# STATE REVENUES AND DEMOCRATIC DEVELOPMENT: OIL RENTS, TAXATION, AND THE NEED FOR CONSENT

by

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## Abstract

Why do some of the world's countries with the most abundant natural resources, in particular oil wealth, have some of the poorest records in democracy and human development? A prominent argument in the literature on this "resource curse" is that resource rents supplant tax revenues as the fiscal foundation for the state. This rentier hypothesis suggests a relationship between rent revenues, a lack of taxation and lack of democracy, but this relationship is not clearly established or explained. In this paper I develop a model of the state in which tax revenues have a positive impact on democracy because states require widespread voluntary consent in order to effectively collect tax revenues, consent which can be achieved through democratization. I argue that rents negatively affect democracy because they substitute for tax revenues, and so eliminate the necessity of securing this consent. I use time series cross sectional quantitative analysis to examine broad patterns across states and time periods. I present evidence that a substitution effect exists, with oil rents correlated with lower tax revenues, particularly in authoritarian regimes. I examine evidence that rents require lower levels of consent than tax revenues, by testing two patterns in addition to democracy. Taxation is not only more positively correlated with democracy than are rents, but also more positively correlated with higher levels of government spending and coercion.

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# Introduction

Scholars have identified a troubling pattern linking abundant natural resources, and in particular oil, to authoritarian governments and stagnating economies. The literature on this "resource curse" examines why some of the world's countries with the most abundant natural resources have some of the poorest records in democracy and human development. A prominent argument in the literature on the resource curse is that resource rents supplant tax revenues as the fiscal foundation for the state (Beblawi and Luciani 1987, Ross 2001, 2004). This rentier hypothesis suggests a relationship between rent revenues, a lack of taxation and lack of democracy, but this relationship is not clearly established or explained. Researchers have not explicitly tested whether and under what conditions resource rents may substitute for tax revenues, nor have they tested hypotheses for why this substitution has negative effects on democracy.

In this paper I develop a model of the state in which tax revenues have a positive impact on democracy because states require widespread voluntary consent in order to effectively collect tax revenues, consent which can be achieved through democratization. I argue that rents negatively affect democracy because they substitute for tax revenues, and so eliminate the necessity of securing this consent. I use time series cross sectional quantitative analysis to examine broad patterns across states and time periods. I present evidence that a substitution effect exists, with rents correlated with lower tax revenues, particularly in authoritarian regimes. I examine evidence that rents require lower levels of consent than tax revenues, by testing two patterns in addition to democracy. Taxation is not only more positively correlated with democracy than are rents, but also more positively correlated with higher levels of government spending and coercion.

These results provide evidence across a large number of cases to support two often cited theories in the democratization literature: (1) that rents negatively affect democracy by eliminating the need for states to rely on taxation and (2) that taxation generates pressures on states to provide citizens with democratic representation. The model also calls into question the theory that rents negatively affect democracy by providing revenues that rulers can use to reinforce their regimes through patronage spending or coercive force. Results suggest that rents do not have a significant positive impact on either.

The paper begins by reviewing the literature on the rentier state and the taxation-leads-to-representation hypothesis. I build on this work to develop a theory for why raising tax revenues requires citizens' voluntary consent while rent revenues do not, and how governments can generate this consent. The last section of the paper discusses the dataset and methods and presents my results. I conclude with some implications of these findings and suggestions for future research.

## Theoretical Perspectives on the Rentier State and Taxation

### The Rentier State

*"The price of oil and the pace of freedom always move in opposite directions in oil-rich petrolist states" (Friedman, 31).*

An extensive literature has developed on rentier states, those states that derive a substantial portion of their income from economic "rents" rather than production, which seeks to determine why these states seem to suffer from a "resource curse", both economic and political. Karl renamed the phenomenon the "paradox of plenty", highlighting the question of why states with such readily available wealth that could be invested for both economic and social development so often fall into a pattern of economic stagnation and political authoritarianism. It is the political effects of resource rents that are the focus of this paper. The literature on the rentier state discusses the nature of economic rents, and how they differ in important ways from the conventional state revenue source: taxation. In this section I will discuss the distinctions between rents and taxation and their implications for the autonomy of government, the role of government and prospects for democratization. I will also review the quantitative literature on the rentier state, which has established a strong link between rents and authoritarianism, albeit a link that requires further explanation.

