

The Corrosive Effect of Natural Resource Dependence on *De Facto* Judicial Independence

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ABSTRACT

Why do policy-minded regimes provide courts with the power to stymie them? Recent, prominent explanations for judicial independence primarily prioritize the effect of out-of-office concerns on regime behavior regarding the courts. We provide a complementary explanation that focuses on the effect of a regime's office-related concerns on judicial independence. We argue that regimes increase judicial independence strategically to bolster their economies when necessary and limit judicial independence when they can draw upon their country's natural resource endowments to fuel the economy. Viewed in this way, judicial independence might be another casualty of the resource curse. Relying upon a cross-national analysis of 209 countries from 1971–2011, we find robust evidence that natural resource dependence is associated with weak judiciaries. The results suggest a mechanism through which resource dependence might weaken democracies, curtail dissent, and allow regimes to maim or kill their citizens.

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INTRODUCTION

Independent courts present a puzzle. The existence of an empowered judiciary can cause potential problems for regimes who seek to enact favorable policies. After all, independent courts may use their power of judicial review to stymie or nullify the regime's policies. Yet, regimes of all types regularly encourage judicial independence (Helmke and Rosenbluth, 2009; Hilbink, 2007). Why does this happen?

The leading explanation for this seemingly irrational behavior focuses on a regime's out-of-office concerns. *Insurance theory* suggests that regimes empower independent courts to protect them against reprisal if or when they fall out of power (e.g. Landes and Posner, 1975; Ginsburg, 2003). By empowering an independent court while they are in office, the theory suggests, regimes entrench their policies against nullification once they leave office. Empirical support for this theory, however, has been weak outside the democratic context (Randazzo, Gibler and Reid, 2016). This suggests that insurance theory is perhaps an incomplete explanation for why regimes empower an independent judiciary.

Why else might regimes empower courts? We suggest a complementary theory that focuses not on out-of-office concerns but on regime concerns about maintaining office. After all, regimes generally place a high value on power and their continued service in office (Cheibub, Gandhi and Vreeland, 2010). Leaders may empower independent courts because such institutions help the regime to maintain power. Our theory suggests that independent courts are useful because they help regimes consolidate power and stay in office.

The theory is motivated by the existing finding that one of the most prominent consequences of judicial independence is increased economic growth (Feld and Voigt, 2003; Voigt, Gutmann and Feld, 2015). Judicial independence is associated with increased economic growth because foreign investors—be they NGOs, multinational corporations, or other countries—generally prefer to invest in places where the courts can protect them from a greedy state by protecting property rights (Haggard, MacIntyre and Tiede, 2008). Regimes might then empower independent judiciaries to signal that they will not renege in the fu-

ture, hoping to increase investments and thereby economic activity (Acemoglu, Johnson and Robinson, 2001). According to this view, independent courts serve as a credible commitment mechanism (Moustafa, 2007).

Despite the potential appeal of independent courts to outside investors, judicial independence varies both across states and within states over time. This should not be surprising since regimes generally are unwilling to sacrifice power or exchange it for alternative goods, such as increased investment (Svolik, 2012). Fiscal necessities, however, might sometimes demand that regimes limit their power in order to improve their economies, thereby increasing the odds that they retain office. As a result, regimes should pursue higher levels of judicial independence as the need for foreign investments to stimulate economic growth and development (and thereby to consolidate their hold on power) increases.

The degree to which states need investments varies according to the extent that they depend on natural resource rents (Ross, 2001). When states are dependent, a large portion of their gross product is based on rents collected from the sale of these resources (Wiens, Poast and Clark, 2014). This dependence varies tremendously among states: some are blessed with high levels of natural resource endowments and can build economies that center on these rents; many others cannot. Even among those that can, the extent to which a state's economy is fueled by natural resources varies over time, largely in relation to changes in market prices. The important point for our argument, however, is that states with high levels of natural resource dependence have a decreased need to make credible commitments via independent courts because they can often function without external investments. The reverse is true for states that are dependent on other sectors of the economy. In short, our intuition is that *natural resource rents will be negatively related to judicial independence*.

We are not the first to suggest that natural resource dependence might pose a problem for states. Scholars have long sought to determine whether bountiful resources doom states to experience political dysfunction. For decades, the answer to this question appeared to be an unequivocal 'yes,' as a well-developed literature provided an avalanche of empirical evidence

in support of this theoretical claim. Starting in the 1970s, economists and political scientists have shown that countries “blessed” with high levels of natural resource wealth or natural resource dependence are more likely to experience low levels of economic growth (Sachs and Warner, 2001) and human development (Pineda, Rodríguez et al., 2010), as well as high levels of civil conflict (Brunnschweiler and Bulte, 2009; Ross, 2004), and authoritarianism (Humphreys, Sachs and Stiglitz, 2007; Ross, 2001, 1999, 2015; Wiens, Poast and Clark, 2014; Brollo et al., 2013). In recent years, however, scholars have cast significant doubt on these findings. Some have found that prior findings are statistical mirages, the result of specific research design choices (Haber and Menaldo, 2011). Others, using different measures and methods, have found that natural resources might even lead to a political blessing rather than a curse (Alexeev and Conrad, 2009). This means that the effect of natural resource dependence on political outcomes remains an open question.

In addition to providing a new explanation for variation in levels of judicial independence worldwide, our expectation that natural resource endowments affect judicial independence also invites new tests of the political resource curse. We present several tests of our theory, using a panel dataset of 8,422 observations that covers 209 countries from 1971 – 2011. This suite of tests improves upon prior empirical investigations in several ways. First, our analyses use a different outcome measure, *de facto* judicial independence. The primary advantage of this measure is that it allows us to examine whether natural resource wealth undermines not the development of institutions (a typical outcome in studies of the resource curse) but rather their actual performance. Second, the measure we use opens up new analytic strategies that better identify the extent to which a political resource curse exists. Third, our tests allow us examine whether the deleterious effects of resource dependence extend beyond oil to other raw materials.

These tests provide strong empirical support for our theory. They demonstrate that the political resource curse affects the legal environment as well as the political one. Specifically, our results show that oil dependence, in particular, and natural resource dependence, more

generally, are both negatively correlated with *de facto* judicial independence. Indeed, the findings suggest that tests that rely only on oil dependence may *understate* the resource curse. These findings are robust to a wide range of measurement and modeling choices.

Our study makes several contributions. First, it provides some of the first empirical evidence on the correlates of *de facto* judicial independence. While *de facto* judicial independence is often used as an independent variable in empirical models, there are few studies that examine it as a dependent variable (Randazzo, Gibler and Reid, 2016). In fact, so far as we know, we provide only the second cross-national study of the causes of *de facto* judicial independence. Our study departs from prior work by (a) testing a different theory and (b) covering a larger set of countries (209) and a longer period of time (1971 – 2011). Second, it extends the theory on credible commitments to include not just political institutions but the behavior of political actors as well. It also provides empirical support for this theory by showing that states will be less likely to make credible behavioral commitments via the courts when they have economies that center on natural resource rents. Third, it extends the literature on the political resource curse by illuminating another way in which natural resource wealth might undermine political development and democratic outcomes.

EXPLAINING JUDICIAL INDEPENDENCE

One of the central areas of inquiry in the study of comparative courts over the past three decades concerns the logic of judicial independence. From an outsider’s perspective, judicial independence appears primarily to hamper the ability of the ruling regime to achieve its policy goals. This is because an independent court can exercise the power of judicial review to strike down important policy initiatives. If an independent court can meaningfully constrain the power of a regime, why then would a regime allow an independent court to operate?

Scholars have answered this question in myriad different ways.¹ While each of these theories provides an intuitive argument for the creation and maintenance of an independent

¹For reviews, see Helmke and Rosenbluth (2009) and Vanberg (2015).

judiciary, one theory of judicial independence—insurance theory—has risen to the forefront as a leading explanation for judicial independence. Ginsburg (2003), describes the logic underlying a major component of judicial independence in many countries—the power of judicial review—as follows:

[J]udicial review provides a form of insurance to prospective electoral losers during the constitutional bargain. Just as the presence of insurance markets lowers the risks of contracting, and therefore allows contracts to be concluded that otherwise would be too risky, so the possibility of judicial review lowers the risks of constitution making to those drafters who believe they may not win power (25).

The core logic here is that judicial independence can help protect individuals or regimes who fall from power.

Ginsburg’s focus on the presence of a particular form of judicial power—judicial review—fits well with one of two types of judicial independence studied by scholars. Scholars typically differentiate between two types of judicial independence: *de facto* judicial independence and *de jure* judicial independence (e.g. Yadav and Mukherjee, 2014). *De jure* judicial independence refers to protections “on paper,” including constitutional and statutory provisions like Ginsburg’s focus on formal provisions that enable the judiciary to use its power of judicial review. *De facto* judicial independence, on the other hand, refers to protection “in practice.” This relates to the respect that the judiciary and its decisions actually receive from other branches of government. For example, while some constitutional courts may formally have the power of judicial review, their use of that power is ignored by other actors, indicating a lack of *de facto* judicial independence even in the presence of *de jure* judicial independence. Thus, while the two concepts are related, they are not identical theoretically or empirically. Linzer and Staton (2015) demonstrate that correlations across most measures of judicial independence are actually quite low, thereby underscoring that protections on paper do not necessarily correspond well to the performance of the judiciary in practice.

While Ginsburg’s formulation of insurance theory emphasizes *de jure* judicial independence, other scholars have expanded insurance theory to explain *de facto* judicial independence. Perhaps the most well-known of these studies is Ramseyer’s (1994) comparison of judicial independence in the United States and Japan. Ramseyer argues that differences in the levels of judicial independence in these two countries stem primarily from levels of political competition. He argues that since American politicians expect relatively frequent changes in power, they empower an independent judiciary. On the other hand, since the Liberal Democratic Party was confident of maintaining power in Japan, it had little need to empower an independent court as a form of insurance.

Despite the theoretical appeal of insurance theory, empirical support for the theory has been mixed. Most importantly, Rebolledo and Rosenbluth (2009) report a nonlinear relationship between the two concepts, suggesting that high levels of political competition are also associated with other types of manipulation aimed at keeping the current regime in power thereby creating little need for (and, perhaps, even a disdain for) higher levels of judicial independence. Popova (2010) makes a similar argument, suggesting that electoral competition has actually hindered the development of judicial independence in Russia. Randazzo, Gibler and Reid (2016) point out a variety of other issues with insurance theory, noting that the incentives of leaders likely vary not only by their levels of political competition but also by their regime type. Examining 145 countries over nearly a half-century, they find that the size of a country’s winning coalition, level of ethnic fractionalization, and level of political competition have different effects on judicial independence across regime types.

