Do Resource-Wealthy Rulers Adopt Transparency-Promoting Laws?
An Empirical Analysis

Krishna Chaitanya Vadlamannati

&

Indra de Soysa

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Abstract: Some argue that the 'natural resource curse' does not occur if countries have better institutions. Rulers with access to resource wealth, however, are unlikely to make institutional changes that might undermine their discretionary power. We examine this proposition by testing whether countries with access to natural resource wealth are less likely to adopt transparency-promoting Freedom of Information (FOI) laws after accounting for the current level of democracy and the quality of institutions. Using Panel data on 139 countries between 1980-2012 (33 years), we find that countries deriving rents from natural resource are less likely to adopt FOI laws. We also find that oil, rather than other resources, is robustly related to a lower probability of adopting FOI laws. However, higher income from resources is positively associated with the chance of adopting FOI laws conditional on very strong levels of existing democracy and institutions, signifying that rulers of resource wealth need to face fairly high political constraints before they adopt institutional changes. Global policy aimed at increasing transparency within resource-wealthy states will have to focus efforts on strengthening democracy and increasing political competition. Our findings are robust to alternative samples, measurement, and several different estimation strategies.

Introduction

The proposition that countries blessed with natural resources do less well economically, politically and socially--referred to as the 'natural resource curse'--has drawn heated debate in many fields in the social sciences (Frankel 2012, Ross 2012, van der Ploeg 2011). Others suggest that the idea of a resource curse is a "red herring," and that much of the so-called curse might be explained through institutions (Brunnschweiler and Bulte 2008). Apparently, there is no resource curse if only resource-rich countries have good institutions, then all that money from resources is a potential blessing. According to Brunnschweiler and Bulte (2012: 1) "To promote sustainable and peaceful development across Africa and elsewhere, institutional reform should take center stage – policymaking should be fairer, more transparent, and more inclusive." Such expectations are likely to remain, however, wishful because resource wealth powerfully shapes the incentives of rulers (elite) who decide whether or not to adopt institutional reforms that will ensure fairness, transparency, and inclusivity (Acemoglu and Robinson 2012; Bueno de Mesquita and Smith 2011). How then might global policy aimed at reducing poverty and corruption enhance the prospects of better governance among resource-wealthy countries? We address this important issue with unique data focused on institutional change that promotes greater transparency within governments. We test empirically whether indeed resource wealthy states adopt freedom of information laws (FOI) that reduce opacity in governance? We also asses the conditioning influence of existing institutions measured in terms of the level of democracy and existing levels of corruption on the chances of resource-wealthy states adopting FOI laws.

Using standard statistical techniques on panel data covering 139 countries between 1980 and 2012 (33 years), we find that natural resource rents per capita (relative abundance) predicts a lower likelihood of a country adopting FOI laws, controlling for several relevant factors, including the quality of existing institutions measured as the current level of political democracy.

Using disaggregated data on resource rents per capita, we find that oil and mineral wealth slows the adoption of FOI laws, net of the level of income and institutional quality. Moreover, we find that resource-wealthy countries that adopt FOI laws do it conditional on very high levels of democracy and institutional quality, suggesting that FOI laws get instituted when rulers of resource wealth have to operate in political environments that are already highly constraining. Policy aimed at strengthening democracy and democratic institutions, thus, might be an important way in which resource-wealthy countries obtain even greater transparency within government. Our results survive a wide-variety of robustness checks including alternative models, a number of different testing methods, sample sizes, and the inclusion of country fixed effects. The rest of the paper discusses theory and presents the hypotheses to be tested, presents data and estimating strategies, discusses results, and concludes.

Theory

Corruption is usually defined as "the misuse of public office for private gain" (Rose-Ackerman 1999). A typical form of corruption is that state officials use the power of their positions to subvert legitimate processes, such as the awarding of contracts, licenses, permits etc., by soliciting kickbacks. Powerful political actors subvert laws or take advantage of ambiguities in the law, or poor oversight, to loot state assets or to engage in patronage. These practices invariably lead to high social costs in terms of low economic, social, and political development due to lowered investment, waste, pervasive cynicism, and societal mistrust (Mauro 1998, Rock and Bonnett 2004, Rothstein 2011). According to Transparency International, annually roughly

one trillion US dollars flows illegally from the poor world to the rich due to various forms of corruption.[1]

Natural resource wealth offers monopoly rents to those in power, who also possess high degrees of discretion in terms of how those rents are deployed (Kolstad and Wiig 2009; Ross 2012). Resource wealth allows political patronage where rulers buy off opposition so that a parasitic elite might remain in power (Mahdavy 1970, Beblawi 1987, Yates 1996). Corrupt rulers of resource-rich states build a winning coalition to stay in power by sowing resource wealth to buy allegiance and support, thereby avoiding critical scrutiny. Easy money from natural resources also leads to "white elephant" investments, which serve as patronage via the creation of superfluous employment (Robinson and Torvik 2005). Existing transparency initiatives, such as the Extractive Industries Transparency Initiative (EITI) are criticized because they focus too narrowly on the production side of rents and not on how the discretionary power of rulers shape the deployment of rents; in other words, the nature of their use (Kolstad and Wiig 2009). Thus, production-side transparency issues might be ineffective at empowering ordinary citizens to access information about both production and the deployment of resource revenues. Institutional change that allows greater scrutiny of the entire political process, thus, is required to effectively address the problem of opacity in government that encourages corruption and waste (Kolstad and Wiig 2009). We believe that FOI laws, among other potential constraints placed on those in power, might serve this purpose.[2]

Many resource-wealthy states are autocracies precisely because access to rents allow autocrats to solidify their positions in power (Ross 2012). Those in power avoid reform out of

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[1] See the Transparency International website for numerous sources on the effects of corruption on the poor. http://www.transparency.org/topic/detail/poverty_and_development (last accesses on 7th January 2016).

[2] It should be noted that not all FOI laws are the same, but their existence even in the weakest forms do give ordinary citizens and watch-dog groups some leverage for monitoring governments. In any case, our interest is not whether or not FOI laws are better than other instruments for mitigating the resource curse, but only whether institutional change is more or less likely under conditions of resource wealth.

fear of replacement and the loss of access to future rents (Acemoglu and Robinson 2012). Natural resource wealth encourages weak institutions (since taxes from citizens are unnecessary) and weak provision of public goods, including the public good of social peace because of ineffective militaries and bureaucracies (Besley and Persson 2010, Fearon and Laitin 2003). Weak systems of taxation lead to weak state society linkages (Herbst 2000). As Besley and Persson (2010) argue, resource-rich rulers have little interest in building stronger fiscal capacity, which hampers forward looking investments in building markets through the strengthening of legal systems that protect private property. Without strong state-society linkages, political demands made of the ruling elite to be transparent will also likely be absent, or weak. Indeed, some find that natural resource wealth leads to weaker transparency of fiscal institutions (de Renzio, Gomez and Sheppard 2009; Wehner and de Renzio 2013). Resource-rich rulers, thus, should have little incentive to build institutions that increase opacity widely and allow public scrutiny of government officials, regardless of the state of inherited institutions from the past.

Those who argue that institutions, not resources, matter point to countries such as Australia, Norway, Canada and the US to argue that natural resources can be a boon if institutions are good. These countries were already democratic and fairly egalitarian when resources were discovered. In the case of Australia, political elites in the early years did indeed try to grab land and other resources, and such efforts were thwarted by ordinary citizens who fortunately had access to existing laws in the home countries that prevented monopoly by elites (see Acemoglu and Robinson 2012). These conditions hardly apply in today´s poor-country context, however. In Africa and Latin America, many resource rich countries saw the deterioration of existing institutions, such as in Venezuela, Brazil, Liberia, Sierra Leone, Angola, Zimbabwe (Karl 1997, Auty 2001). Consider the instance of the Nigerian General Olusagun Obasanjo, a founding member of Transparency International, stalling the adoption of FOI laws

when he became president (Berliner 2014). Even in wealthy, democratic Britain, former Prime Minister Tony Blair has written in his memoirs that passing the Freedom of Information Act in 2000 was his biggest blunder in office due to the increased scrutiny of corrupt practices in the UK (Berliner 2014). Given this, it is hard to think that rulers in poor countries enjoying access to easy money from natural resources would rush to adopt institutional changes that would increase transparency and accountability, constraining their ability to access power and wealth strategically (Acemoglu and Robinson 2012, Alesina 1994, Knight 1992).

Public information initiatives have 'exploded' in the past decades (Ackerman and Sandoval-Ballesteros 2006). Adopting freedom of information laws is an important institutional innovation, increasing transparency of government and empowering civil society (Berliner 2014).[3] Laws on freedom of information serve as a valuable tool in opening up the black box of states and bureaucracies so that the press, other public watchdog organizations and ordinary citizens can access information on matters of public concern. These laws are particularly valuable in the fight against corruption since they may be applied by the legal profession against corrupt public officials, including the highest officials in the country (Islam 2006; Hollyer, Rosendorff and Vreeland 2011). This study is the first study to our knowledge that estimates the likelihood that rulers of resource wealthy states would make institutional changes that increase transparency of government broadly, after accounting for the state of existing institutions measured both in terms of the level of corruption and democracy.[4] If resource wealth encourages rent-seeking, waste, and corruption in public office, then there is a high likelihood that these countries will stall

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[3] The journalist, Heather Brooke, who uncovered illegal expense accounts of British parliamentarians, resorted to the Freedom of Information Act to obtain parliamentary records (see Brooke 2005). This case exemplifies how FOI laws open up government to scrutiny.