Mahdavy (1970) is credited with developing the current definition of rentier states as those states that derive a large fraction of their revenues from external rents, such as the sale of oil, workers' remittances, or foreign aid (428). Beblawi (1987) elaborated on this definition, adding that these rents must also be produced by a few economic actors, with the majority of society engaged only in the distribution and consumption of this wealth (Beblawi, 51). To fit the definition of a rentier state, the government must be the principal recipient of the rents, but because only a small labour force is needed to produce these rents, they are easy for the government to capture (Beblawi, 52). Rents are most often generated from the exploitation of natural resources, rather than from production (labour), investment (interest), or management of risk (profit), because the income from resources can yield huge profits and they are easier for states to control (Wantchekon, 2-3). The kinds of resources that generate rents have a high value in international markets and therefore yield high profits relative to their cost of extraction. Unlike labour, interest, or profit, natural resources are relatively immobile and will remain available for governments to exploit. Natural resources that require a large infrastructure to extract are not easily hidden or smuggled, so are even less likely to avoid government appropriation. Those that are geographically concentrated and can be extracted with a small proportion of the labour force are also more readily available for governments to capture and manage. A fixed, infrastructure-intensive, geographically concentrated resource that can be extracted with a small labour force and sold for a high price on international markets constitutes a ready source of rents to the state. Such a resource can be physically controlled using a relatively small quantity of coercion, while the compliance of only a small proportion of the labour force needs to be maintained in order to generate revenues. The most prominent example of a rent-generating resource is oil, but kimberlite diamonds and other minerals also have these characteristics.

Taxes, in contrast, are much more costly for states to collect. Unlike rent-generating resources, taxpayers and their assets are relatively mobile and geographically diffuse, and states must tax a large proportion of the population in order to raise substantial revenues. States therefore require a much larger extraction and enforcement infrastructure to capture and manage tax revenues. Dunning suggests that rents differ substantially from taxation because "Resource rents are relatively costless for the state to collect, at least relative to other potential sources of public revenue; in contrast, taxation and other forms of extracting revenue from citizens may induce a greater aggregate cost (e.g., by encouraging the diversion of production to non-taxable activity or by promoting capital flight)" (51). Therefore the revenues that states collect from their populations will be limited by the costs of extraction and problems such as tax avoidance and asset mobility.

Governments that possess natural resource rents have greater autonomy than those that rely on taxing their populations for revenue, because they do not depend on either the health of their domestic economy or effective tax collection institutions. Luciani states that "[t]he essential impact of oil production and exports is that they free the state from the need of raising income domestically" (Luciani, 69). He argues that oil exports allow the state to live off an external income, thus functioning independently of the domestic economy. The fact that rentier states do not rely on building prosperous domestic economies may be responsible, in part, for the economic stagnation often observed in resource rich states. In addition, rentier states may be discouraged from building strong governance structures, because they do not rely on the effective management of the domestic economy or the ability to effectively collect taxes. Bräutigam, Fjeldstad, and Moore (2008) argue that taxation provides the impetus for states to develop effective information gathering and taxation institutions in order to generate greater tax revenues. Rentier states can continue to raise revenues with relative independence from their economies and populations.

Resource rents not only provide governments with greater autonomy, but also transform the role of the state, shifting from production and redistribution to the allocation of resources. States that receive a large proportion of their revenues through resource exports need only worry about allocation of resources and not their production, as they do not rely on the domestic economy for revenue (Luciani, 70). Luciani defines "allocation states" as those states where revenue derives predominantly (more than 40 percent) from foreign sources and government expenditure is a substantial proportion of GDP (Luciani, 70). Allocation states are able to provide public goods without making any demands on their populations for revenue. Allocation states diminish the quality of democracy because they lack a critical link that exists between taxation and the need for representation. In some of the earliest work on the rentier state, Beblawi and Luciani (1987) had already highlighted the absence of taxation from rentier economies.  Beblawi states that "[w]ith virtually no taxes, citizens are far less demanding in terms of political participation. The history of democracy owes its beginnings, it is well known, to some fiscal association (no taxation without representation)" (53). Luciani is unsure about the nature of this relationship, but clearly thinks it is important, stating that "[a]lthough the immediate link between taxation and representative democracy may well not exist...it is a fact that whenever the state essentially relies on taxation the question of democracy becomes an unavoidable issue" (Luciani, 73). Recent scholarship has demonstrated a continued interest in the taxation question. Ross (2001) asserts that when allocation states "tax their populations less heavily or not at all...the public in turn will be less likely to demand accountability from--and representation in--their government" (Ross, 333). These authors suggest an inherent relationship between taxation and representation. Without a need for tax revenues, there is no need for governments to give citizens democratic representation.