THEORY

Insurance theory suggests that regimes tolerate independent courts in order to provide themselves with some protection when they leave (or are ousted from) office. In this view, regimes maximize the goal of a long and safe post-political life. Yet, regimes also have goals related to their office. One is to maintain that office and another is to implement policy (Cheibub,

Gandhi and Vreeland, 2010).² By focusing on how courts can protect ousted leaders when they leave office, insurance theory largely casts these other goals aside. While insurance theory captures part of the logic of judicial independence, perhaps this explanation does not explain all regimes well.

We propose a complementary theory that focuses instead on the extent to which judicial independence might help regimes achieve their in-office goals.³ Regimes can accomplish these goals by maintaining a certain level of economic growth or development. In order to accomplish this, regimes might want to encourage investment. A large literature argues that regimes can do so by signalling to private actors that they will abide by their future commitments (North and Weingast, 1989). For example, regimes that want to encourage foreign investment might need to limit their own authority in order to meet investors' concerns about the potential for expropriation. Likewise, the empowerment of an independent court is a quintessential mechanism through which regimes can signal to international actors that they have agreed to be constrained by a known set of rules and procedures (Moustafa, 2007). In other words, regimes can encourage investment by making credible commitments against future rapacious behavior (Stasavage, 2002; North and Weingast, 1989; North, 1991).

North and Weingast (1989) state that

A ruler can establish such commitments in two ways. The first is by setting a

²Authoritarian leaders most likely place office above policy (Svolik, 2012), but do not lack policy goals.

³We assume that *regimes* make decisions about the optimal level of judicial independence.

An alternative assumption is that *judges* make decisions about judicial independence based on the political environment. Our theory can be motivated by this assumption as well, because regimes exert tremendous influence on the political environment. Similarly, we assume that regimes limit judicial independence by manipulating the judiciary, but perhaps jurists limit their independence in response to the possibility of manipulation (Clark, 2009).

We are neutral on these assumptions; our theory generalizes to both.

precedent of “responsible behavior,” appearing to be committed to a set of rules that he or she will consistently enforce. The second is by being constrained to obey a set of rules that do not permit leeway for violating commitments (804).

In other words, North and Weingast (1989) argue that rulers can make credible commitments either through *responsible behavior* or through *institutional* means. This conception fits neatly with the two dimensions of judicial independence, with *de jure* judicial independence corresponding to North and Weingast’s conception of a responsible-behavior based credible commitment and *de facto* judicial independence corresponding to an institutional credible commitment.

Yet, both history and current events suggest that private actors should often doubt institutional commitments. For example, while most countries in the world have adopted constitutions that provide for popular elections, many countries violate this commitment. More generally, regimes often treat legal institutions as mere parchment barriers, regularly abandoning them to pursue their own objectives (Keith, Tate and Poe, 2009). Ginsburg (2003) summarizes the issue in the context of judicial review. He writes that “by setting up an independent institution to adjudicate disputes arising under the constitution, the drafters signal that they are serious about upholding their promises. Judicial review is thus a form of self-binding on the part of constitutional designers. Of course, this signal of self-binding is only effective to the extent that the threat of independent judicial review is itself credible: The Court must have both power and insulation from political control” (28). In other words, Ginsburg states that *de jure* promises about judicial independence are only effective credible commitments to the extent that they are backed by *de facto* judicial independence.

North and Weingast (1989) note, however, that behavioral commitments are even *less* likely than institutional commitments to stick in practice “because the pressures and continual strain of fiscal necessity eventually led rulers to ‘irresponsible behavior’ and the violation of agreements” (804). In other words, though regimes may have every intention of honoring a behavioral credible commitment, they will eventually renege, most likely because some sort

of fiscal strain encourages them to violate their promise(s). Put in the language of judicial independence, North and Weingast (1989) suggest that regimes may wish to establish high levels of *de jure* judicial independence in an effort to obtain the positive short- and long-term benefits that judicial independence provides.

Most notably—and relating directly to North and Weingast’s (1989) concern about fiscal necessities—some of the clearest short-term benefits that judicial independence provides relate to economic growth and foreign investment.⁴ Feld and Voigt (2003) documented the positive relationship between *de jure* judicial independence and economic growth, finding that countries with higher degrees of actual protections for courts have higher annual rates of GDP growth (see also Voigt, Gutmann and Feld, 2015). Scholars have provided a number of mechanisms that link judicial independence and economic growth. One of the most prominent explanations is that independent courts and a strong rule of law signal to international actors that property rights and contracts will be enforced, thereby encouraging external actors to invest in the country (North, 1990; Barro, 1997; Acemoglu and Robinson, 2001; La Porta, de Silanes and Pop-Eleches, 2004). A second mechanism relates to a reduction in corruption caused by increased judicial independence. Checks on corruption help to ensure equal treatment between public and private actors, thereby increasing the capacity of the state to grow the economy over the long term (Haggard and Tiede, 2011; Haber, Razo and Maurer, 2003). A third explanation relates to the effect that an additional veto player—the independent court—has on the policymaking process. For example, Henisz (2000) finds that an increase in the number of veto players corresponds with higher levels of economic growth. In short, regardless of the mechanism, a variety of studies have found a positive relationship between judicial independence and economic prosperity, reaching the general conclusion that increased judicial independence corresponds with an increase in the health of the economy.

As a concrete example, Moustafa (2007) documents the relationship between judicial independence and private investment in Egypt. Faced with fiscal problems, Egypt increased

⁴For a review, see Haggard and Tiede (2011).

judicial independence as a means of signaling to investors that property rights would be enforced. The important point, however, is that foreign investment only increased in Egypt when it became clear to outside investors that the independence enjoyed by the Egyptian judiciary was *de facto* not just *de jure*. In other words, judiciaries that are independent in practice can provide significant economic benefits for leaders seeking to bolster their country's economic standing and stability.

However, as Moustafa (2007) notes, leaders vary in the extent to which they are willing to balance the limits that an independent court might place on their policy objectives with the economic advantages that usually spring from judicial independence. In general, regimes weakly prefer power to all alternatives (Cheibub, Gandhi and Vreeland, 2010; Cheibub and Limongi, 2002). Yet, regimes might be willing to cede power in order to retain office. According to the retrospective voting literature, one threat to maintaining office is poor economic performance. The core logic here is that people will support the incumbent when the economy is doing well but will throw their support behind the opposition when it is doing poorly (e.g. Fiorina, 1981; Nadeau, Lewis-Beck and Éric Bélanger, 2013). Economic problems then might require regimes to pro-actively constrain their power in order to increase investments, thereby improving economic performance and increasing their probability of keeping office. We expect that states become more (less) willing to make this trade when the need for investments increases (decreases).

The degree to which states need investments varies according to their natural resource dependence (Wiens, Poast and Clark, 2014). When states are dependent on natural resources, a large portion of their gross domestic product comes from rents collected from the sale of these resources. While it might initially seem that natural resource dependence is a bad thing for regimes, it can provide a counter-intuitive benefit: economies built on natural resources are often independent of the need for other sources of income. Not every country can build such an economy, though, in large part because not every country is 'blessed' with natural resource endowments. Moreover, even among those that have the endowments

necessary for such an economic strategy, the extent to which a country’s economy is fueled by these natural resources changes over time (Barma, Kaiser and Le, 2012).

In short, countries with high levels of natural resource dependence exhibit less need to rely upon other types of investments. Since, as Moustafa (2007) discusses, judicial independence assists countries in their attempts to attract such investments, countries which have high levels of natural resource dependence have a decreased need to make credible commitments to external actors through the empowerment of independent courts because they can function without external investment. The reverse is true for countries that are dependent on other sectors of the economy.⁵

Of course, the economic and political effects of natural resource endowments and dependence have been widely studied. A large literature argues that the rents derived from these resources are a “curse” because they are associated with low levels of economic growth (Sachs and Warner, 2001) and human development (Pineda, Rodríguez et al., 2010), as well as high levels of civil conflict (Brunnschweiler and Bulte, 2009; Ross, 2004), among other outcomes. The most relevant line of this research to our own study focuses on the political resource ‘curse’ — the negative effect of natural resources on democratic transitions and stability (Humphreys, Sachs and Stiglitz, 2007; Ross, 2001, 1999; Wiens, Poast and Clark, 2014; Ahmadov, 2014; Haber and Menaldo, 2011).⁶ While studies have come to mixed conclusions, the bulk of the literature suggests that natural resource wealth undermines political well-being (Ross, 2015).

There are several limitations to this literature. Perhaps the largest is that while the effect of natural resources on the development of political institutions has received a great

⁵The same logic applies to domestic sources of revenue, such as taxes. As natural resource dependence increases, state reliance on tax collection decreases (Wiens, Poast and Clark, 2014). While we focus on foreign sources of revenue, the argument generalizes to domestic sources as well.

⁶See Ross (2015) for a review.

deal of attention, scholars have typically ignored the effect of natural resource dependence on the behavior of individual institutions. This makes the results from the research program difficult to assess. Natural resource wealth and democracy (typically measured by Polity levels (e.g. Haber and Menaldo, 2011)), may be negatively correlated with each other but how, exactly, does this manifest within states? In other words, what sorts of actions do regimes or rulers take as a result of the presence of natural resource endowments?

We address this issue by examining the effect of natural resources on the performance of a key institution: the judiciary. In other words, by examining the relationship between natural resource dependence and the performance of the judiciary over time, we explore how natural resources affect the strategies and decisions of leaders. We focus on the decisions of rulers or regimes to manipulate the level of judicial independence to attract (or not) outside investments to fuel their economies.

Framed in light of the literature on the political resource curse, our theory suggests that judicial independence might be another victim of the natural resource curse. If a leader is able to rely on natural resources for rents, then he is more likely to weather disputes and stay in office without needing to attract other sources of revenue. The basic logic is that as a state's natural resource rents increase, a revenue-satisficing regime faces less pressure to encourage international investment.⁷ When a large percentage of a state's GDP comes from natural resource rents, its need to stimulate investment decreases as well. This means that it faces less pressure to satisfy investors, as the relative gains from political compromise have diminished. In other words, high levels of natural resource dependency effectively remove incentives for regimes to reform (Harford and Klein, 2005). Given that, a regime should be less likely to cede or constrain its own authority as natural resource dependence increases.

Our theory then suggests the following hypothesis.

⁷We follow the existing literature by assuming that regimes are revenue-satisficing rather than revenue-maximizing (Wiens, Poast and Clark, 2014). Future research should investigate the implications of relaxing this assumption.