[4] Some investigate the effect of natural resource wealth on fiscal transparency. These studies are limited due to the use of purely cross-sectional design (see Wehner and de Renzio 2013). Moreover, the narrow focus on budgetary matters says little about the ability of ordinary citizens and political opponents to monitor other aspects of governance related to allocation and spending, which FOI laws by and large would permit.

institutional change that benefits the public interest. Thus, our first hypothesis can be stated as follows:

> **H1:** *Countries receiving rents from natural resources are less likely to adopt FOI laws compared with countries that do not have natural resources*

According to some, FOI laws are more likely to be adopted where competition for political power is greater (Berliner 2014; Hollyer, Rosendorff and Vreeland 2011). Where political power is decided by a popular contest, political actors will prefer these laws as monitoring devises of their opponents and political partners, particularly in multiparty-coalitional government (Michener 2015). An empowered public in a democratic society is also likely to demand FOI laws by appealing to international law (Moravcsik 2013). Similarly, the harmful effects of natural resource wealth are supposedly mitigated by the availability of good institutions and democracy. In fact, some suggest that democracy is the 'missing link' for understanding whether natural resources translate into a boon or curse (Bhattcharyya and Hodler 2010). Thus, natural resources under conditions of competitive politics might not be a hindrance for the adoption of transparency-promoting FOI laws. Moreover, since resources act as a "honey pot," open political competition among elites could increase the demand for transparency as a devise to constrain theft of the common pot. Democratic leaders sensitive to the accusation of corruption will welcome greater scrutiny (Wehner and de Renzio 2013). Some, however, have shown how oil-rich states suffer civil war when they open up to competitive political processes (Wegenast 2013). Whether or not resource-wealthy rulers, thus, risk institutional change that constrains their access to power and control by encouraging transparency-promoting institutions is an open empirical question. We test two additional hypotheses based on the expectation of conditional

effects between natural resources and the likelihood of FOI laws being adopted by interacting our resource rents variables with good institutions measured as control of corruption and democracy measured by the Polity IV data (Gurr and Jaggers 1995) between the years 1980 and 2012. The two auxiliary hypotheses can be stated as follows:

> **H2a:** *Natural resource wealth does not constrain the adoption of FOI laws in cou ntries already sporting democracy*

> **H2b:** *Natural resource wealth does not hinder the adoption of FOI laws in countries already sporting good bureaucratic institutions*

In the next section we present our data and methodology and briefly examine the state of empirical research on FOI laws.

Data and Methods

We use panel data on 139 countries (see Appendix 1) over the period 1980–2012 (33 years). Since some of the data are not available for all countries or all years, the panel data are unbalanced and the number of observations depends on the choice of explanatory variables. The bulk of the 85 out of 90 countries in our sample that adopted FOI laws did so around 1990 (see Appendix 2 for the full list of countries with FOI law). Only four of the 139 countries in our sample, mainly industrialized countries, already had FOI laws before 1980. Accordingly, we estimate the probability of a country *c* passing an FOI law *i* in year *t* as:

$$P(foi_{ict} = 1) = \phi_c + \beta NR_{ct} + \beta Z_{ct} + \lambda_t + \omega_{ct} \qquad (1)$$

Wherein, foi_{ict} is a discrete variable which takes the value 1 if country c in year t has adopted an FOI law i and 0 otherwise. Note that once a country has adopted FOI laws in year t, the country-years from $t+1$ are dropped from the dataset (see also Berliner 2014). Those countries which had not passed FOI laws remain in the sample and are treated as right-censored. As an example, India adopted FOI laws in 2005. As per our coding, India gets the value of 0 from 1980 until 2004. The value of 1 is coded for 2005. From 2006 onwards India is not counted. We code the FOI discrete variable using information made available by Ackerman and Sandoval-Ballesteros (2006), surveys on FOI laws provided by the Open Society Justice Initiative (http://www.right2info.org/), and information updated by Vleugels (2012).[5] After relatively early adoption of FOI laws in Sweden, three other countries, namely the United States, France, and Norway also adopted FOI laws in the 1960s and 1970s. Australia, Canada, Austria, Colombia, Denmark, New Zealand, and the Philippines adopted FOI laws in the 1980s. Other Organization for Economic Cooperation and Development (OECD) members delayed passage of FOI laws until the late 1990s. Interestingly, many developing countries also started legislating FOI laws throughout the 1990s and the post-2000 period. There is, however, a great degree of variance in terms of who adopts FOI laws as opposed to those that hold back. What explains this variance?

Our main variable of interest is natural resource abundance operationalized as rents per capita (NR_{it}). We use natural resource rents data from the World Bank´s World Development

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[5] Data providing information on countries with FOI laws differ. Note that we consider the Philippnes and Malaysia among the countries with FOI laws. According to most global surveys the Philippnes amended its constitution to enshrine access to FOI in Article III of the constitution in 1987. Likewise, Michener (2011) points out that several provinces in Malaysia have adopted FOI laws, which are then recognized by the Federal government. Our results, however, remain unaffected by whether or not we code these two countries as having FOI laws or not.

Indicators, which presents the data as a share of GDP (World Bank 2014).[6] Using current GDP

values, we compute total rents, which is divided by total population. Rents are defined as unit

price minus the cost of production times the quantity produced. Rents per capita rather than

export revenue is better suited to capture a state's access to a revenue stream. We also

disaggregate total natural resource rents into oil, gas, and mineral rents. The World Bank´s rents

data show that oil rents dominate a country´s GDP compared with rents from other sources. For

example, in our sample of 139 countries, the average oil rents per GDP is 5.7% with a maximum

of 76% while the average of mineral rents is only 1.3% with a max of only 36% and gas rents

average at 1.6% with a max of 73% respectively. This shows that oil tends on average to

dominate total economic activity in producing countries. The same is true for oil rents per capita,

where the average oil rents per capita is $531 compared with $32 for minerals and $145 for gas

respectively.

We follow Ross (2008), Haber and Menaldo (2011) and others (de Soysa 2015; Andersen

and Ross 2014) and use natural resource rents per capita to circumvent the problem of

endogeneity. Previous studies have used resource exports as a share of total exports or resource

exports as share of GDP (eg. Collier and Hoeffler 2004) or resource rents as a share of GDP (eg.

Torvik 2009). These measures could be affected by endogeneity problems if export dependence,

for example, was caused by other factors also explaining outcomes, such as growth, conflict, or

other unmeasured factor. We use two versions of resource rents per capita where we employ both

a logged version to reduce skewness and an unlogged version to avoid artificially contaminating

our measure of resource wealth. The issue is that roughly 32% of the oil rents per capita, 35% of

gas rents per capita and 32% of mineral rents per capita contain zero values, which cannot be

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[6] These data are accessed from the World Development Indicators online data on October 2014. For a detailed explanation of methodologies and the calculation of rents, see: http://databank.worldbank.org/data/.

logged. Hence we add the value of 1 prior to obtaining the natural log of our resource rents variables, following others (Wehner and de Renzio 2013; de Soysa 2015).

The vector Z_{ct} includes potential determinants of FOI laws gleaned from the existing literature that may explain the effect of resources (Berliner 2014, Berliner and Erlich 2015). We are conscious of the potential traps of "garbage can probits" (Achen 2005) where various variables are dumped onto the right hand side of the equation, making interpretation of the relevant findings extremely difficult. We follow the conservative strategy of accounting only for known factors that may confound the effect of resources, such as income per capita, democracy and the current level of corruption, which proxy the quality of existing institutions. We estimate the effect of rents independently of existing institutional quality.

First, we include per capita GDP (logged) in US$ 2005 constant prices obtained from the World Development Indicators (World Bank 2014) as a measure of the level of development. Income per capita is a 'catch all' variable for other factors, such as better institutions and stronger civil society. We expect richer citizens on average to be more demanding of transparency in government. Hollyer, Rosendorff and Vreeland (2011), Jakobsen and de Soysa (2006), Rosendorff and Vreeland (2006) argue that democratic publics are likelier to demand greater transparency. Since resource wealth is likely to be associated with lower levels of democracy, we include a measure of democracy based on the Polity IV index (Marshall and Jaggers 2012), which is recoded on a scale of 1 to 21 where the highest values represent full democracy all the way down to strict autocracies as you approach 1.[7]

Next we sequentially introduce other relevant variables gleaned from the existing literature. We add a discrete variable taking the value 1 if a country has had a democratic

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[7] Though the Polity IV index has faced some criticism (see Potrafke 2012), it captures three important elements of democracy; namely, presence of institutions, existence of effective constraints on the executive and participation by citizens in the political process.

transition in during the past 5 years to mark new democracies and 0 if not. Berliner (2014) argues that new democracies are less likely to adopt FOI laws because electoral competition at early stages is weaker. Others argue, however, that new democracies often adopt very strict institutional rules to "lock in" future leaders and prevent backsliding (Moravcsik 2000). Following others (Berliner 2014), we control for the level of a country's integration in the global economy. Since high resource exports might capture aspects of international integration, and if integration drives transparency, then any effect of resources might be spurious. Thus, we include trade openness measured as the sum of total imports and exports as a share of GDP sourced from The United Nations Conference on Trade and Development (UNCTAD) 2014.

Finally, we assess the degree of civil society activism, since resource-wealthy countries may lack civil society organization. We control for the number of Non-governmental Organizations (NGOs) operating in a country. Transparency International's report (2006) on Right to Information highlights the role of NGOs in pushing governments to strengthen the adopted FOI laws by launching campaigns with the aim of promoting awareness among the general public. They also monitor the functioning of such laws though questionnaires and by filing requests to test levels of responsiveness of states. Using Union of International Associations' (UIA) yearbooks, we collect data on local and international NGO groups, which operate in each country from 1980 to 2012. The UIA as its core activity compiles and disseminates information and data on international organizations active in 190 countries from 1960 onwards. We use the count of local and international NGO groups (log) active in country c in year t in our analysis. The descriptive statistics are provided in Appendix 3 and details on data and sources in Appendix 4.

We estimate a probit estimator with heteroskedasticity consistent robust standard errors due to the binary nature of our dependent variable. Following Berliner (2014), we estimate probit

models where countries are dropped from the analyses following the adoption of FOI laws. However, in this setup of the data, failure to control for duration dependence could produce biased results. Unlike a probit model, a typical duration Cox and Weibull type models directly account for such duration dependence. To circumvent this problem, we add four important variables to account for duration dependence. First, we include the variable "no FOI years", which counts the number of years a country has not adopted an FOI law. Secondly, we add three cubic splines using the Binary Time Series Cross Section (BTSCS) program in STATA 13 (Beck, Katz, and Tucker 1998) which provides a smooth function for the duration dependence in a model (see Box-Steffensmeier and Jones 2004). Thus, this model would be equivalent to a Cox proportional hazards model with time-varying variables and produces probit marginal effects. In our subsequent probit estimations, we replace *No FOI years* and splines with time-fixed effects.