Authors such as Beblawi and Luciani who write about the rentier state in the Middle East apply this logic to dictatorships that were able to avoid public demands for democratization by keeping taxes low. In democracies with resource wealth, the literature is more divided on the effects of these rents on democracy, with some authors asserting that rents are correlated with authoritarianism across regime types, while others suggest more nuanced effects. Authors such as Ross and Wantchekon who have undertaken broad, cross-national studies that do not discriminate between regime types have found evidence that oil and mineral exports are correlated with authoritarianism across a range of states. Ross finds that "the antidemocratic properties of oil and mineral wealth are substantial" (2001, 340-342). Similarly, Wantchekon finds "a robust and statistically significant" positive relationship between a high percentage of fuel and mineral exports and authoritarianism (1). However, since Ross and Wantchekon's studies do not differentiate between regime types, their results may be driven by the large number of authoritarian rentier states in their sample. Jensen and Wantchekon's quantitative study on African states finds that executive discretion over resource rents leads to both a reduced likelihood of transition to democracy and a greater likelihood of democratic breakdown (817). They draw these conclusions from several empirical observations, namely: that countries with abundant natural resources were more likely to be authoritarian, had higher levels of government spending, had worse governance, and, if democratic, were more likely to experience democratic breakdown (Jensen and Wantchekon, 817). These findings suggest that the logic that applies in authoritarian states may also diminish the quality of democracy in democratic states. Rents relieve democratic governments of the need to tax their populations, while providing them with discretionary spending, which makes their populations less likely to demand accountability from their governments, leading to creeping authoritarianism or even democratic breakdown. Smith, on the other hand, examines regime stability and finds that rents promote stability in both dictatorships and democracies, suggesting that rents may not be inherently antidemocratic. He notes that "oil wealth is robustly associated with more durable regimes and significantly related to lower levels of protest and civil war," indicating that oil may help authoritarian states to endure in some cases, but it acts to reinforce existing democratic states as well (Smith, 232). Though he cannot offer a causal explanation for this durability, Smith suggests that these states may have developed "strong coalitions" and "institutions that could provide nonrepressive, as well as repressive, responses to organized opposition", contrary to the literature that has argued rents lead to weak institutions (Smith 242-243). A possibility that Smith does not fully consider is that lower levels of taxation are responsible for lower levels of protest and civil war because people are less likely to be politically mobilized without conflicts over taxation.

Dunning uses a game theoretic model to examine the different potential impacts of rentier resources on democracy, arguing that they may make authoritarian coups either more or less likely. He assumes that in any state wealthy elites will oppose democracy while the poor will support it, because democracy leads to the redistribution of wealth. Resource rents have two possible effects on elite incentives: elites may seek authoritarian government in order to capture resource rents, or may be less likely to do so because rents eliminate the need for redistributive taxation. The decision of elites to attempt a coup in order to bring in an authoritarian government will depend on the balance between the costs of redistribution under democracy, the benefits of capturing resource rents, and the costs of staging such a coup (Dunning, 7-11). Therefore, resource rents may have either a negative or positive impact on democratic stability, depending on the outcome of this calculation.

**Taxation and Representation**

*"The history of state revenue production is the history of the evolution of the state" (Levi, 1).*

The rentier state literature broadly suggests that in the absence of taxation, the mechanisms that have historically led to representative government fail to function. What are these mechanisms? Many authors turn for inspiration to historical literature on the development of the early parliamentary institutions in Western Europe. This history suggests a pattern linking the need for general taxation to increasing demands for institutionalized limits on the power of governments and representative institutions. Authors such as Levi, Brautigam, and Ross have adapted this literature in developing a modern story about the effects of taxation on the development of democratic institutions and good government in developing countries.

The history of the early development of representative institutions in Western Europe and the United States, and especially Britain, may shed light on the relationship between the development of widespread taxation and the growth of representative institutions. The generalized argument is that with the development of large-scale warfare and standing armies, rulers turned to widespread taxation to meet the costs of warfare in order to survive. Attempts to raise greater tax revenues often met with popular resistance, as citizens demanded limits on state power and, in particular, a voice in how taxes were set, in order to protect against sudden and arbitrary tax increases. Rulers were forced to bargain with taxpayers, accepting institutional constraints on their power, including representative institutions, in exchange for revenues. States that succeeded in implementing stable tax regimes gained an advantage in the competitive international states system, as they had access to large and stable revenue flows, but also possessed an increased capacity to raise money quickly on private credit markets based on their ability to repay with future tax revenues. For an overview of the literature on the history of taxation and the development of representative institutions see Ross (2004), Moore (2004), or Mahon (2005).