Natural Resource Dependence Hypothesis: States with higher levels of natural resource dependence should exhibit lower levels of judicial independence.

We focus on *de facto* judicial independence instead of *de jure* judicial independence for several reasons. First, both investors and constituents likely care more about the actual (i.e. *de facto*) level of judicial independence in a country than the theoretical (i.e. *de jure*) level of judicial independence in a country. This is because laws are sometimes ‘mere parchment barriers’ and can, on their own, fail to adequately protect investors from a rapacious state (Keith, Tate and Poe, 2009). Second, since Democracy’s Third Wave, countries have increasingly adopted constitutions that contain similar protections of judicial independence, regardless of whether these protections are ever enforced (Keith, Tate and Poe, 2009); once adopted, these provisions are rarely overturned (Keith, 2012). This presents an empirical problem because it suggests that there is little over-time and between-country variation in *de jure* judicial independence, particularly in the modern era. The larger concern here, however, relates to our theory. This is a dynamic process, in which regimes adjust the level of judicial independence they provide in response to changes to their natural resource dependency. This requires a measure of judicial independence that varies over time.

TWO VIGNETTES

Before testing our hypothesis with statistical models, we present qualitative evidence that a negative relationship between natural resource rents and *de facto* judicial independence exists in some contexts. These vignettes ground our theory and show the causal processes at work.

Venezuela

Our first vignette focuses on Venezuela from 1999-2009, a period that begins with Hugo Chavez becoming president of the oil-rich nation (Taylor, 2014). Shortly after coming to

power, Chavez successfully fought for the enactment of a new constitution, one that ostensibly strengthened the rule of law by creating a Supreme Court and guaranteeing its judicial independence (Marcano and Tyszka, 2007). Yet, despite this promising beginning, the socialist leader would quickly turn to undermining the court he created. Making use of popular distrust of the judicial system — which many viewed as a corrupt, political tool — Chavez and members of his government “hector[ed] judges, call[ed for] public demonstrations, [and] threaten[ed] non-compliance” (Taylor, 2014, 249). He also used his power and his influence in parliament to purge judges and other judicial officials.

The regime’s attempts at controlling the courts redoubled after 2004, when Venezuela’s petrol exports sharply increased. During this time, Chavez’s government was flush with revenues from the country’s vast oil reserves. Since Chavez’s regime did not have to rely on other sources of income, it could ignore demands from investor for improved judicial processes, as it did when Chavez repeatedly nationalized domestic and international firms (Corrales and Penfold-Becerra, 2011).

Not needing to provide capital with an independent judiciary, the regime was able to steadily consolidate its hold over the court system. It passed new laws — such as the Organic Law of the Supreme Court, which added 12 justices to the 20-person court (Human Rights Watch, 2004) — that did not circumscribe existing *de jure* protections but nonetheless limited the judiciary’s *de facto* independence. In addition, it stacked the courts with favorable justices, after first purging existing ones (Lapper, 2005). In many cases, it either prosecuted or threatened to prosecute members of the court who opposed Chavez’s rule (Human Rights Watch, 2008). By the close of the decade, Chavez had successfully brought the courts to heel (Taylor, 2014).

To show how these events appear in our data, Figure 1a shows the relationship between *de facto* judicial independence and natural resource rents for Venezuela from 1999-2007.⁸ Importantly, *de facto* judicial trends downward in this period while the share of national

⁸We explain the measures below.

GDP from natural resource rents trends upward. These patterns fit well with our discussion of Venezuela during this time period and our broader theory.

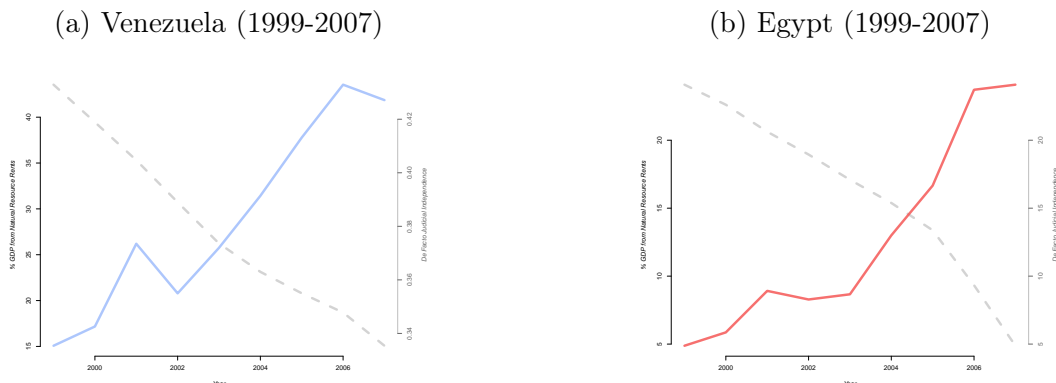
Do similar patterns appear in other countries and other regions of the world? To this end, we examine Egypt during the same period. While Chavez came to power in 1999, Hosni Mubarak had held Egypt's presidency since 1981. He inherited a strong judiciary, where long-held norms generally encouraged judges to fight against executive aggrandizement. For many years, he permitted the judiciary to act on its own. One explanation for this is that Mubarak had to provide some semblance of law and judicial independence to attract international investors (Franzki and Olarte, 2014).

As oil revenues increased at the beginning of the new century, Mubarak had the opportunity to reconsider this exchange. With additional money in hand, Mubarak was able to constrain political rights, such as judicial independence. He did so primarily by packing the courts with sympathetic judges recruited from either the police academy or other pro-regime institutions organizations (Aziz, 2014). He also "assign[ed] regime-friendly judges to cases involving the regime's core interests" (Aziz, 2014, 1). In addition, the regime used charges of ethical and legal impropriety to push out judges who fought to retain their independence. As the 2000s came to a close, the Egyptian court's independence had been dramatically weakened.

Figure 1b shows the relationship between *de facto* judicial independence and natural resource dependence for Egypt from 1999 – 2007. As before, the important thing to note is that *de facto* judicial slopes down during this time, while the share of national GDP from natural resource rents slopes up. These patterns nicely fit our discussion of Egypt during this interval and provides some additional support for our theory.

These two vignettes provide suggestive evidence that increases in natural resource rents empower regimes to curtail judicial independence. Illustrative cases such as these can only provide so much evidence, though, and the question remains if this relationship exists in other countries and during other times. We therefore turn to statistical testing.

Figure 1: Relationship between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM NATURAL RESOURCE RENTS



Note: Figure 1a plots the relationship between *de facto* judicial independence and natural resource rents for Venezuela from 1999-2007.

Note: Figure 1b plots the relationship between *de facto* judicial independence and natural resource rents for Egypt from 1999-2007.

MODEL SPECIFICATION AND RESULTS

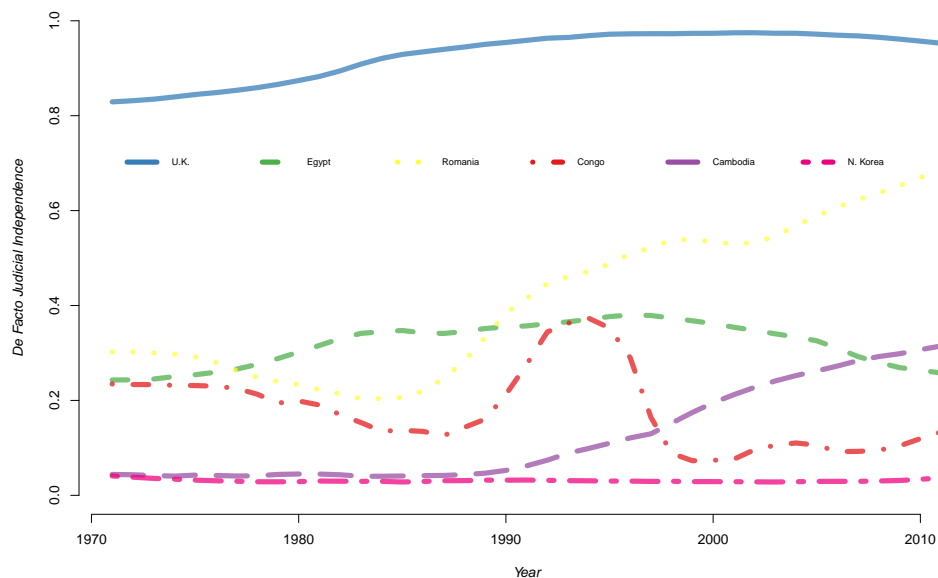
To examine whether the relationship we see in Venezuela and Egypt generalizes, we use a panel dataset that includes 8,422 observations, covering 206 countries from 1971 – 2011.⁹ To put this dataset in context, Randazzo, Gibler and Reid (2016)’s data comprises 4,233 observations, covering 145 countries from 1960 – 2000. The temporal and geographic extent of our data is important for two reasons. One, data limitations have long hampered previous empirical studies on cross-national judicial independence (Randazzo, Gibler and Reid, 2016). Two, missingness on key variables might have limited the ability of scholars to identify potentially important correlates of *de facto* judicial independence (Lall, 2016). For example, Randazzo, Gibler and Reid (2016)’s data contains only about three-quarters of all countries. In short, this analysis covers more countries and more years than any previous analysis of cross-national judicial independence.

For our dependent variable, we use Linzer and Staton (2015)’s latent variable measure of

⁹Our results are insensitive to the temporal range of our data, continuing to hold if we subset the data to only country years before 1991 and only country years after 1991.

de facto judicial independence. It ranges from 0 – 1. This measure is preferred over others because it (1) is less likely to be biased, (2) is a continuous (instead of ordinal) measure, and (3) allows us to account for the fact that judicial independence can only be observed with some uncertainty. Figure 2 plots the values of DE FACTO JUDICIAL INDEPENDENCE for a sample of countries. The figure illustrates how judicial independence can change dramatically over time. As noted above, little is known about *why* courts might act independently in one year but not the next.