One drawback of the probit models is that we cannot include country-fixed effects for two reasons. First, the use of two-way fixed effects will be co-linear with time-invariant regressors, such as the Polity IV democracy index (Beck 2001). Secondly, including two-way fixed effects in non-linear estimations, like the probit estimator, may be problematic due to the well-known incidental parameter problem (Lancaster 2000, Wooldridge 2002). There are two standard ways of addressing this issue. One is to estimate a conditional logit, where the fixed effect terms are conditioned out *ex-ante* via maximum likelihood on subsamples of the data. The second approach is to utilize the probit fixed effects estimator developed by Chamberlain (1992). Unfortunately, none of our estimations converge when we try these alternative methods. To circumvent these problems, we follow Eichengreen and Leblang (2008) and estimate a linear probability model. This method allows us to control for time and country-fixed effects, and it provides consistent estimates. All our models are estimated with a probit estimator, which controls (1) time

dependence (2) time-fixed effects, and (3) the linear probability estimator, which controls for time as well as country fixed effects.

Next, we examine whether countries with natural resources adopt FOI laws conditional on the level of democracy and the control of corruption. We use the Polity IV democracy index as discussed above, which is rescaled on a range of 1-21 . Control of corruption is taken from the International Country Risk Guide's (ICRG) index, which is coded on a 0-6 scale. The ICRG´s corruption data is based on the perception of corruption among the population and expert opinion on corruption gleaned from newspaper reports, in-house observations and the use of country experts on the basis of: insidious acts of corruption in higher echelons within the political system, such as excessive patronage, nepotism, job reservations, quid-pro-quo favors, secret party funding, and suspiciously close ties between politics and business.[8] Accounting well for those factors already thought to be affected by the presence or absence of natural resource wealth is important since our argument is that incentives of resource wealthy rulers may matter and not necessarily the strength of existing institutions. We introduce interaction terms between our resource rents variables with both measures in separate estimations:

$$P(foi_{ict} = 1) = \phi_c + \beta\,(NR \times \beta\,CV)_{ct} + \beta\,NR_{ct} + \beta\,CV_{ct} + \beta\,Z_{ct} + \lambda_t + \omega_{ct} \qquad (2)$$

Wherein, $NR \times CV$ is an interaction term added to our baseline models. CV_{ct} are the conditioning variables (viz., democracy and control of corruption indices). Once again, we employ both a probit estimator with splines and time-fixed effects estimator and generate marginal plots to assess the effects of the interactions.

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[8]   For   ICRG   methodology   on   computing   the   government   corruption   index,   see:
https://www.prsgroup.com/?pdf_file=http://www.prsgroup.com/wp-content/uploads/2012/11/icrgmethodology.pdf

Empirical Results

Figure 1 provides a summary of the evolution of the adoption of FOI laws by countries over time. As seen here, roughly 8% of countries in the sample had FOI laws by 1990, which increases to about 61% by 2012.

Figure 1: Percentage of Countries in the sample with FOI law
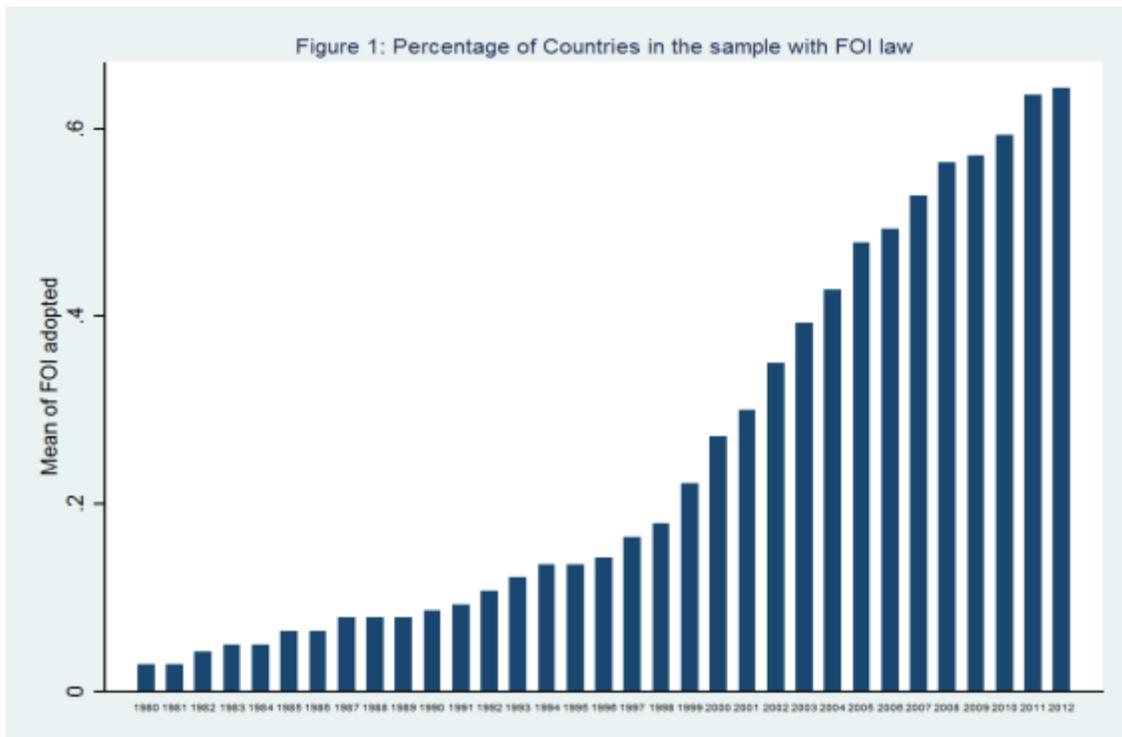
Figure 2 provides some stylized facts on data on countries dependent on natural resources and the rate of adoption of FOI laws. As seen there, countries that have natural resource rents are a much smaller share of the sample of countries that sport FOI laws. On average, countries that have adopted FOI laws have resource rents per capita of about $330, while none of the countries with rents per capita over $1825 have thus far adopted FOI laws. Likewise, countries with per capita oil rents of about $161 on average have adopted FOI laws, while countries with per capita oil rents of over $1384 have not adopted FOI laws. Countries with FOI laws have roughly $38

per capita in gas rents, while countries without FOI laws have per capita gas rents of over $338. These simple stylized facts show that natural resource rich countries lag behind in terms of adopting transparency-promoting FOI laws. These simple bivariate statistics, however, may lead to spurious conclusions without controls, such as income, because poverty or the lack of democracy, rather than dependence on resource rents, may explain the differences. We move next to examine the statistical relationship in greater detail and precision in multivariate models.

Figure 2: Average Resource Rents in countries with & without FOI law during 1980-2012
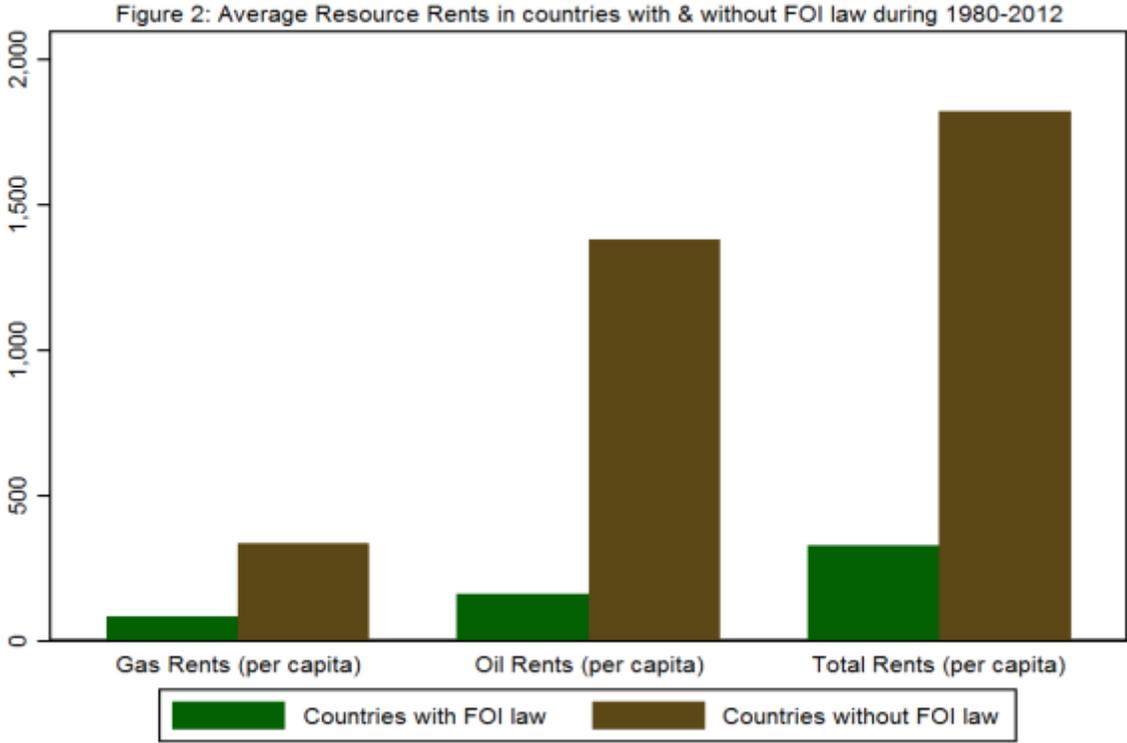
Table 1 reports the impact of natural resource wealth on adopting FOI laws. While columns 1-4 present the results of total resource rents per capita, the results of the logged version of resource rents are presented in columns 5-8. As seen in column 1, total natural resource rents per capita is negatively associated with the passage of FOI laws, a result that is statistically

significant at the 5% level and substantively fairly large.[9] At the mean value of rents per capita (747 US$ per capita) there is a 1% lower chance of passing FOI laws for every 1$ increase, independent of per capita income and democracy. A standard deviation increase in rents (roughly 2575 US$) above the mean, holding the income and democracy at their mean values, lowers the mean impact of passing an FOI law by roughly 72% of the baseline risk.[10] For comparison of substantive effects, increasing income by a standard deviation increases the average impact by roughly 79%. This comparison suggests that the substantive impact of higher natural resource wealth on FOI passage is fairly large. Notice that democracy has the expected positive effect that is significantly different from zero at the 1% level, net of resource rents and income, a result consistent with others (Hollyer, Rosendorff and Vreeland 2011). Again for comparison, moving from the average value of democracy (13.4) by one standard deviation (7), holding income and resource rents per capita at their mean values, increases the average risk of passing an FOI law by roughly 154%. These effects suggest that democracy has a substantively important effect.

