (0.019)					0.033** (0.015)			
Executive approval (%), $t - 3$			0.047*** (0.018)					0.027* (0.016)		
Executive approval (%), $t - 4$				0.043*** (0.016)					0.026 (0.016)	
Executive approval (%), $t - 5$					0.038*** (0.013)					0.016 (0.013)
Democracy	0.025 (0.097)	0.030 (0.098)	0.032 (0.099)	0.022 (0.097)	0.011 (0.097)	−0.020 (0.078)	−0.010 (0.076)	−0.016 (0.077)	−0.018 (0.077)	−0.029 (0.078)
Left executive = 1	−0.550 (0.496)	−0.595 (0.510)	−0.648 (0.512)	−0.566 (0.484)	−0.426 (0.467)	0.041 (0.606)	0.008 (0.643)	0.004 (0.621)	0.024 (0.621)	0.077 (0.593)
Election quarter = 1	0.358 (0.404)	0.388 (0.401)	0.375 (0.400)	0.368 (0.412)	0.387 (0.417)	0.333 (0.383)	0.384 (0.376)	0.387 (0.380)	0.364 (0.373)	0.342 (0.384)
Resource rents (%)	−0.068 (0.045)	−0.064 (0.045)	−0.060 (0.047)	−0.061 (0.048)	−0.059 (0.048)	−0.046 (0.033)	−0.036 (0.033)	−0.036 (0.033)	−0.037 (0.034)	−0.040 (0.033)
Field discovery = 1	0.503 (0.473)	0.630 (0.484)	0.644 (0.482)	0.650 (0.514)	0.720 (0.557)	−0.604* (0.347)	−0.557 (0.366)	−0.524 (0.357)	−0.488 (0.357)	−0.478 (0.363)
Oil price (USD)	0.019* (0.011)	0.018* (0.010)	0.018* (0.010)	0.018* (0.010)	0.019* (0.010)	0.021** (0.010)	0.019** (0.010)	0.019** (0.010)	0.019** (0.010)	0.021** (0.010)
GDP per capita (1,000 USD)	−0.041 (0.075)	−0.049 (0.078)	−0.064 (0.079)	−0.068 (0.079)	−0.052 (0.080)	−0.063 (0.079)	−0.063 (0.080)	−0.074 (0.081)	−0.077 (0.081)	−0.077 (0.082)
GDP growth (%)	0.112* (0.058)	0.111* (0.058)	0.114* (0.059)	0.119** (0.061)	0.125** (0.062)	−0.062 (0.039)	−0.077* (0.041)	−0.075* (0.043)	−0.072* (0.042)	−0.062 (0.041)
IMF program = 1	−0.363 (0.437)	−0.390 (0.452)	−0.414 (0.454)	−0.391 (0.453)	−0.348 (0.445)	−0.093 (0.392)	−0.070 (0.403)	−0.053 (0.405)	−0.032 (0.403)	−0.053 (0.394)
Crisis = 1	0.726 (0.501)	0.620 (0.524)	0.575 (0.509)	0.441 (0.465)	0.456 (0.452)	0.124 (0.317)	0.172 (0.319)	0.117 (0.320)	0.069 (0.297)	0.013 (0.307)
Constant	−8.371*** (1.510)	−8.592*** (1.600)	−8.619*** (1.615)	−8.407*** (1.564)	−8.454*** (1.585)	−4.644*** (1.239)	−5.265*** (1.359)	−4.830*** (1.406)	−4.769*** (1.387)	−4.340*** (1.371)
Observations	1,058	1,055	1,052	1,049	1,045	1,058	1,055	1,052	1,049	1,045
Log Likelihood	−86.771	−86.123	−85.834	−86.202	−86.622	−83.035	−82.063	−82.556	−82.622	−83.159

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 C.2:** Determinants of Natural Resource Fund and Fiscal Rule Creation or Regulation, 1990–2020, When the Same Party Controls the Executive and the Legislative

	<i>Dependent variable:</i>		
	Resource fund (1)	Fiscal rule (2)	Resource-related fiscal rule (3)
Opposition vote share (%)	−0.0001 (0.037)	−0.100*** (0.020)	−0.125*** (0.017)
Same party controls exec./legisl.	−2.387** (1.025)	−4.497*** (1.450)	−8.978*** (1.209)
Opposition vote share × Same party	0.129*** (0.041)	0.162*** (0.044)	0.313*** (0.039)
Democracy	−0.038 (0.073)	−0.159* (0.093)	−0.236*** (0.034)
Left executive = 1	−1.882*** (0.452)	−0.274 (0.447)	−2.081*** (0.322)
Election quarter = 1	0.611 (0.391)	0.195 (0.342)	0.624** (0.270)
Resource rents (%)	−0.112*** (0.027)	0.033* (0.020)	0.039** (0.017)
Field discovery = 1	0.853* (0.515)	−0.383 (0.333)	0.692*** (0.226)
Oil price (USD)	0.027*** (0.008)	0.031*** (0.006)	0.018*** (0.005)
GDP per capita (1,000 USD)	0.138** (0.069)	0.130*** (0.035)	0.175*** (0.039)
GDP growth (%)	0.115*** (0.042)	−0.033 (0.032)	−0.056** (0.026)
IMF program = 1	0.139 (0.364)	−0.265 (0.301)	−0.118 (0.088)
Crisis = 1	−0.471 (0.401)	0.329 (0.365)	1.815*** (0.084)
Constant	−7.005*** (1.475)	−1.766* (1.003)	−0.789 (0.556)
Observations	960	960	960
Log Likelihood	−56.742	−53.743	−27.528