Taxation may play a unique role in the development of representative institutions because taxation requires some degree of voluntary consent from those being taxed. Unlike rentier states, where revenues are easily controlled and collected, states that rely on taxation face much higher costs in order to secure widespread compliance with their revenue-generating activities. Scholars have suggested that taxation states need to gain citizens' cooperation by offering them a voice in the decision-making process. Taxation creates incentives to democratize for both citizens and governments. First, citizens will demand greater accountability from and representation in government when taxes are imposed, in order to ensure that taxes will be set in a reasonable, non-arbitrary manner and used for purposes that taxpayers consider legitimate. Second, governments will have incentives to grant citizens these rights in order to create greater compliance with tax laws, which are difficult to enforce by coercion alone. Thus, both taxpayers and the state can benefit from a revenue bargain that assures taxpayers that they have some control over taxation and enhances the state's capacity to raise revenues from consenting taxpayers.

States will be able to enhance their capacity to raise revenues if they create the impression amongst taxpayers that demands for revenue are legitimate, and that the state and other taxpayers will keep their sides of the bargain. Thus, taxpayers can be reassured that taxes will be set in a reasonable, non-arbitrary manner and used for purposes that taxpayers consider legitimate.

If tax revenues could be  collected effectively solely through coercion, states would have much less incentive to develop revenue bargains with their citizens, but coercion is a costly method for securing compliance with tax regimes, and several scholars have suggested that some degree of taxpayer consent is needed. Margaret Levi's foundational 1988 book, *Of Rule and Revenue*, uses a model of the predatory state, which acts to maximise revenue subject to determinant constraints on its behaviour (3).  Rulers require revenues for everything from creating the institutions of the state to providing public goods, but face the problem of compliance with tax regimes, as citizens have incentives to act as freeriders, and enforcement is costly (Levi, 49). Coercion is an expensive method for enforcing compliance, as monitoring is often not cost-effective, while tax evasion is a constant problem (50).  In *Weapons of the Weak*, James Scott notes that "flight and evasion of taxes have classically curbed the ambition and reach of Third World states- whether precolonial, colonial, or independent" (31). Bo

Rothstein highlights the differences in success rates for states collecting taxes owed and argues that “acceptance of the need to pay taxes cannot be based solely on compulsion or threats of audits, as such an apparatus of compulsion and control would become far too expansive and costly...some form of *conditional assent* must come into the picture” (3). Levi also concludes that rulers can reduce the costs of enforcement through “quasi-voluntary compliance”; voluntary because taxpayers choose to pay, but only quasi-voluntary because those who do not pay are coerced (52). When enough constituents are cooperating, rulers can focus scarce resources on the few who are noncompliant (54).

Moore, on the other hand, argues that “Historically, most taxation has been coercive” because states can, under certain circumstances, use coercion to collect tax revenues without consent (40). According to Moore, "Coercive taxation is characterised by arbitrary assessment, coercive collection and the absence of any representation for taxpayers in tax policy decisions" (40). Coercive taxation is most likely to be successful under three circumstances: 1) ruling elites who do not require public support and are unrestrained by their subjects 2) poor agrarian societies and 3) taxpayers who cannot credibly threaten to 'exit' (Moore, 44). Therefore, one cannot assume that taxation will always require some form of voluntary consent, and indeed, the authors reviewed here have each suggested that a minimum level of coercion will be necessary in any tax system to prevent freeriders and ensure that the system appears fair. Despite these caveats, it is still reasonable to argue that consent will be required or will significantly reduce the costs to tax collection in situations that do not meet Moore’s three conditions. Indeed, when coercive taxation is not easy, Moore suggests that governments will be motivated to bargain with taxpayers to achieve (quasi-) voluntary compliance (35). Additionally, though coercive taxation may have been more common historically, modern societies are becoming less agrarian and taxpayers more mobile, suggesting that conditions in many states are increasingly unprofitable to coercive taxation.

When coercive taxation is not possible, states must strike a bargain with citizens, trading representation for consent to taxation. In their recent book, *Taxation and state-building in developing countries: Capacity and Consent*, Brautigam, Fjeldstad, and Moore argue that taxation plays a key role in developing the power of states through two important processes: the development of social contracts based on bargains around taxation, and the formation of strong state institutions motivated by the need to collect tax revenues (3). It is the concept of the social contract or revenue bargain that is of greatest interest for the purposes of this paper. Revenue bargains should both meet citizens' demands for limits on the power of government, and allow states to more effectively raise revenues.