Table 1: Marginal effects of natural resource rents on the risk of adopting FOI laws (Baseline models)

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[9] The table reports marginal effects instead of coefficients. The marginal effect of an independent variable (on the RHS) is the effect of a unit change of variable on the probability P (Y = 1|X = x), given that all other variables in the RHS are constant:

$$\frac{\partial P(y_i = 1 \mid x_i)}{\partial x_i} = \frac{\partial E(yi \mid xi)}{\partial x_i} = \varphi(x_i'\beta)\beta$$

[10] We compute substantive effects by computing a baseline risk of seeing FOI laws with all variables at their mean values. We then recomputed this risk after increasing our variable of interest by a meaningful quantity, such as a standard deviation above the mean value. We then assess the magnitude of the change in the baseline risk.

	(1) FOI law	(2) FOI law	(3) FOI law	(4) FOI law	(5) FOI law	(6) FOI law	(7) FOI law	(8) FOI law
Total Resource Rents Per capita t-1	-0.00569**	-0.00524**	-0.00661**	-0.00386***				
	(0.00234)	(0.00245)	(0.00295)	(0.00122)				
Total Resource Rents Per capita (log) t-1					-0.0123**	-0.0108*	-0.0137*	-0.0406*
					(0.00557)	(0.00569)	(0.00723)	(0.0226)
Per capita GDP (log) t-1	0.00420***	0.00308	0.00446*	0.0360*	0.00440***	0.00293	0.00427	0.0378*
	(0.00141)	(0.00199)	(0.00249)	(0.0211)	(0.00154)	(0.00209)	(0.00265)	(0.0215)
Democracy Polity index t-1	0.00146***	0.00145***	0.00198***	0.00102	0.00170***	0.00165***	0.00227***	0.00102
	(0.000371)	(0.000383)	(0.000500)	(0.00136)	(0.000372)	(0.000399)	(0.000514)	(0.00136)
New Democracy t-1		-0.00317	-0.00175	-0.0172		-0.00367	-0.00225	-0.0172
		(0.00592)	(0.00760)	(0.0194)		(0.00645)	(0.00831)	(0.0194)
Trade Openness t-1		6.66e-06	1.11e-05	0.000136**		6.44e-06	1.09e-05	0.000140**
		(1.53e-05)	(1.91e-05)	(6.27e-05)		(1.65e-05)	(2.06e-05)	(6.40e-05)
NGOs (log) t-1		0.00365	0.00474	0.0709***		0.00451	0.00592	0.0697***
		(0.00459)	(0.00581)	(0.0239)		(0.00490)	(0.00623)	(0.0239)
No FOI years	-0.00227	-0.00234			-0.00259	-0.00262		
	(0.00176)	(0.00182)			(0.00194)	(0.00197)		
Spline1	5.20e-06	4.96e-06			5.67e-06	5.25e-06		
	(4.40e-06)	(4.46e-06)			(4.87e-06)	(4.84e-06)		
Spline2	-2.40e-05	-2.48e-05			-2.72e-05	-2.76e-05		
	(1.93e-05)	(1.96e-05)			(2.14e-05)	(2.13e-05)		
Spline3	8.46e-07	2.16e-06			1.55e-06	3.17e-06		
	(2.55e-05)	(2.58e-05)			(2.83e-05)	(2.80e-05)		
Constant				-0.540***				-0.538***
				(0.200)				(0.202)
Estimator	Probit	Probit	Probit	OLS-FE	Probit	Probit	Probit	OLS-FE
Time Fixed Effects	NO	NO	YES	YES	NO	NO	YES	YES
Country Fixed Effects	NO	NO	NO	YES	NO	NO	NO	YES
Number of Countries	116	116	116	116	116	116	116	116
Number of Observations	2,466	2,440	1,938	2,440	2,466	2,440	1,938	2,440

Notes:
(1) Robust standard errors in parenthesis
(2) Statistical significance: ***p<0.01, **p<0.05, *p<0.1
(3) Probit estimator reports Marginal effects
(4) Country fixed effects and year dummies are included in column 4 and 8

Adding several other variables, i.e., the new democracy, trade openness, and the presence of NGOs has only a very small effect on the impact of rents per capita, which is still negative and significantly different from zero at the 5% level (see column 2). Introducing the time dummies by replacing splines in column 3 barely changes the result and the substantive effect on our main variable of interest. Interestingly, running the model with country fixed effects using the OLS estimator (column 4) does not change the results on natural resources, except that now the level of democracy is no longer a significant predictor of FOI laws, but economic openness and NGO

presence show statistically significant positive effects. The non-significant results on democracy possibly supports others who suggest that democracy matters only at high levels of political competition (Berliner 2014; Michener 2015).

Columns 5-8 replicate the results discussed above, only this time with the logged version of the resource rents variable. As seen there, the logged values of natural resource rents retain the negative effect on the passage of FOI laws, results that are statistically significant at the 5% and 10% level across the columns respectively. The substantive effects suggest that a standard deviation increase in resource rents per capita (log), holding per capita income and democracy constant at their mean values, lowers the probability of having an FOI law by roughly 40% of the average effect. A similar increase in income per capita increases the average risk of seeing FOI laws by about 71%. Notice also that in column 6, when the rents per capita measure is logged and all the controls are included, and using year specific dummies in column 7, the statistical significance of the rents variable weakens considerably to about 10% level. When estimating OLS-fixed effects (column 8), rents per capita (log) also retains its statistically significant effects at the 10% level. The results on natural resource rents thus are robust to alternative specifications and estimation techniques, and its substantive effect is not negligible. Overall, our findings are in line with the many arguments suggesting that countries with access to windfall rents from natural resources are likely to be more corrupt, possibly because rulers prefer to maintain institutions of opacity and thin accountability (Leite and Weidmann 1999, Mehlum, Moene and Torvik 2006a, Anthonsen et al. 2012). The control variables too are in line with the findings of others (Berliner 2015, Vadlamannati and Cooray 2015). Hypothesis 1 is supported in the data.

In Table 2, we present results with the resource rents data disaggregated into oil, minerals, and natural gas. Columns 1-4 report the results of per capita oil rents, columns 5-8 for Gas, and 9-12 for Minerals. The first column for each disaggregated resource is a parsimonious model

including only income and regime type as controls. The second test is with the full model, the third is with replacing splines with time dummies and every fourth column includes country-fixed effects with the OLS estimator respectively. As seen there, all measures of oil rents as against gas and mineral rents are statistically significantly related to a decreased risk of passing FOI laws. A standard deviation increase in oil rents per capita holding income and democracy at their mean values, lowers the average risk of seeing FOI laws by 88%. However, going from a world of average oil to one with large oil rents (33,100 US$ per capita) reduces the chances of FOI laws by roughly 100% of the average risk.

Notice that neither rents from gas nor minerals are statistically significant (with the exception of column 8). This suggests that the negative impact of natural resource dependence on passing FOI law may originate entirely from dependence on oil rents. The effects of the control variables are roughly the same as those reported in Table 1.

Table 2: Impact of Natural resource rents disaggregated on adopting FOI laws

	(1) FOI law	(2) FOI law	(3) FOI law	(4) FOI law	(5) FOI law	(6) FOI law	(7) FOI law	(8) FOI law	(9) FOI law	(10) FOI law	(11) FOI law	(12) FOI law
Oil Rents per capita t-1	-0.0100***	-0.00956***	-0.0120***	-0.00445**								
	(0.00296)	(0.00327)	(0.00385)	(0.00184)								
Gas Rents per capita t-1					-0.0148	-0.0135	-0.0138	-0.00998**				
					(0.00985)	(0.0101)	(0.0121)	(0.00393)				
Mineral Rents per capita t-1									8.41e-05	0.00195	0.00203	0.0936
									(0.0136)	(0.0128)	(0.0168)	(0.0742)
Per capita GDP (log) t-1	0.00400***	0.00301	0.00438*	0.0364*	0.00392***	0.00230	0.00327	0.0350*	0.00335***	0.00101	0.00172	0.0251*
	(0.00132)	(0.00186)	(0.00232)	(0.0211)	(0.00141)	(0.00190)	(0.00240)	(0.0209)	(0.00102)	(0.00143)	(0.00185)	(0.0148)
Democracy Polity index t-1	0.00108***	0.00110***	0.00151***	0.00101	0.00180***	0.00168***	0.00234***	0.00102	0.00176***	0.00145***	0.00202***	0.000145
	(0.000331)	(0.000335)	(0.000447)	(0.00134)	(0.000379)	(0.000411)	(0.000541)	(0.00141)	(0.000289)	(0.000333)	(0.000424)	(0.00107)
New Democracy t-1		-0.00231	-0.000904	-0.0156		-0.00496	-0.00406	-0.0212		-0.00225	-0.00120	-0.00533
		(0.00512)	(0.00663)	(0.0190)		(0.00678)	(0.00867)	(0.0188)		(0.00537)	(0.00706)	(0.0166)
Trade Openness t-1		5.70e-06	9.79e-06	0.000136**		7.19e-06	1.12e-05	0.000133**		7.44e-06	1.20e-05	0.000114**
		(1.43e-05)	(1.79e-05)	(6.11e-05)		(1.62e-05)	(2.02e-05)	(5.99e-05)		(1.39e-05)	(1.82e-05)	(4.89e-05)
NGOs (log) t-1		0.00342	0.00446	0.0713***		0.00537	0.00713	0.0747***		0.00826**	0.0111**	0.0715***
		(0.00397)	(0.00509)	(0.0238)		(0.00483)	(0.00615)	(0.0237)		(0.00387)	(0.00505)	(0.0214)
No FOI years	-0.00196	-0.00208			-0.00251	-0.00255			-0.00226	-0.00247		
	(0.00152)	(0.00160)			(0.00193)	(0.00197)			(0.00170)	(0.00171)		
Spline1	4.34e-06	4.15e-06			5.20e-06	4.68e-06			3.74e-06	3.00e-06		
	(3.79e-06)	(3.91e-06)			(4.84e-06)	(4.78e-06)			(3.95e-06)	(3.79e-06)		
Spline2	-2.08e-05	-2.22e-05			-2.79e-05	-2.84e-05			-2.61e-05	-2.72e-05		
	(1.67e-05)	(1.73e-05)			(2.14e-05)	(2.14e-05)			(1.85e-05)	(1.82e-05)		
Spline3	1.22e-06	2.74e-06			4.02e-06	5.85e-06			7.11e-06	9.85e-06		
	(2.18e-05)	(2.24e-05)			(2.83e-05)	(2.79e-05)			(2.38e-05)	(2.30e-05)		
Constant				-0.546***				-0.558***				-0.472***
				(0.199)				(0.201)				(0.154)
Estimator	Probit	Probit	Probit	OLS-FE	Probit	Probit	Probit	OLS-FE	Probit	Probit	Probit	OLS-FE
Time Fixed Effects	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES
Country Fixed Effects	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES
No. of Countries	118	118	118	118	115	115	115	115	130	130	130	130
No. of Observations	2,505	2,479	1,970	2,479	2,429	2,403	1,912	2,403	2,902	2,876	2,291	2,876