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 C.3:** Determinants of Natural Resource Fund and Fiscal Rule Creation or Regulation, 1990–2020, With Interactions Between Public Support and Political Competition

	<i>Dependent variable:</i>							
	Resource fund (Models 1–4)				Fiscal rule (Models 5–8)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Executive approval (%)	0.059* (0.032)	0.068*** (0.017)			−0.037 (0.026)	0.011 (0.014)		
Executive turnover (5 years)			−0.368 (0.548)	−0.886** (0.350)			0.346 (0.643)	0.675* (0.375)
Opposition vote share (%)	0.082 (0.051)		0.083*** (0.022)		−0.068 (0.056)		−0.007 (0.023)	
Number of protests		0.660*** (0.153)		0.148** (0.071)		0.005 (0.209)		0.174** (0.072)
Executive approval × Opposition vote share	−0.001 (0.001)				0.002 (0.001)			
Executive approval × Number of protests		−0.009** (0.003)				0.002 (0.004)		
Executive turnover × Opposition vote share			−0.025 (0.015)				0.013 (0.022)	
Executive turnover × Number of protests				0.130 (0.099)				−0.201* (0.105)
Democracy	0.018 (0.090)	0.032 (0.100)	−0.010 (0.074)	−0.031 (0.094)	0.038 (0.074)	−0.027 (0.078)	−0.043 (0.075)	−0.084 (0.076)
Left executive = 1	−1.204** (0.522)	−0.680 (0.522)	−0.871*** (0.309)	−0.265 (0.370)	1.010*** (0.382)	0.088 (0.573)	0.113 (0.438)	0.269 (0.470)
Election quarter = 1	0.679** (0.344)	0.391 (0.403)	0.672* (0.345)	0.329 (0.396)	0.424 (0.326)	0.281 (0.385)	0.442 (0.353)	0.432 (0.378)
Resource rents (%)	−0.179*** (0.044)	−0.079* (0.041)	−0.133*** (0.033)	0.032 (0.040)	−0.014 (0.020)	−0.051 (0.031)	−0.014 (0.016)	0.017 (0.028)
Field discovery = 1	0.440 (0.399)	0.564 (0.478)	0.876* (0.492)	0.945* (0.515)	−0.122 (0.272)	−0.658** (0.323)	−0.425 (0.381)	−0.521 (0.339)
Oil price (USD)	0.026*** (0.009)	0.018* (0.011)	0.026*** (0.008)	0.014 (0.010)	0.033*** (0.007)	0.021** (0.009)	0.035*** (0.007)	0.011 (0.010)
GDP per capita (1,000 USD)	−0.047 (0.074)	−0.084 (0.079)	0.091 (0.071)	−0.064 (0.069)	0.191*** (0.062)	−0.060 (0.077)	0.189*** (0.034)	−0.028 (0.062)
GDP growth (%)	0.150*** (0.051)	0.115** (0.055)	0.128*** (0.046)	0.065 (0.050)	−0.135*** (0.030)	−0.054 (0.037)	−0.045 (0.039)	−0.047 (0.037)
IMF program = 1	0.546 (0.456)	−0.549 (0.414)	0.278 (0.464)	0.079 (0.519)	0.176 (0.280)	−0.081 (0.369)	−0.366 (0.414)	0.438 (0.354)
Crisis = 1	−0.034 (0.498)	0.513 (0.533)	−0.399 (0.507)	0.644 (0.414)	0.253 (0.430)	0.020 (0.318)	0.090 (0.384)	0.007 (0.296)
Constant	−8.892*** (1.846)	−9.501*** (1.628)	−8.366*** (1.404)	−5.904*** (1.098)	−5.618*** (1.618)	−4.358*** (1.206)	−7.014*** (1.041)	−4.285*** (1.080)
Observations	681	1,058	976	1,420	681	1,058	976	1,420
Log Likelihood	−50.588	−82.982	−56.344	−93.476	−48.116	−83.328	−54.380	−90.518

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.