Figure 2: DE FACTO JUDICIAL INDEPENDENCE Over Time



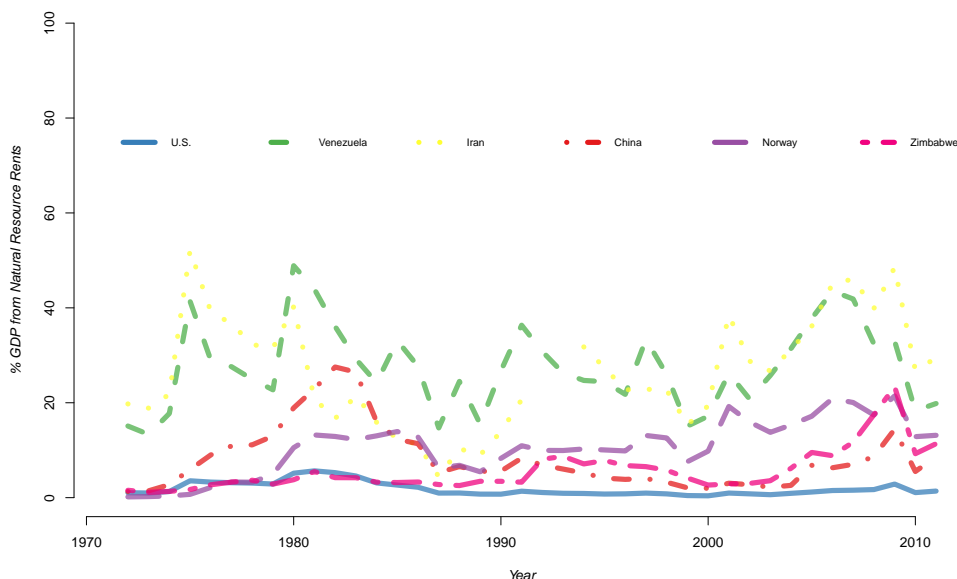
Note: Figure 2 plots the values of DE FACTO JUDICIAL INDEPENDENCE for a sample of countries.

Following standard practice, we measure the extent of a country's natural resource dependence by the percent of its GDP that comes from natural resource rents (Ross, 2015). We focus on natural resource dependence instead of abundance because our theory suggests that regimes determine the extent to which they adopt credible commitments based on their dependence on natural resources and not based on levels of *in situ* endowments. These come from the World Bank (2012). Figure 3 plots the values of % GDP FROM NATURAL

RESOURCE RENTS for a sample of countries. It demonstrates that the degree to which a country depends on natural resource rents as a portion of its GDP varies over time.¹⁰

Table 1 presents descriptive statistics for the data. We address missingness by multiply imputing 1000 datasets. Since there is a fair amount of missingness in some of our measures, one might be concerned that our results are driven by our approach to missingness. To address this concern, we re-estimate our models using unimputed data, finding no meaningful differences.

Figure 3: % GDP FROM NATURAL RESOURCE RENTS Over Time



Note: Figure 3 plots the values of % GDP FROM NATURAL RESOURCE RENTS for a sample of countries.

Before estimating this model, we first visually inspect the relationship between % GDP FROM NATURAL RESOURCES and DE FACTO JUDICIAL INDEPENDENCE in Figure 4. The thick black line is the slope from a simple bivariate regression. The dotted gray lines are

¹⁰This pattern likely results from changes in oil prices. If natural resource prices increase, then the percent of GDP that comes from natural resource rents will also increase (holding other economic outputs constant).

Table 1: Descriptive Statistics

Variable	Description	Mean	Range	N
DE FACTO JUDICIAL INDEPENDENCE	A measure of <i>de facto</i> judicial independence	0.482	0.010 – 0.995	7185
% GDP FROM NATURAL RESOURCE RENTS _{<i>t</i>-1}	The percentage of GDP from natural resource rents	9.628	0.000 – 92.019	5756
% GDP FROM COAL RENTS _{<i>t</i>-1}	The percentage of GDP from coal rents	0.063	0.000 – 13.592	6344
% GDP FROM FOREST RENTS _{<i>t</i>-1}	The percentage of GDP from forest rents	2.562	0.000 – 75.573	5818
% GDP FROM MINERAL RENTS _{<i>t</i>-1}	The percentage of GDP from mineral rents	0.948	0.000 – 44.644	6387
% GDP FROM NATURAL GAS RENTS _{<i>t</i>-1}	The percentage of GDP from natural gas rents	0.933	0.000 – 70.510	6282
% GDP FROM OIL RENTS _{<i>t</i>-1}	The percentage of GDP from oil rents	4.695	0.000 – 86.969	6213
DEMOCRACY _{<i>t</i>-1}	A binary indicator of democracy	0.455	0.000 – 1	6563

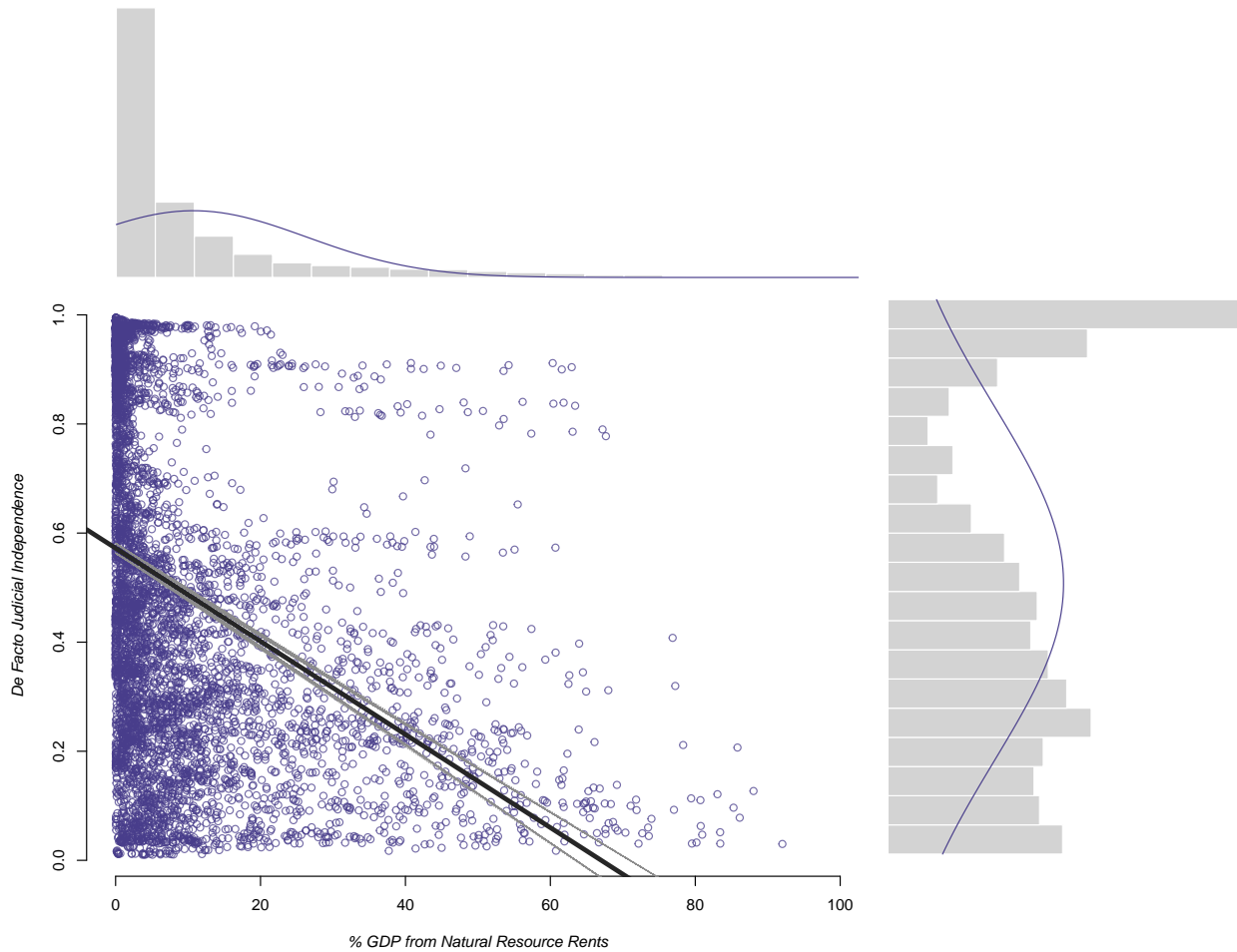
Note: Descriptive statistics calculated based on the unimputed dataset.

95% confidence intervals. The histogram on the top displays the distribution of values for % GDP FROM NATURAL RESOURCE RENTS_{*t*-1}. The histogram on the right displays the distribution of values for DE FACTO JUDICIAL INDEPENDENCE. The plot reveals a striking pattern. The triangle-shaped pattern of points shows that virtually any level of *de facto* judicial independence might occur in states with low levels of natural resource endowments but that there is a limit to the level of *de facto* judicial independence that is realized in states with high levels of natural resource endowments.

This apparent relationship could be driven, however, by factors that vary across either countries or time. For example, an obvious confounder might be whether a state is a democracy, since democracies might be more likely to arise in places that lack natural resource endowments (Ross, 2001) and also more likely to develop independent judiciaries (Randazzo, Gibler and Reid, 2016). The model therefore includes a measure of democracy (Cheibub, Gandhi and Vreeland, 2010).

Other country-specific factors, such as geography or historical legacy, could be related to both increased natural resource dependence and decreased *de facto* judicial independence. The omission of these factors has been identified as a weakness with the political resource curse literature, which Haber and Menaldo (2011) claim does not often sufficiently account for “omitted variables that are time-invariant and country-specific” (2). To meet this objection, we control for other across-country differences by including country fixed effects in our model (Gelman and Hill, 2006). Similarly, we account for temporal trends by including year fixed

Figure 4: Bivariate Relationship Between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM NATURAL RESOURCE RENTS



Note: Figure 4 plots the relationship between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM NATURAL RESOURCE RENTS. The thick black line is the slope from a simple bivariate regression. The dotted gray lines are 95% confidence intervals. The histogram on the top displays the distribution of values for % GDP FROM NATURAL RESOURCE RENTS. The histogram on the right displays the distribution of values for DE FACTO JUDICIAL INDEPENDENCE.

effects in our model (Angrist and Pischke, 2008). This model therefore controls for all factors that (a) do not change within countries over time and that (b) vary across time for all countries, in addition to democracy. The only variables that could be omitted then are factors that vary within countries but do not vary over time for all countries.

One possible issue with this model, however, is that the relationship between our outcome measure and our independent variables (i.e. % GDP FROM NATURAL RESOURCE RENTS and DEMOCRACY) might be endogenous (Brooks and Kurtz, 2016; Haber and Menaldo, 2011). If this were the case, our estimates would suffer from simultaneity bias (Wooldridge, 2010). Since we cannot think of a suitable instrumental variable for natural resource *dependence*, we lag all independent variables by one year.¹¹ Our results also hold when we lag % GDP FROM NATURAL RESOURCE RENTS by 5, 10, and 15 years.