Notes:
(1) Robust standard errors in parenthesis
(2) Statistical significance: ***p<0.01, **p<0.05, *p<0.1
(3) Probit estimator reports Marginal effects
(4) Country fixed effects and year dummies are included in column 4, 8, 12.

In Table 3, we present results with the logged versions of the disaggregated resource rents. Columns 1-4 report the results of per capita oil rents (log), columns 5-8 for Gas (log), and 9-12 for Minerals (log). Once again, the results from oil rents per capita (log) are the most consistent, while mineral and gas rents are largely statistically not different from zero. Countries dependent on oil rents have a lower probability of adopting FOI laws, net of all the controls. For instance, a mean plus standard deviation increase in oil rents per capita (log), holding per capita income and democracy at their means, lowers the baseline probability of having an FOI law by 54%.

Table 3: Impact of Natural resource rents (logged) disaggregated on adopting FOI laws

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	FOI law	FOI law	FOI law	FOI law	FOI law	FOI law	FOI law	FOI law	FOI law	FOI law	FOI law	FOI law
Oil Rents per capita (log) t-1	-0.0204***	-0.0184***	-0.0235***	-0.0513***								
	(0.00667)	(0.00698)	(0.00860)	(0.0198)								
Gas Rents per capita (log) t-1					-0.0195	-0.0172	-0.0174	-0.0908***				
					(0.0136)	(0.0139)	(0.0164)	(0.0278)				
Mineral Rents per capita (log) t-1									-0.00748	-0.00343	-0.00522	0.0946
									(0.0222)	(0.0210)	(0.0275)	(0.118)
Per capita GDP (log) t-1	0.00481***	0.00333	0.00481*	0.0377*	0.00398***	0.00225	0.00319	0.0353*	0.00335***	0.00105	0.00177	0.0257*
	(0.00151)	(0.00212)	(0.00267)	(0.0214)	(0.00150)	(0.00197)	(0.00249)	(0.0208)	(0.00101)	(0.00143)	(0.00185)	(0.0148)
Democracy Polity index t-1	0.00138***	0.00134***	0.00184***	0.000919	0.00189***	0.00176***	0.00244***	0.000819	0.00177***	0.00146***	0.00204***	0.000186
	(0.000354)	(0.000362)	(0.000473)	(0.00135)	(0.000370)	(0.000411)	(0.000528)	(0.00142)	(0.000290)	(0.000335)	(0.000428)	(0.00106)
New Democracy t-1		-0.00283	-0.00122	-0.0150		-0.00519	-0.00427	-0.0195		-0.00235	-0.00134	-0.00576
		(0.00613)	(0.00790)	(0.0191)		(0.00701)	(0.00894)	(0.0190)		(0.00535)	(0.00704)	(0.0165)
Trade Openness t-1		6.32e-06	1.09e-05	0.000140**		7.20e-06	1.13e-05	0.000133**		7.26e-06	1.18e-05	0.000114**
		(1.69e-05)	(2.11e-05)	(6.24e-05)		(1.67e-05)	(2.08e-05)	(5.94e-05)		(1.38e-05)	(1.81e-05)	(4.88e-05)
NGOs (log) t-1		0.00448	0.00588	0.0699***		0.00570	0.00756	0.0778***		0.00813**	0.0109**	0.0714***
		(0.00465)	(0.00592)	(0.0239)		(0.00497)	(0.00629)	(0.0241)		(0.00388)	(0.00506)	(0.0214)
No FOI years	-0.00248	-0.00254			-0.00263	-0.00266			-0.00223	-0.00244		
	(0.00185)	(0.00188)			(0.00200)	(0.00203)			(0.00170)	(0.00171)		
Spline1	5.35e-06	4.89e-06			5.32e-06	4.75e-06			3.74e-06	3.03e-06		
	(4.68e-06)	(4.65e-06)			(5.04e-06)	(4.97e-06)			(3.92e-06)	(3.77e-06)		
Spline2	-2.62e-05	-2.69e-05			-2.93e-05	-2.96e-05			-2.56e-05	-2.67e-05		
	(2.04e-05)	(2.03e-05)			(2.22e-05)	(2.21e-05)			(1.85e-05)	(1.81e-05)		
Spline3	1.83e-06	3.72e-06			4.62e-06	6.56e-06			6.64e-06	9.33e-06		
	(2.70e-05)	(2.68e-05)			(2.93e-05)	(2.89e-05)			(2.36e-05)	(2.29e-05)		
Constant				-0.538***				-0.568***				-0.475***
				(0.201)				(0.205)				(0.154)
Estimator	Probit	Probit	Probit	OLS-FE	Probit	Probit	Probit	OLS-FE	Probit	Probit	Probit	OLS-FE
Time Fixed Effects	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES
Country Fixed Effects	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES
No. of Countries	118	118	118	118	115	115	115	115	130	130	130	130
No. of Observations	2,505	2,479	1,970	2,479	2,429	2,403	1,912	2,403	2,902	2,876	2,291	2,876

Notes:
(1) Robust standard errors in parenthesis
(2) Statistical significance: ***p<0.01, **p<0.05, *p<0.1
(3) Probit estimator reports Marginal effects
(4) Country fixed effects and year dummies are included in column 4, 8, 12.

The control variables in Table 3 are also in line with the findings reported in Table 2. Overall, Table 2 and 3 provide additional support for Hypothesis 1. The results from Table 2 and 3 also suggest that oil is the major driver of the negative effects of total resource rents reported in Table 1, possibly because oil´s importance on a per capita basis tends to dominate an economy compared with other types of natural resource revenues.

Conditional effects

Next, we examine whether the adoption of FOI laws among resource wealthy countries is conditional on the level of democracy and institutions of good governance. We introduce interaction terms between resource rents, democracy, and the control of corruption in Table 4.

Table 4: Interactions of natural resource rents with democracy and institutions

	(1) FOI Law	(2) FOI Law	(3) FOI Law	(4) FOI Law
Total Resource Rents per capita t-1 X Democracy Polity index t-1	0.0511**			
	(0.0251)			
Total Resource Rents per capita (log) t-1 X Democracy Polity index t-1		0.0804**		
		(0.0330)		
Total Resource Rents per capita t-1 X Corruption control t-1			0.231**	
			(0.110)	
Total Resource Rents per capita (log) t-1 X Corruption control t-1				0.483**
				(0.193)
Total Resource Rents per capita t-1	-0.854**		-0.777**	
	(0.400)		(0.365)	
Total Resource Rents per capita (log) t-1		-1.316***		-1.598***
		(0.491)		(0.597)
Corruption control t-1			-0.126	-0.153*
			(0.0836)	(0.0879)
Democracy Polity index t-1	0.0351***	0.0333***	0.0461***	0.0467***
	(0.0115)	(0.0116)	(0.0131)	(0.0132)
Per capita GDP (log) t-1	0.127**	0.125**	0.111*	0.110*
	(0.0575)	(0.0566)	(0.0642)	(0.0636)
New Democracy t-1	-0.0243	-0.0246	-0.0225	-0.0193
	(0.180)	(0.180)	(0.198)	(0.198)
Trade Openness t-1	0.000304	0.000301	0.000769*	0.000785*
	(0.000476)	(0.000476)	(0.000466)	(0.000466)
NGOs (log) t-1	0.0764	0.0776	0.418***	0.430***
	(0.143)	(0.142)	(0.144)	(0.144)
Constant	-3.658***	-3.629***	-5.645***	-5.631***
	(0.891)	(0.886)	(1.000)	(1.000)
Estimator	Probit	Probit	Probit	Probit
Time Fixed Effects	YES	YES	YES	YES
Country Fixed Effects	NO	NO	NO	NO
No. of Countries	116	116	103	103
No. of Observations	1,938	1,938	1,594	1,594

Notes:
(1) Robust standard errors in parenthesis
(2) Statistical significance: ***p<0.01, **p<0.05, *p<0.1
(3) Probit estimator reports Marginal effects

In column 1, the conditional effect between resource rents and democracy is positive on the adoption of FOI laws, a result which supports those who argue that democracy might be the "missing link" between natural resource wealth and good economic performance (Bhattacharyya and Hodler 2010). Importantly, however, natural resources on its own, i.e., resources when the value of democracy is set to 0, has a stronger negative effect on the chance of FOI laws (see column 1 and 2). The individual effects of democracy on FOI laws are also positive and significantly different from zero at the 1% level. These results uphold in column 2 when we replace resource rents per capita with the logged version of rents.