Representation can be an essential component of revenue bargains because it creates a system that citizens are more likely to view as legitimate or fair, while at the same time it develops accountability mechanisms to ensure that government keeps its side of the bargain. Cheibub argues that the state's ability to gain consent for taxation "depends on two conditions: the perception that there is a bargain between the government and citizens in which the government provides public goods that are positively valued in exchange for tax payments, and the existence of assurances that the government and other taxpayers will keep their sides of the bargain" (356). Representative institutions allow citizens to influence how tax revenues are spent, and make the system appear more "fair", which builds confidence that other taxpayers will also contribute. Accountability mechanisms such as elections allow citizens to punish governments that do not keep their bargains. Brautigam notes that "a primary aim of representation was to take part in the bargain over taxing and spending, and to hold governments accountable for the use of citizens' tax revenues" (Brautigam, 7). Moore argues that revenue bargains can benefit both governments and taxpayers as "taxpayers gain greater certainty of future tax rates and protection against arbitrary levies, while rulers gain lower tax collection and enforcement costs as taxpayers will deliver payments more willingly. This greater capacity to collect also allows rulers to borrow on the private market more easily as they can credibly commit to repay with future tax revenues” (46-47). Thus, general taxation creates powerful incentives for both governments and taxpayers to engage in fiscal contracts that are negotiated and managed through representative institutions.

**The substitution effect**

*"Oil exporters give new meaning to the word state autonomy: oil revenues enable governments to stop taxing altogether"(Chaudhry, 26).*

With access to large flows of nontax revenues, rentier states do not have to rely on general taxation. If rentier states substitute rents for tax revenues, it may mean that the process of securing consent through revenue bargains and democratization does not occur.

There is substantial case study evidence for a substitution effect. Karl notes that the oil exporters Indonesia, Iran, Nigeria, and Venezuela all have non-oil tax revenue that is significantly lower as a percentage of non-oil GDP than the world averages (based on 1971-73 and 1980 data). Further, this difference holds for countries at different levels of GNP per capita. Indonesia, with relatively low GNP per capita, has tax revenue of 8.7 percent of GDP, compared with a world average of 12.9 percent for countries in the same income range (Karl, 62). Venezuela, at the upper end of the spectrum, collects tax revenues totalling only 7.6 percent of GDP, compared to 18.2 percent in the rest of the world for countries of comparable income (Karl, 62).

Chaudhry's 1997 study of Saudi Arabia and Yemen finds that increases in external income have led to declines in taxation in these countries. Saudi Arabia and Yemen each abandoned their extractive institutions when foreign capital inflows became plentiful in the boom periods of the 1970s (32). In Saudi Arabia, these institutions of the state were replaced with a huge new bureaucracy tasked with allocating oil revenues domestically (32). Chaudhry concludes that revenues allowed the government "to shelter itself from the political and social conflict that accompanies taxation and centralization by simply abandoning the project" (32).

Dunning notes that the pattern of replacing taxation with rents has been reproduced across both countries and time, but has not been limited to oil rents. For example, Peru in the mid 1840s began to collect rents from the highly profitable export of guano, used for fertilizer. At the beginning of this export boom, taxes were approximately ten Peruvian soles per capita, but by 1857 taxes had fallen to less than one sole per capita, while government spending rose higher than before (Dunning, 47). After the collapse of the guano industry in the 1870s, the government struggled to re-impose taxes and met with peasant revolts (Dunning, 47). However, by the early twentieth century the government had increased the per capita tax rates tenfold, indicating a complete pattern between resource boom and bust and tax elimination and reinstatement (Dunning, 47).

In recent years scholars have undertaken large-n studies on the link between taxation and representation. Ross's 2004 article "Does Taxation Lead to Representation?" finds evidence of a relationship between taxation and democracy. He observes that while the relationship between taxes as a percentage of GDP and democracy is not statistically significant, the relationship between the ratio of taxes to spending and democracy is, suggesting that if governments increase taxation and do not translate those increases into government spending, they must also increase democratic representation. Ross's findings suggest that high levels of government spending may be a substitute for democratization, since citizens may be less likely to demand representation if they perceive that they are receiving value for their taxes under the existing regime. Mahon (2005) examines the robustness of Ross's results. Modifying his dataset and using panel corrected standard errors, Mahon confirms Ross's conclusions on most points, and finds an even stronger link between taxation and liberalism (defined with measures of government corruption, rule of law, and quality of bureaucracy) (6-7).