Since our outcome measure is continuous, we test our hypothesis using ordinary least squares regression. The full model specification is shown in Eq. (1).

$$\begin{aligned}
 \text{De Facto Judicial Independence} = & \beta_0 + \beta_1 \% \text{ GDP from Natural Resource Rents}_{t-1} \\
 & + \beta_2 \text{ Democracy}_{t-1} \\
 & + \text{Country Fixed Effects} \\
 & + \text{Year Fixed Effects} \\
 & + \epsilon
 \end{aligned} \tag{1}$$

Since our outcome measure is a latent variable, we need to account for uncertainty in its point estimates (Crabtree and Fariss, 2015). We therefore create 1000 datasets from our multiply imputed datasets and assign a random draw from the posterior distribution of the latent variable for a given country-year to each country-year observation Schnakenberg and Fariss (2014). We use this new value as the outcome measure. We then use these datasets

¹¹Brooks and Kurtz (2016) and Ramsay (2011) present instrumental variables for natural resource *abundance*. Our theory relates to natural resource *dependence*. Wiens, Poast and Clark (2014) explains why measures of natural resource abundance should not be used to test claims about natural resource dependence.

to estimate a set of 1000 OLS models, combining the results across the multiple sets of data to create one set of coefficient and standard error estimates. This procedure is substantively important because it allows us to relax the assumption that theoretically important variables are measured perfectly and without error (Schnakenberg and Fariss, 2014).

We estimate the models with robust standard errors because we have multiple observations for each unit over time and might be concerned that autocorrelation in the error term causes us to underestimate the degree of uncertainty around our point estimates (Wooldridge, 2010).¹² Our results are the same if we use classic standard errors.

Table 2 presents the results from this model. The coefficient on % GDP FROM NATURAL RESOURCE RENTS_{*t*-1} is negative, statistically significant, and substantially meaningful, providing strong support for our hypothesis. To illustrate the importance of % GDP FROM NATURAL RESOURCE RENTS_{*t*-1}, we plot its estimated effect in Figure 5. The plotted points represent the value of % GDP FROM NATURAL RESOURCE RENTS multiplied by the estimated coefficient for % GDP FROM NATURAL RESOURCE RENTS_{*t*-1} that is reported in 2. The figure shows that an increase in % GDP FROM NATURAL RESOURCE RENTS_{*t*-1} from 0 to about 35, a value observed for approximately 10% of the country-years in our unimputed data, is correlated with a decrease in DE FACTO JUDICIAL INDEPENDENCE of about 0.1, holding all else constant. This is equivalent to about $\frac{1}{3}$ of a standard deviation change in DE FACTO JUDICIAL INDEPENDENCE.

Is this change substantively important? To put this $\frac{1}{3}$ of a standard deviation change in perspective, a similar change in DE FACTO JUDICIAL INDEPENDENCE is observed in South Africa from 1994–2000. This is when the African National Congress defeated de Klerk’s apartheid regime in an electoral revolution and ushered in a wave of judicial reforms (Maduna, 1989; Alence, 2004). These reforms included the desegregation of the courts, the

¹²A lagged dependent variable is an alternative approach to account for autocorrelation.

Angrist and Pischke (2008) show that this leads to biased estimates when models include fixed effects. If we omit fixed effects but use a lagged dependent variable, our results hold.

construction of a Constitutional Court, the development of an independent institution that recommends judicial appointments (i.e. the Judicial Service Commission), and the creation of new training and accountability programs designed to protect human rights and increase public input (Gordon and Bruce, 2007).

Another way of thinking about substantive importance is to look at yearly changes in natural resource dependence and judicial independence. A 1 standard deviation increase in natural resource dependence growth is associated with a $\frac{1}{2}$ standard deviation change in judicial independence growth. This suggests that year-to-year fluctuations in natural resource dependence can have a meaningful short-term effect on changes in judicial independence.

Table 2: The Relationship between % GDP from Natural Resource Rents and De Facto Judicial Independence

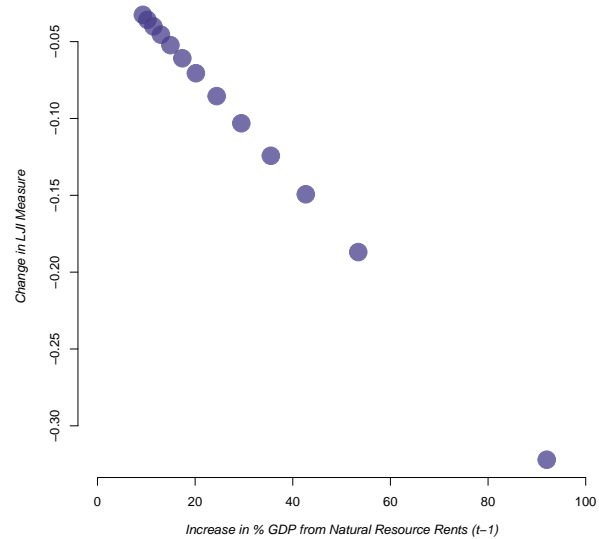
	Model 1
% GDP FROM NATURAL RESOURCE RENTS _{<i>t</i>-1}	-0.003* (0.000)
DEMOCRACY _{<i>t</i>-1}	0.198* (0.008)
Constant	6.999* (0.027)
State Fixed Effects	Yes
Year Fixed Effects	Yes
<i>N</i>	8422

Note: * $p < 0.05$ (two-tailed). Robust standard errors are shown in parentheses. Data cover 209 countries from 1971 – 2011. The dependent variable is DE FACTO JUDICIAL INDEPENDENCE.

While these results are consistent with our theory, they are also consistent with the broader literature on the political resource curse (Ross, 1999, 2001, 2015). While the ‘resource curse’ theory suggests that the coefficient on % GDP FROM OIL RENTS_{*t*-1} should be negative and statistically significant it does not, however, necessarily offer predictions for the other measures of resource endowment (Ross, 2015).¹³ In contrast, our theory suggests that

¹³Appendix A presents plots that examine the relationship between DE FACTO JUDICIAL

Figure 5: Estimated Effect of % GDP FROM NATURAL RESOURCE RENTS_{*t*-1} on DE FACTO JUDICIAL INDEPENDENCE



Note: Figure 5 plots the estimated effect of % GDP FROM NATURAL RESOURCE RENTS on DE FACTO JUDICIAL INDEPENDENCE. The plotted points represent the value of % GDP FROM NATURAL RESOURCE RENTS multiplied by the estimated coefficient for % GDP FROM NATURAL RESOURCE RENTS that is reported in 2.

the coefficients on all these measures should be negative and statistically significant. We distinguish between these explanations by disaggregating % GDP FROM NATURAL RESOURCE RENTS_{*t*-1} into its component measures, replacing the composite measure with one of these components, and then re-estimating the relationship between DE FACTO JUDICIAL INDEPENDENCE and natural resource dependence. The component measures are % GDP FROM COAL RENTS_{*t*-1}, % GDP FROM FOREST RENTS_{*t*-1}, % GDP FROM MINERAL RENTS_{*t*-1}, % GDP FROM NATURAL GAS RENTS_{*t*-1}, and % GDP FROM OIL RENTS_{*t*-1}.

Table 3 presents the results of these models. Taken together, they provide strong evidence in favor of our theory. Except for % GDP FROM MINERAL RENTS_{*t*-1}, the composite measures are negative and statistically significant.¹⁴ Again, these findings support our hypothesis.

Moreover, the effect sizes are substantively important. The substantive effect of each is similar to the estimated effect of % GDP FROM NATURAL RESOURCE RENTS_{*t*-1}. The key finding here, as above, is that a 1 standard deviation increase in natural resource rents is associated with a $\frac{1}{2}$ to $\frac{1}{4}$ standard deviation increase in judicial independence across natural resource indicators. These results provide additional evidence that states with high levels of natural resource rents are more likely to constrain courts.¹⁵

INDEPENDENCE and these measures which show a similar pattern.

¹⁴One reason why increased mineral rents might not lead to decreased *de facto* judicial independence is that mineral rent income varies considerably within countries and over time. Since it is a less stable source of income, regimes might not be able to depend on it when determining to what extent they will tolerate independent courts.

¹⁵One might expect that the relationship between natural resource dependence and DE FACTO JUDICIAL INDEPENDENCE is conditional on regime type, since evidence suggests that the impact of natural resource wealth on democracy is conditional on political institutions (e.g., Wiens, Poast and Clark (2014)). To test this, we re-estimate Models 1–6, including a DEMOCRACY \times % GDP FROM NATURAL RESOURCE RENTS term. We find weak, inconsistent empirical support for this conditional theory. One might also think

Table 3: *De Facto* Judicial Independence

	Model 2	Model 3	Model 4	Model 5	Model 6
% GDP FROM COAL RENTS _{<i>t</i>-1}	-0.012* (0.007)	-	-	-	-
% GDP FROM FOREST RENTS _{<i>t</i>-1}	-	-0.004* (0.001)	-	-	-
% GDP FROM MINERAL RENTS _{<i>t</i>-1}	-	-	-0.001 (0.001)	-	-
% GDP FROM NATURAL GAS RENTS _{<i>t</i>-1}	-	-	-	-0.004* (0.001)	-
% GDP FROM OIL RENTS _{<i>t</i>-1}	-	-	-	-	-0.001* (0.000)
DEMOCRACY _{<i>t</i>-1}	0.208* (0.008)	0.206* (0.008)	0.208* (0.008)	0.204* (0.008)	0.150* (0.007)
CONSTANT	0.691* (0.027)	0.687* (0.027)	0.691* (0.027)	0.695* (0.027)	0.746* (0.028)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
<i>N</i>	8422	8422	8422	8422	8422

Note: * $p < 0.05$ (two-tailed). Robust standard errors are shown in parentheses. Data cover 209 countries from 1971 – 2011. The dependent variable is DE FACTO JUDICIAL INDEPENDENCE.

Finally, the relative sizes of the coefficients are of note. Recall that most of the resource curse literature has focused on oil (Ross, 2015). However, as Table 3 demonstrates, the coefficient for oil rents is the *smallest* of the natural resource coefficients.¹⁶ Indeed, the effects of natural gas rents and forest rents are four times the size of the effect of oil rents while the effect of coal rents is *twelve times* the estimated effect of oil rents. This suggests that a single-minded focus on oil may underestimate the extent of the resource curse.

there are diminishing marginal returns to natural resource dependence. Perhaps the initial effect of natural resource dependence is negative but this effect declines as dependence increases. To test this, we re-estimate Models 1–6, including a quadratic term for the natural resource measure. Only one of these terms, % GDP FROM FOREST RENTS_{*t*-1}², is statistically significant. The effect size, however, is virtually zero.

¹⁶Because all of the coefficients are measured on the same scale—the percentage of a country’s GDP—such comparisons are possible.