The interactive effect is best assessed with a margins plot presented in Figure 3 and 4 respectively. It is important to note that the interpretation of the interaction term in non-linear models like the probit is not similar to interpreting linear models. Consequently, a simple t-test on the coefficient of the interaction term is not sufficient to examine whether the interaction is statistically significant (Ai and Norton 2003). We rely on marginal plots as shown in Figure 3 and Figure 4, which depict the magnitude of the interaction effect.

Figure 3: Resource Rents (percapita), Democracy & Marginal Effect on adopting FOI law
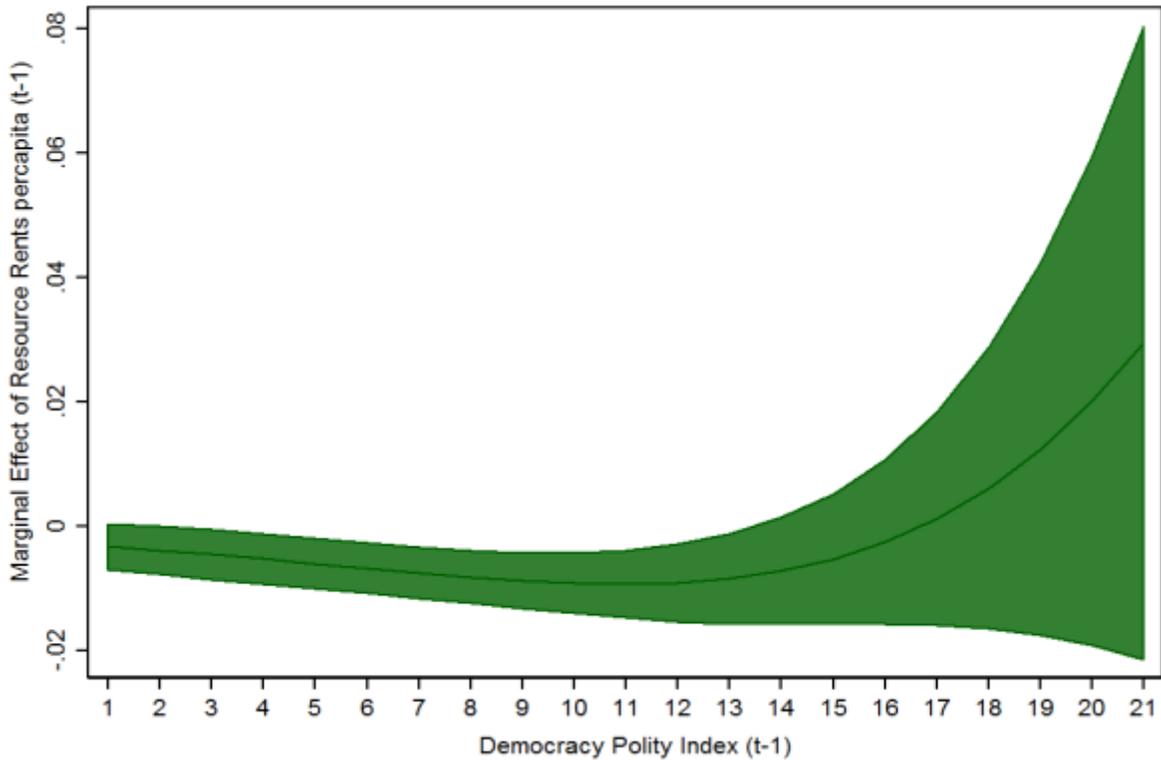
To calculate the marginal effect of an additional increase in the rents per capita (and rents per capita log), we take into account both the conditioning variable (democracy) and the interaction term and display graphically the total marginal effect conditional on democracy. The y-axis of Figure 3 displays the marginal effect of an additional unit increase of rents per capita, while Figure 4 captures an additional unit increase of rents per capita (log), and the marginal effect is evaluated on the 1-21 scale of democracy on the x-axis. Note that we include the 90% confidence interval in both figures.

Figure 4: Resource Rents (percapita Log), Democracy & Marginal Effect on adopting FOI law
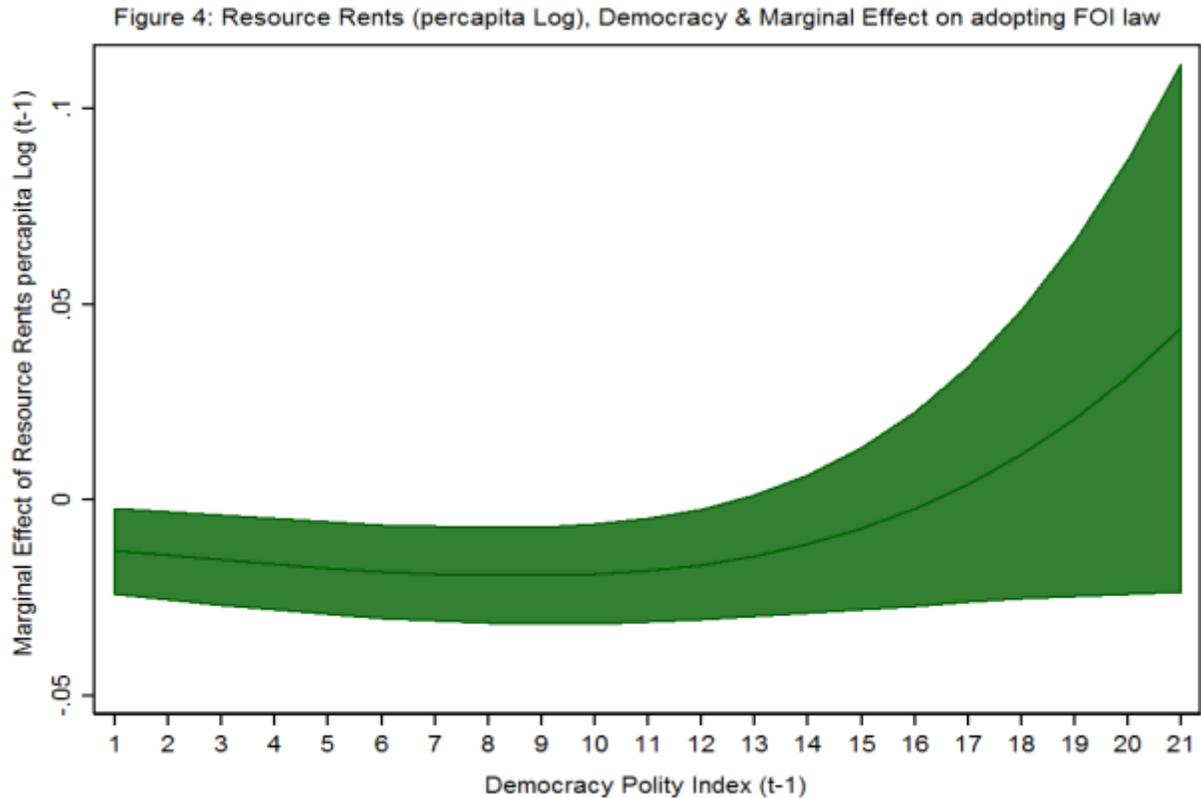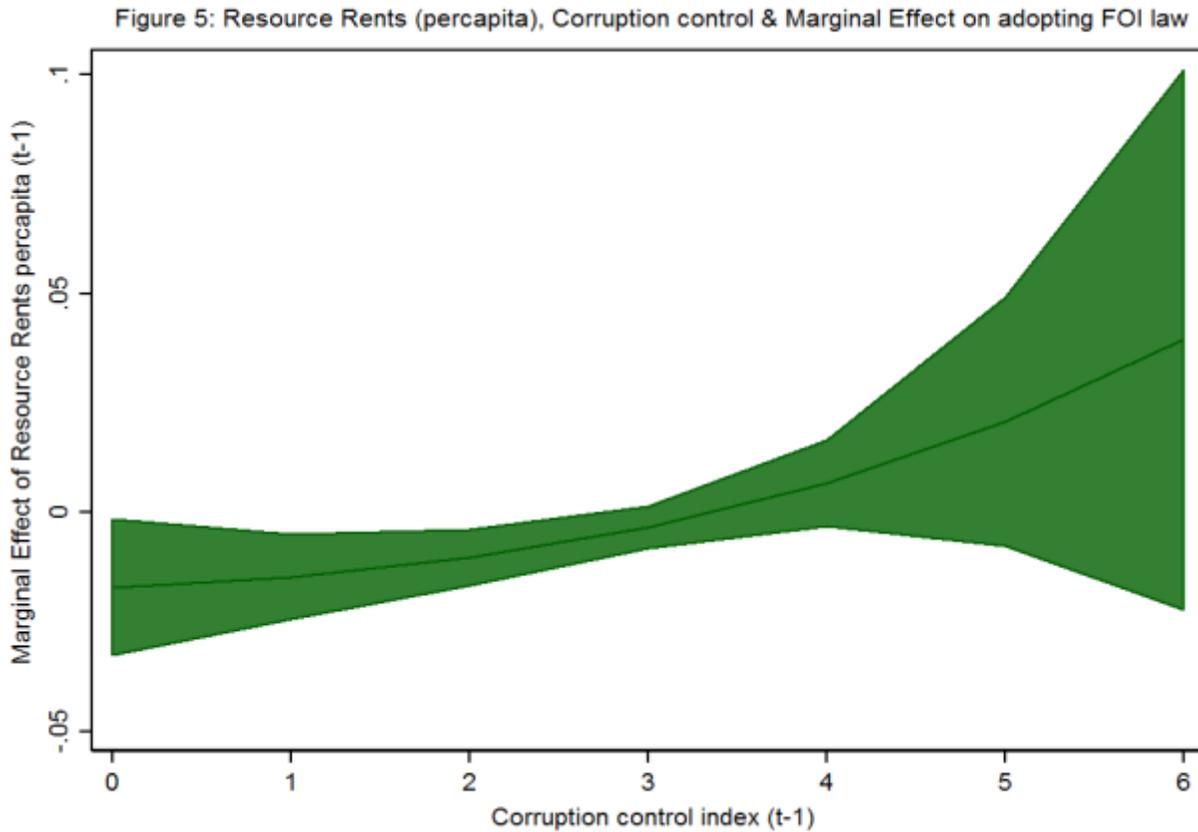
As seen in Figure 3, and in line with our results of the probit estimation, an additional unit increase in rents per capita would decrease the chance of adopting FOI law (at the 90% confidence level at least) when the democracy score is lower than 14 (on a scale of 1-21). However, the margins plots also show that rents per capita becomes statistically insignificant once democracy score is over 14; i.e. at fairly high levels of the Polity index. The marginal effects are significant and negative when the lower bound of the confidence interval is below zero. These results suggest that resource wealthy countries, which are non-democracies, are far less likely to adopt such laws independently of variables such as income per capita.

We do not find much difference in the results on interactions depicted in margins plot in Figure 4 concerning resource rents per capita (log). Here too, we find an additional unit increase in rents per capita (log) decrease the chance of adopting FOI law (at the 90% confidence level) when the democracy score is lower than 12 (roughly middle of the scale). The rents per capita

(log) variable has no statistical significant effect on the probability of adopting FOI laws when democracy is above 13 points of the index. Once again, the results from Figure 4 show that non-democracies, which are resource dependent, are far less likely to adopt FOI laws. By and large, these results support Hypothesis 2a, which states that resource wealthy states with low or no democratic institutions are less likely to adopt FOI laws, perhaps due to the absence of competitive processes within democracies that lead to the cauterization of the abuse of resource rents by vested interests.

We now turn to the conditional effect of natural resources and institutional quality presented in column 3 and 4 in Table 4. As with democracy, the conditional effect between resources and institutional quality is strongly positive and statistically highly significant. Importantly, however, natural resources on its own, or resources when the value of the control of corruption index is set to 0, have a stronger negative effect on the adoption of FOI laws (see column 3 and 4). Taking the result in column 3, when all control variables are added to the model, resource rents per capita conditioned by the lowest level in the quality of institutions reduces the chance of FOI laws, a result that is statistically significant at the 1% level. Interestingly, these results remain robust in column 4, when we replace rents per capita with a logged measure of resource rents. The individual effect of the control of corruption on FOI laws is actually negative and significantly different from zero at the 10% level only in column 4. This suggests that countries that already have good governance are not likely to feel pressure for additional laws, net of income and democracy. Demand for FOI law is likely to be weak when existing laws are already strong, such as in the case of Singapore, which is a low corruption country with no FOI laws. This also suggests that the negative effect of resource rents may not be working purely through the good governance channel but through other channels as well, such as the ability of rulers to buy off opposition. Alternatively, some corrupt countries might also be

adopting FOI laws as a ploy, for example by adopting weak laws. Again, we rely on the margins

plot in Figure 5 and 6 which produces a graphical illustration of the conditional effects.

Figure 5: Resource Rents (percapita), Corruption control & Marginal Effect on adopting FOI law

As seen in Figure 5, the negative effect of resource rents on the likelihood of adopting

FOI laws is statistically significant only at lower values of the control of corruption. The y-axis in

Figure 5 and 6 displays the marginal effect of an increase in an additional unit of rents per capita

(and rents per capita log), and on the x-axis the control of corruption index (coded on 0-6 scale)

at which the marginal effect is evaluated. We include the 90% confidence interval in both figures.

As seen there, and in line with our results of the probit estimation, an additional unit increase in

rents per capita decreases the chance of adopting FOI laws (at the 90% confidence level) when

the control of corruption is lower than 3 (on a scale of 0-6). The marginal effects are therefore

negative and statistically significant when the lower bound of the confidence interval is below zero. However, the margins plot also shows that the impact of resource rents per capita on adopting FOI laws is positive, albeit statistically insignificant, when the control of corruption is higher than 4 (on a scale of 0-6). These results suggest that resource-dependent countries with bad quality of institutions are less likely to adopt FOI laws.

In Figure 6, we find very similar results when using the logged version of natural resource rents per capita. Figure 6 shows that an additional unit increase in rents per capita (log) would decrease the chance of adopting FOI laws (at the 90% confidence level) when the control of corruption is lower than 3. When control of corruption is high, i.e. at 5 and 6, the impact of resource rents (log) on the chance of the adoption of FOI laws remains statistically insignificant. It is noteworthy that the effects are similar when estimating the interactions with splines and also with oil rents per capita. Once again, the negative effects of resource rents per capita on FOI laws occur at the lower end of the control of corruption.

Figure 6: Resource Rents (percapita Log), Corruption control & Marginal Effect on adopting FOI law
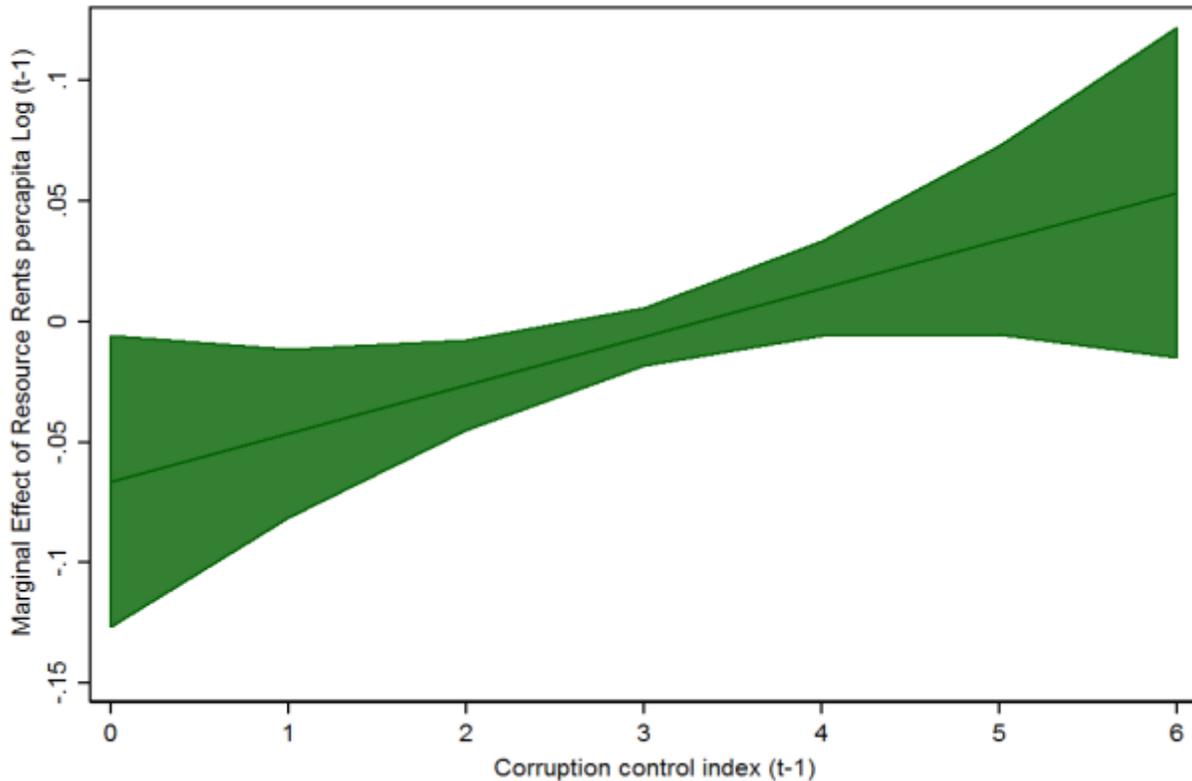
The findings support those who suggest that natural resource rents may not automatically lead to economic and political failure, but that the effects of resources may depend powerfully on the nature of existing institutions (Mehlum et al. 2006a, 2006b). Institutional change, however, may depend on the incentives of those governmental elites (rulers) that are in a position to adopt transparency-promoting laws. Our results show, however, that the probability of adopting transparency in governance with institutional changes such as the adoption of FOI laws are also contingent on existing institutions, but at fairly high levels of democratic and institutional development. These results support others who suggest that democracies with higher levels of party competition are likely to adopt FOI laws (Berliner 2014; Michener . Nonetheless, our results establish clearly that rents from natural resources have hindered the adoption of greater

transparency, even if greater transparency is most needed where government agents have discretion over the use/misuse of easy money earned from nature´s gifts. Transparency-increasing FOI laws are far less likely to be adopted where governments gain rents from extracting natural resources, particularly oil.

Checks for Robustness

We examine the robustness of our main findings in several ways. First, we exclude countries belonging to the OECD and are high-income Western democracies (including Japan).[11] Moreover, some of the OECD countries like Australia, Canada and Norway are not only resource wealthy but are also highly democratic and sport relatively low levels of corruption. Thus, it is likely that our reported findings could be affected by the inclusion of these industrialized countries. The exclusion of the OECD makes little difference to the results presented above. Secondly, following Bodea et al. (2016) we repeat the same exercise by excluding outliers in all our natural resource rents variables (total rents, oil, gas and mineral rents) that have more than 10,000 US\$ value per capita. Excluding the outliers from the sample, does not change our main results. Our results from the restricted sample still show a negative effect between natural resource wealth and FOI laws. Thirdly, we estimate our models by replacing our rents per capita variables with three sets of dummies. The first dummy variable gives the value of 1 for countries whose rents per capita are less than \$300 per head and 0 otherwise. These countries are free of or lightly dependent on natural resources. The second dummy variable gives the value 1 to countries whose rents per capita are more than \$300 per head and less than \$1000 per head and 0 otherwise. These countries are moderately dependent on natural resources. Our third dummy

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[11] These include: Australia, Austria, Belgium, Canada, Denmark, France, Finland, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and United States.

variable takes the value 1 for countries where rents per capita are more than $1000 per head and 0 otherwise. These are typical rentier states, which are highly dependent on natural resource rents. We use moderately dependent countries as our reference category. The results show that it is the high rents category and high oil rents that explain the negative impact on the adoption of FOI laws. Fourth, we use an alternative coding for passage of FOI law wherein the variable takes the value 1 from the year in which a country has legislated an FOI law. We call this variable *FOI incidence*. We do not drop the subsequent years. For instance, India legislated the Right to Information (RTI) Act in 2005. The new variable takes the value 1 from 2005 to 2012 and 0 for the years preceding 2005. This setup captures the incidence of FOI law and not simply its onset. We also estimate the interaction models using incidence of FOI law as our dependent variable. Our results using incidence of FOI law does not alter the main findings reported in Table 1-5. Fifth, we employ hazard analysis to estimate the impact of natural resource wealth and other covariates on the risk of seeing an FOI law. We use a Weibull specification to model the duration of non FOI years with the risk of having an FOI law. The unit of analysis is country-years with no FOI law. Thus, the failure mechanism in this case is called the *risk of not seeing an FOI law*. As with the previous estimations, we find that countries deriving rents from all natural resources and oil in particular, increase their risk of not adopting an FOI law, results that are statistically highly significant.