One might be concerned that these models are underspecified. While we account for heterogeneity between countries and across years, we might not sufficiently account for over time differences within countries. It is difficult to identify these possible confounders, though, since little is known about what causes *de facto* judicial independence (Randazzo, Gibler and Reid, 2016). Violent conflict might decrease *de facto* judicial independence by making it unattractive for the courts to rule against the executive, and increase natural resource dependence, by discouraging investment. We examine this possibility by adding a binary CIVIL WAR variable to the right-hand side of our equation and re-estimating Models 1–6. Appendix B presents the results of this model, which supports for our expectations.

Sensitivity Checks

To examine whether the results are sensitive to different design choices, we conduct a series of additional tests. First, we examine whether our results are sensitive to the measure of democracy we use. Second, since our measure is bound on the $[0 - 1]$ interval, it might be inappropriate to use least squares regression. We re-estimate our results using beta regressions. Third, we also use k -fold cross validation to guard against overfitting and to judge the predictive power of our model (Hill Jr. and Jones, 2014). Appendices C–E contain a detailed description of these additional checks as well the results of these analyses. Our results are robust to all of these changes.

DISCUSSION

Why do regimes empower independent courts when they know that they are giving judges the tools to stymie the regime’s policy goals? The answer to this question is one of the most important questions in judicial politics. The most common answer to this question suggests that regimes empower independent courts as a type of insurance, protecting both their lives and their policies when a new regime takes control of the country. However, recent examinations of insurance theory, notably that of Randazzo, Gibler and Reid (2016), have

shown that the empirical support for the theory is not as strong as its intuitive appeal.

To this end, we have provided a complementary theory to explain variation in levels of judicial independence for courts worldwide that focuses upon a regime's goal to maintain power and time in office. Because judicial independence is associated with positive economic consequences (e.g. Feld and Voigt, 2003), we have argued that regimes strategically increase levels of judicial independence in their countries to stimulate their economies when needed but curtailing the power of independent courts when they need not rely upon the courts to improve their country's economic standing. We theorized (and found) that natural resource dependence provides one type of variation in the extent to which leaders need to rely upon external investments, and found robust evidence across an array of indicators that regimes reduce judicial independence when their dependence on natural resource endowments is high and empower the judiciary in times of low reliance on natural resource endowments.

In the process, we have connected the disparate literatures on judicial independence and the resource curse, suggesting that natural resource endowments have another deleterious consequence: they provide leaders with an opportunity to disempower the judicial branch of government. In this way, we extend the resource curse literature beyond its traditional focus on the existence of institutions by focusing on institutional performance. Our work highlights one specific consequence of natural resource dependence: not only might reliance on natural resource endowments be negatively correlated with democratic government, but natural resource dependence has specific consequences for the ability of institutions to fulfill their traditional roles. Here, we show that natural resource dependence is associated with a reduction in the ability of courts to be effective partners in governance that limit regime actions to those given to it by a country's constitution. In short, we provide a mechanism that explains the negative relationship between natural resource endowments and democratic governance.

Importantly, our results are robust to a variety of modeling strategies and indicators of natural resource dependence. They show that the effects of oil dependence on natural

resource endowments might be less than the consequences of other types of natural resource dependence, such as those based in coal or natural gas reserves. This suggests that a single-minded focus on oil dependence might actually underestimate the deleterious consequences of natural resource dependence on political outcomes. The implication is clear: further studies of natural resource dependence should examine resource dependence generally rather than oil dependence specifically.

Moreover, our results have implications beyond the relationship between natural resources and judicial independence. There might be many indirect effects of natural resource dependence. For example, previous studies have demonstrated that *de facto* judicial independence is positively correlated with political trust (Freitag and Bühlmann, 2009), public goods provision (Helmke and Rosenbluth, 2009), and state respect for physical integrity rights (Crabtree and Fariss, 2015). This suggests that natural resource dependence might impact a wide range of outcomes through the channel of judicial independence. The indirect effects of natural resource dependence merit further investigation. Indeed, given the vital role that courts play both in democratic and authoritarian regimes, this study has just scratched the surface of the myriad ways dependence on natural resources might hamper the development of judicial power and, in turn, create opportunities for regimes to exceed their constitutional powers, limit dissent, and maim—or even kill—their citizens. The research agenda is both obvious and important.

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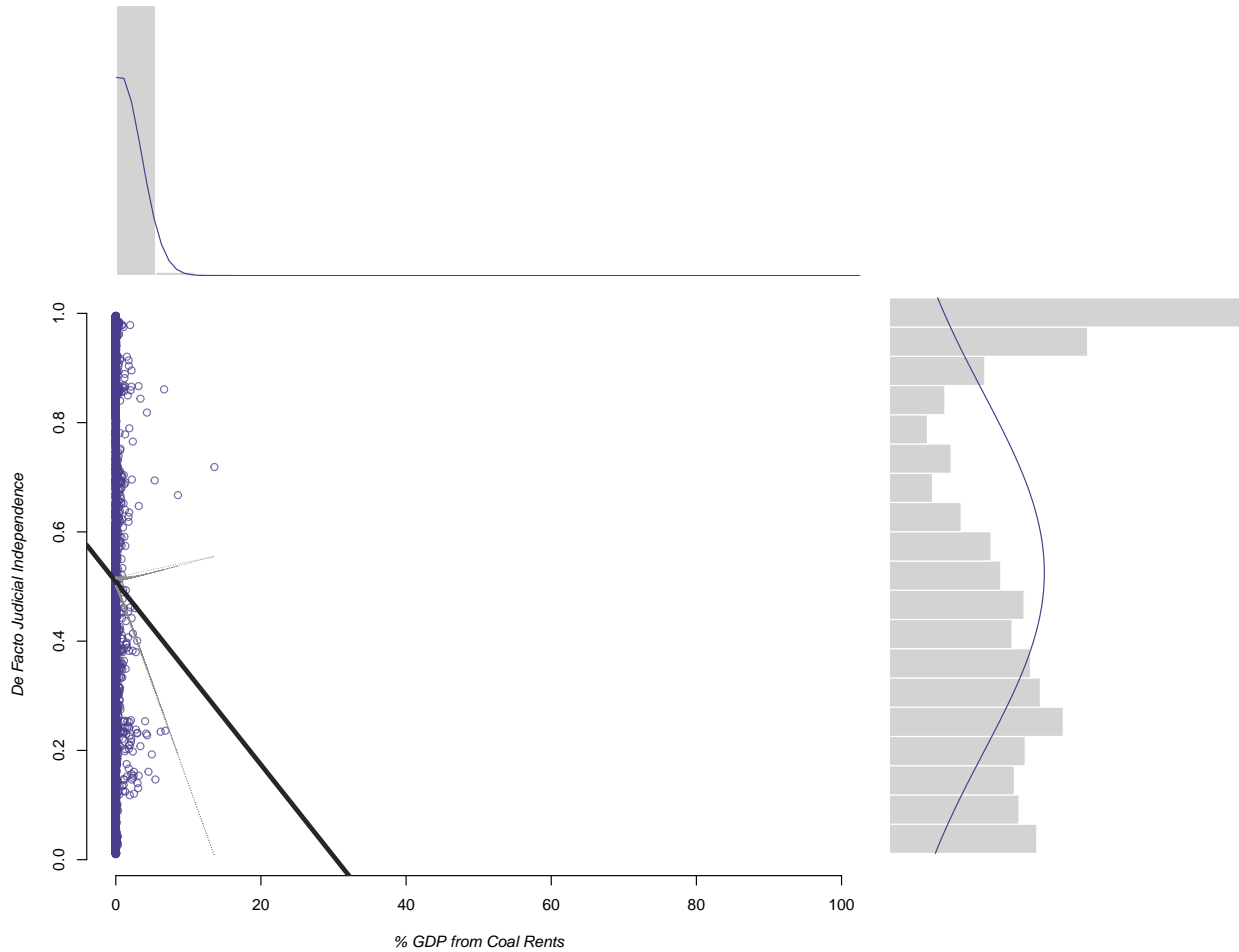
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SUPPORTING INFORMATION

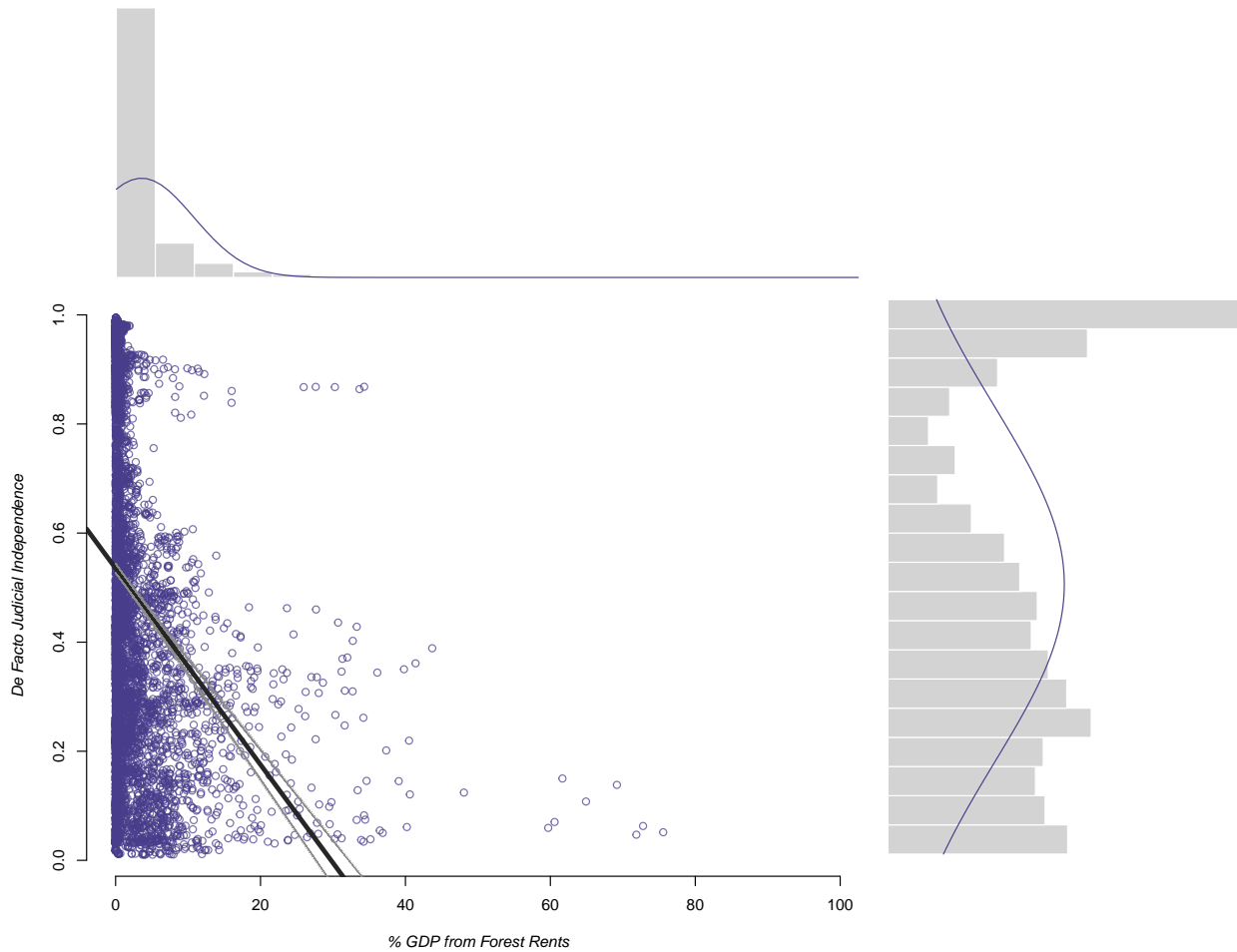
APPENDIX A

Figure 6: Bivariate Relationship Between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM COAL RENTS