Sixth, we use Negative Binomial estimations in which we simply count the number of years for each country with no FOI laws. Unlike in duration models, country-years after legislating FOI laws do remain the sample but are coded as 0. We also control for both time and country fixed effects. Once again, our results are consistent with reference to the sign and statistical significance on our main variable of interest, i.e. total rents, and oil rents per capita. Countries that derive greater rents from total resources and oil on per capita basis are more likely to refrain from adopting FOI laws. For instance, the incidence-rate

ratio (IRR) suggests that countries dependent on total resource rents per capita are 97% less likely to adopt FOI laws, while oil rents per capita reduces the incidence by roughly 94%. Both variables remain significantly different from zero at the 1% level across the models. Finally, Following Wehner and de Renzio (2013), we estimate interaction models in which we interact rents per capita with a measure of a country's experience with democracy. We use the count of the years that a country has been 18 and above on the democracy scale of 1-21. Our results show that as democracies grow older the impact of resource rents per capita on passing FOI laws becomes positive. These results are significantly different from zero at the 1% level. Overall, these findings suggest that our results are robust not only to the size of the sample and alternative methods of operationalization of our main variables of interest, but also to alternative estimation techniques. The robustness tests will be made available upon publication.

Conclusion

Several recent studies have questioned whether or not the natural resource curse exists, arguing that natural resources are a boon if in fact countries had better institutions. Better institutions, however, cannot be simply wished for because people in power have an incentive to change the rules strategically in their favor, since reform of existing institutions will have distributional consequences (Acemoglu and Robinson 2006, Alesina 1994, Knight 1992). For rulers of resource wealth in particular, introducing transparency and fairness in governance is likely to produce major disadvantages. To test competing arguments, we examine whether or not resource wealth can explain the variation in the adoption of freedom of information (FOI) laws, holding constant the quality of existing institutions and level of democracy. We find that countries with abundant natural resources are laggards when it comes to adopting transparency-enhancing FOI laws, regardless of their level of development and quality of institutions. Furthermore, we find that it is

oil rather than either gas, or minerals, that matters. Interestingly, FOI laws are more likely to be adopted among resource wealthy states at very high levels of democracy and good institutions, which suggests that rulers of resource wealth are unlikely to make institutional changes unless they already face high constraints on their discretionary power.

Overall, our results confirm that institutional change towards greater transparency is unlikely where natural resources are a source of unearned income for people in power. Policy aimed at increasing transparency and empowering the public in resource-wealthy states should focus on strengthening political competition by promoting competitive elections and strengthening democratic rights. Future studies might address the question of the quality of transparency laws because not all FOI laws look the same. Do resource wealthy rulers, for example, institute weak laws as window dressing? Such research will naturally first have to identify strategies for measuring weak and strong transparency regimes objectively.

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Appendix 1: Countries under study

Albania	Finland	Mali	Switzerland
Algeria	France	Mexico	Syria
Angola	Gabon	Moldova	Taiwan
Antigua	Gambia	Mongolia	Tajikistan
Argentina	Georgia	Morocco	Tanzania
Armenia	Germany	Mozambique	Thailand
Australia	Ghana	Myanmar	Togo
Austria	Greece	Namibia	Trinidad & Tobago
Azerbaijan	Guatemala	Nepal	Tunisia
Bahrain	Guinea	Netherlands	Turkey
Bangladesh	Guinea-Bissau	New Zealand	Uganda
Belarus	Guyana	Nicaragua	Ukraine
Belgium	Haiti	Niger	United Arab Emirites
Belize	Honduras	Nigeria	United Kingdom
Bolivia	Hungary	Norway	United States of America
Botswana	India	Oman	Uruguay
Brazil	Indonesia	Pakistan	Uzbekistan
Bulgaria	Iran	Panama	Venezuela
Burkina Faso	Iraq	Papua New Guinea	Vietnam
Cameroon	Ireland	Paraguay	Yemen
Canada	Israel	Peru	Zambia
Chile	Italy	Philippines	Zimbabwe
China	Jamaica	Poland	
Colombia	Japan	Porgtugal	
Congo	Jordan	Qatar	
Congo, Democratic Rep	Kazakhstan	Romania	
Costa Rica	Kenya	Russia	
Cote de Ivoire	Korea, Republic of	Saudi Arabia	
Croatia	Kuwait	Senegal	
Cuba	Kyrgyzstan	Sierra Leone	
Cyprus	Latvia	Singapore	
Czech Republic	Lebanon	Slovakia	
Denmark	Liberia	Slovenia	
Dominican Republic	Libya	South Africa	
Ecuador	Lithuania	Spain	
Egypt	Macedonia	Sri Lanka	
El Salvador	Madagascar	Sudan	
Estonia	Malawi	Suriname	
Ethiopia	Malaysia	Sweden	

Appendix 2: Countries with FOI laws and adoption dates

List of countries	Date of adoption	List of countries	Date of adoption
Albania	1999	Kyrgyzstan	2007
Angola	2002	Latvia	1998
Antigua	2004	Liberia	2010
Argentina	2003	Lithuania	2000
Armenia	2003	Macedonia	2006
Australia	1982	Malaysia	2010
Austria	1987	Mexico	2002
Azerbaijan	2005	Moldova	2000
Bangladesh	2008	Mongolia	2011
Belgium	1994	Nepal	2007
Belize	1994	Netherlands	1991
Bolivia	2004	New Zealand	1982
Brazil	2011	Nicaragua	2007
Bulgaria	2000	Niger	2011
Canada	1983	Nigeria	2011
Chile	2008	Norway	1970
China	2007	Pakistan	2002
Colombia	1985	Panama	2001
Croatia	2003	Paraguay	2005
Czech Republic	1999	Peru	2003
Denmark	1985	Philippines	1987
Dominican Republic	2004	Poland	2001
Ecuador	2004	Portugal	1993
El Salvador	2011	Romania	2001
Estonia	2001	Russia	2009
Ethiopia	2008	Slovakia	2000
Finland	1999	Slovenia	2003
France	1978	South Africa	2000
Georgia	2000	Spain	2002
Germany	2005	Sweden	1766
Greece	1999	Switzerland	2004
Guatemala	2005	Taiwan	2005
Guinea	2010	Tajikistan	2002
Honduras	2006	Thailand	1997
Hungary	1992	Trinidad & Tobago	1999
India	2005	Tunisia	2011
Indonesia	2008	Turkey	2003
Ireland	1997	Uganda	2005
Israel	1998	Ukraine	1992
Italy	1990	United Kingdom	2000
Jamaica	2002	United States of America	1967
Japan	1999	Uruguay	2008
Jordan	2007	Uzbekistan	1997
Kazakhstan	1993	Yemen	2012
Korea, Republic of	1996	Zimbabwe	2002

Appendix 3: Descriptive statistics

Variables	Mean	Standard Deviation	Minimum	Maximum	Observations
FOI Law Incidence	0.250	0.433	0.00	1.00	4587
FOI Law Onset	0.020	0.139	0.00	1.00	4587
No FOI Years (count)	11.292	9.943	0.00	33.00	4587
Total Resource Rents Per capita	0.747	2.575	0.00	40.15	3646
Oil Rents per capita	0.531	2.040	0.00	33.10	3686
Mineral Rents per capita	0.032	0.174	0.00	4.55	4155
Gas Rents per capita	0.144	0.811	0.00	20.90	3594
Total Resource Rents Per capita (log)	0.293	0.540	0.00	3.72	3646
Oil Rents per capita (log)	0.206	0.491	0.00	3.53	3686
Mineral Rents per capita (log)	0.025	0.095	0.00	1.71	4155
Gas Rents per capita (log)	0.079	0.244	0.00	3.09	3594
Per capita GDP (log)	7.951	1.636	3.54	11.27	4372
Polity Democracy index	13.417	7.136	1.00	21.00	4280
New Democracy	0.077	0.266	0.00	1.00	4272
Trade Openness	73.152	88.072	5.00	1349.62	4300
Corruption control	2.949	1.305	0.00	6.00	3491
NGOs (log)	6.498	0.930	0.00	8.50	4377

Appendix 4: Data definition and sources

Variables	Data definition and sources
FOI Law Onset	Dummy coded 1 for the year in which a country has adopted an FOI law and 0 otherwise for all the preceding years sourced from Transparency International. The Probit duration analysis model drops the country-years after a country has adopted FOI law.
FOI Law Incidence	Dummy coded 1 from the year in which a country has adopted an FOI law and 0 otherwise sourced from Transparency International.
Natural resource rents (and rents from oil, mineral, and gas sectors)	Rents defined as the unit price minus the cost of production times the quantity produced and is divided by population. Sourced from World Development Indicators 2014, World Bank.
Per capita GDP (log)	GDP per head in 2000 US$ constant prices sourced from World Development Indicators 2014, World Bank.
Democracy index	Based on Polity IV index we recode the original Polity index on the scale of 1 to 21, where highest value represents full democracy (which is 21).
New democracy	Based on Polity index, we code the value 1 for the next five years if a country has a democratic transition and 0 otherwise.
NGOs (log)	Total number of local and international NGO groups present in country c in year t (logged) sourced from UIA's yearbooks.
Trade Openness	Total exports and imports as a share of GDP sourced from UNCTAD statistics 2014.
Corruption control Index	ICRG corruption control index coded on a scale of 0-6 in which higher values denote lower perceived government corruption