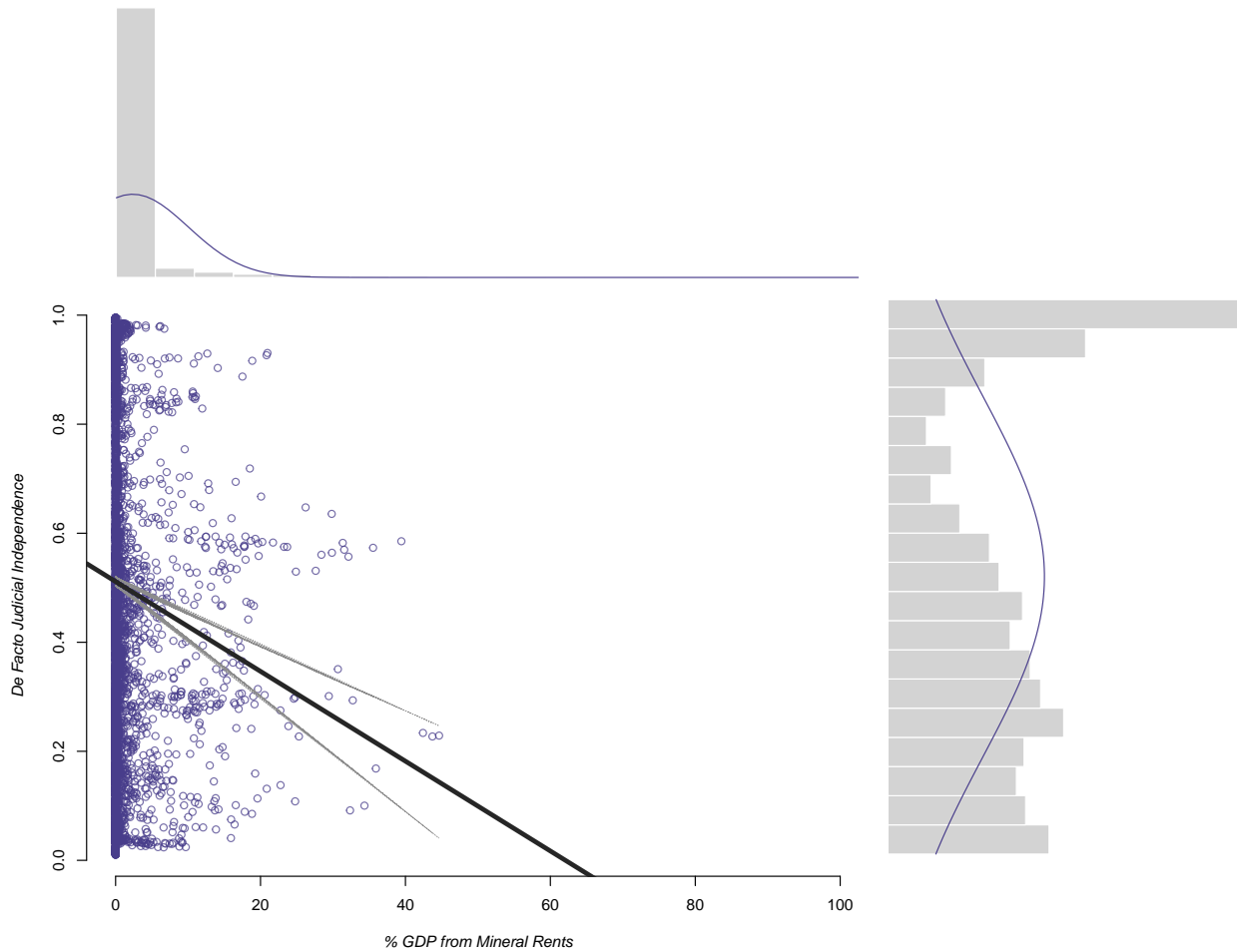
Note: Figure 4 plots the relationship between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM COAL RENTS. The thick black line is the regression slope from a simple bivariate regression. The dotted gray lines are 95% confidence intervals. The histogram on the top displays the distribution of values for % GDP FROM COAL RENTS. The histogram on the right displays the distribution of values for DE FACTO JUDICIAL INDEPENDENCE.

Figure 7: Bivariate Relationship Between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM FORESTS RENTS



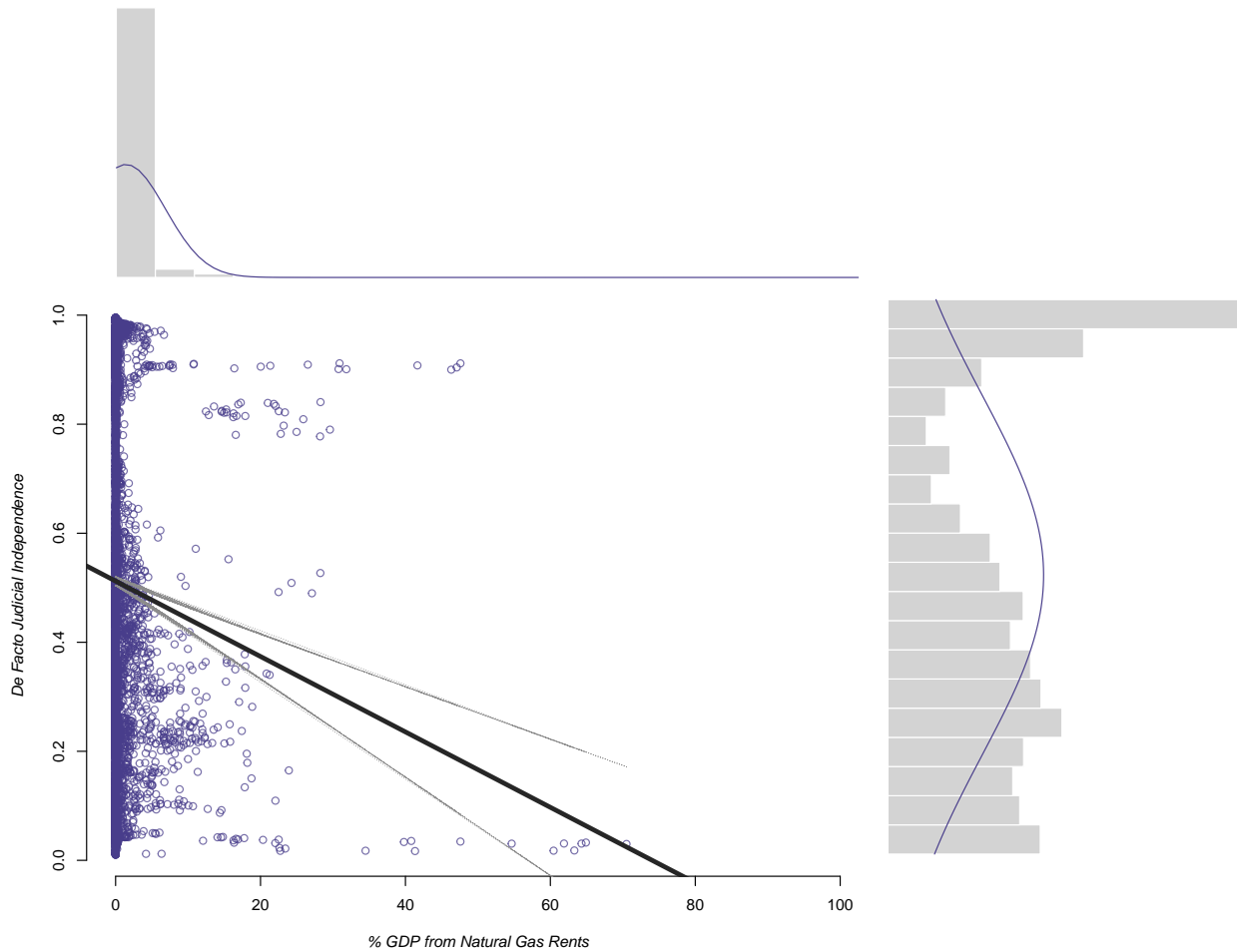
Note: Figure 7 plots the relationship between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM FOREST RENTS. The thick black line is the regression slope from a simple bivariate regression. The dotted gray lines are 95% confidence intervals. The histogram on the top displays the distribution of values for % GDP FROM FOREST RENTS. The histogram on the right displays the distribution of values for DE FACTO JUDICIAL INDEPENDENCE.

Figure 8: Bivariate Relationship Between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM MINERAL RENTS



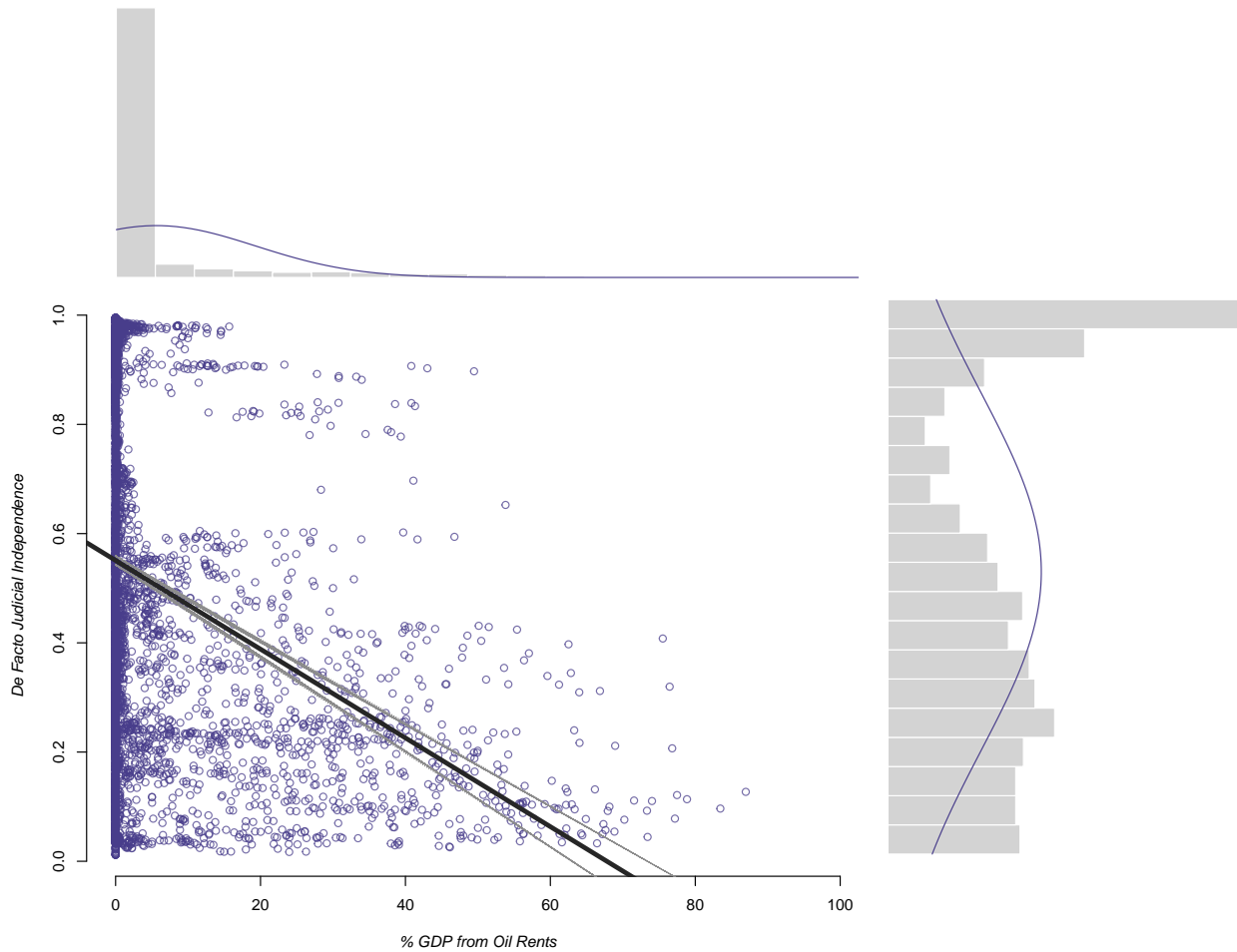
Note: Figure 8 plots the relationship between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM MINERAL RENTS. The thick black line is the regression slope from a simple bivariate regression. The dotted gray lines are 95% confidence intervals. The histogram on the top displays the distribution of values for % GDP FROM MINERAL RENTS. The histogram on the right displays the distribution of values for DE FACTO JUDICIAL INDEPENDENCE.

Figure 9: Bivariate Relationship Between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM NATURAL GAS RENTS



Note: Figure 9 plots the relationship between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM NATURAL GAS RENTS. The thick black line is the regression slope from a simple bivariate regression. The dotted gray lines are 95% confidence intervals. The histogram on the top displays the distribution of values for % GDP FROM NATURAL GAS RENTS. The histogram on the right displays the distribution of values for DE FACTO JUDICIAL INDEPENDENCE.

Figure 10: Bivariate Relationship Between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM OIL RENTS



Note: Figure 10 plots the relationship between DE FACTO JUDICIAL INDEPENDENCE and % GDP FROM OIL RENTS. The thick black line is the regression slope from a simple bivariate regression. The dotted gray lines are 95% confidence intervals. The histogram on the top displays the distribution of values for % GDP FROM OIL GAS RENTS. The histogram on the right displays the distribution of values for DE FACTO JUDICIAL INDEPENDENCE.

APPENDIX B

Conflict might be a potential confounder. It could decrease *de facto* judicial independence, by making it unattractive for the courts to rule against the executive, and increase natural resource dependence, by discouraging investment. We examine this possibility by adding a binary CIVIL WAR variable to the right-hand side of our equation and re-estimating Models 1–6. These data come from Brooks and Kurtz (2016). The results from these models provide additional support for our theoretical expectations.

Table 4: *De Facto* Judicial Independence

	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
% GDP FROM NATURAL RESOURCE RENTS _{<i>t</i>-1}	-0.003* (0.000)		-	-	-	-
% GDP FROM COAL RENTS _{<i>t</i>-1}	-	-0.011 (0.009)	-	-	-	-
% GDP FROM FOREST RENTS _{<i>t</i>-1}	-	-	-0.004* (0.001)	-	-	-
% GDP FROM MINERAL RENTS _{<i>t</i>-1}	-	-	-	-0.001 (0.001)	-	-
% GDP FROM NATURAL GAS RENTS _{<i>t</i>-1}	-	-	-	-	-0.003* (0.001)	-
% GDP FROM OIL RENTS _{<i>t</i>-1}	-	-	-	-	-	-0.002* (0.000)
DEMOCRACY _{<i>t</i>-1}	0.189* (0.009)	0.199* (0.009)	0.198* (0.009)	0.200* (0.009)	0.197* (0.009)	0.194* (0.009)
CIVIL WAR _{<i>t</i>-1}	-0.018* (0.009)	-0.022* (0.009)	-0.017* (0.008)	-0.021* (0.008)	0.150* (0.008)	-0.022* (0.009)
CONSTANT	0.705* (0.019)	0.696* (0.019)	0.692* (0.019)	0.695* (0.019)	0.699* (0.020)	0.705* (0.019)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	8422	8422	8422	8422	8422	8422

Note: * $p < 0.05$ (two-tailed). Robust standard errors are shown in parentheses. Data cover 209 countries from 1971 – 2011. The dependent variable is DE FACTO JUDICIAL INDEPENDENCE.

APPENDIX C

In this section, we examine whether our results are sensitive to the measure of democracy we use by replacing the dichotomous (Cheibub, Gandhi and Vreeland, 2010) measure with a latent variable measure (Melton, Meserve and Pemstein, 2011). Since the (Melton, Meserve and Pemstein, 2011) measure is a latent variable, we need to take into account uncertainty in its point estimates. We do this using the same procedure that we describe in regards to the (Linzer and Staton, 2015) measure. The results from this set of models provide additional support for our theoretical expectations.

Table 5: *De Facto* Judicial Independence

	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18
% GDP FROM NATURAL RESOURCE RENTS _{t-1}	-0.002* (0.000)		-	-	-	-
% GDP FROM COAL RENTS _{t-1}	-	-0.012* (0.001)	-	-	-	-
% GDP FROM FOREST RENTS _{t-1}	-	-	-0.003* (0.001)	-	-	-
% GDP FROM MINERAL RENTS _{t-1}	-	-	-	-0.001 (0.001)	-	-
% GDP FROM NATURAL GAS RENTS _{t-1}	-	-	-	-	-0.001* (0.001)	-
% GDP FROM OIL RENTS _{t-1}	-	-	-	-	-	-0.001* (0.000)
DEMOCRACY (UDS) _{t-1}	0.164* (0.009)	0.170* (0.004)	0.169* (0.004)	0.170* (0.009)	0.169* (0.004)	0.167* (0.004)
CONSTANT	0.675* (0.0209)	0.669* (0.021)	0.667* (0.020)	0.669* (0.020)	0.671* (0.021)	0.675* (0.021)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	8422	8422	8422	8422	8422	8422

Note: * $p < 0.05$ (two-tailed). Robust standard errors are shown in parentheses. Data cover 209 countries from 1971 – 2011. The dependent variable is DE FACTO JUDICIAL INDEPENDENCE.

APPENDIX D

In this section, we investigate if our results are driven by the fact that we used OLS with a bounded outcome measure. Since our measure is bound on the $[0 - 1]$ interval, it might be inappropriate to use least squares regression. We re-estimate our results using beta regressions.

Table 6: The Relationship between % GDP from Natural Resource Rents and De Facto Judicial Independence

	Model 1
% GDP FROM NATURAL RESOURCE RENTS $_{t-1}$	-0.014* (0.001)
DEMOCRACY $_{t-1}$	0.863* (0.037)
Constant	1.545* (0.027)
State Fixed Effects	Yes
Year Fixed Effects	Yes
N	8422

Note: * $p < 0.05$ (two-tailed). Robust standard errors are shown in parentheses. Data cover 209 countries from 1971 – 2011. The dependent variable is DE FACTO JUDICIAL INDEPENDENCE.

APPENDIX E

In this section, we examine whether our findings are sensitive to the cases we include. Another way of thinking about this is that we investigate whether our model is overfitted. To do this, we use k -fold cross validation (Hill Jr. and Jones, 2014). This involves conducting 1,000 simulation. In each simulation, we (a) partition our data randomly into one training set and nine test sets ($k=10$) and (b) estimate a series of regression models with *de facto* judicial independence as the outcome measure. Figure 11 presents the results of the 10-fold cross validation. It plots the average percent reduction in mean square error of various model specifications compared to the model with just the lagged dependent variable. This shows the additional predictive power of individual variables or combinations of variables.

The baseline model, not shown in the figure below, includes only country and year fixed effects. CV Model 1 includes % GDP FROM NATURAL RESOURCE RENTS $_{t-1}$ on the right-hand side of the equation along with the country and year fixed effects. CV Model 2 includes DEMOCRACY $_{t-1}$ and CIVIL WAR $_{t-1}$ on the right-hand side of the equation along with the country and year fixed effects. CV Model 3 includes % GDP FROM NATURAL RESOURCE RENTS $_{t-1}$, DEMOCRACY $_{t-1}$, and CIVIL WAR $_{t-1}$ as well as country and year fixed effects (i.e. the full model specification).

Comparing across these models, we can see that adding % GDP FROM NATURAL RESOURCE RENTS $_{t-1}$ to the model dramatically improves its predictive ability. This is shown by the fact that including the variable reduces mean square error.

Figure 11: Cross-Validation Results



Note: Figure 11 plots the average percent reduction in mean square error of each model compared to the baseline model, which includes only country and year fixed effects. This illustrates the additional predictive power of individual variables and combinations of variables. The black lines bracketing the end of each column represent 95% confidence intervals.