Timmons (2005) finds evidence of a link between the taxation of particular groups in society and the adoption of government policies that are beneficial to those groups. He notes that the more dependent a state is on taxing richer citizens, the more it is likely to pursue policies that benefit the rich, specifically, protecting property rights. Similarly, the more states depend on taxing poorer citizens, the more they tend to invest in policies those citizens prefer, namely, public services.

Morrison (2009) examines the relationship between nontax revenue and regime stability, finding that nontax revenue increases stability in both democracies and dictatorships. The mechanism generating stability in democracies is less taxation of elites, who will therefore be less dissatisfied with democracy. In dictatorships, nontax revenue provides for greater social spending on citizens, who are the threat to authoritarian regimes in Morrison's framework (113). These policies allow governments to appease those groups in both democracies and dictatorships that might otherwise act to destabilize the regime.

These studies on the role of taxation in promoting democratic development have suggested that low taxation rates may provide the key to understanding persistent authoritarianism in oil states. However, the current literature does not clearly establish how oil revenues and taxation rates may interact, or test specific theories as to why raising tax rates may promote democracy, while raising rental revenues does not. The hypothesis that oil revenues may substitute for general taxation has been frequently suggested but not carefully tested across cases. Morrison finds that nontax revenues are associated with less taxation of elites in democracies, but does not look for a similar effect in dictatorships or across all forms of taxation. Ross (2001, 2004) includes both oil rents and tax revenues in his regressions and concludes that both have statistically significant effects on democracy, but he does not test for a substitution between the two. Therefore, I will test the theory that authoritarian regimes use rent revenues as a substitute for tax revenues, and that this substitution has a negative effect on democracy, because it allows authoritarian rulers to rely on rents rather than taxes.

The literature on taxation suggests that taxes have different effects than do rents, because taxes create demands for representation and incentives for revenue bargaining in order to secure consent, whereas rents are relatively easy to collect without the need for consent. Authors such as Ross (2001), Morrison, and Jensen and Wantchekon focus on the ability to use rent revenues for government spending to appease or coerce citizens and thereby prevent regime change. However, these authors do not discuss the effect of tax revenues, which could theoretically be spent in similar ways to promote regime stability. Ross (2004) suggests that tax revenues do not create demands for democratization if government spending is proportional to these revenues. It seems likely that raising rent revenues has two effects: it reduces the need to tax and the need to secure compliance with taxes, while it provides the state with revenues to spend on services of coercion. Increasing tax revenues creates higher costs of compliance, but also provides revenues that can be used to secure this compliance. The literature on taxation tends to focus on the higher cost to states to secure compliance with taxation, while the rentier literature more often focuses on spending effects. An analysis that is mindful of both possible effects may help to determine under what conditions rents and taxation affect regime type.

## Theory

Building on the existing theories of the rentier state and the taxation-leads-to-representation hypothesis discussed above, I develop a theory for how rents may substitute for tax revenues and thus lower states' costs of compliance and the need to provide democratic representation. I assume that all regimes require a certain minimum level of compliance in order to a) stay in power and b) raise revenues, which can come in the form of either direct taxes or rents (from oil and mineral exports). Raising revenues through taxes requires a high level of compliance because it is difficult to monitor and enforce taxation without some level of quasi-voluntary compliance. To achieve this quasi-voluntary compliance requires that people believe both that the tax revenues will be spent in ways they consider legitimate, and that other taxpayers will also pay. The level of compliance required to raise rental revenues should be much lower than that for taxes, because rents are generated by a few economic actors and geographically concentrated, making them relatively inexpensive to capture. Governments only require enough public compliance to prevent rebellion over the collection of rents, which allows them to stay in power, and to physically control the sources of rent, which allows them to collect the revenues. Public protest over how rents are collected and spent is less likely than over taxes because people are not likely to have as strong a sense of personal ownership over natural resources as they do over tax revenues collected on their private assets. Therefore, collecting rents is less likely to create public expectations of either representation or policy benefits.

In order to secure compliance, regimes can develop voluntary consent by offering democracy or providing public spending, or they can coerce their populations to force compliance. Democracy creates consent because it provides a mechanism for governments and citizens to negotiate over how revenues should be generated and spent. The process of institutionalized negotiation should ensure that revenues are spent in ways that taxpayers consider legitimate, which is one of the criteria for creating quasi-voluntary compliance. Government spending should also generate consent because it is a manifestation of using revenues in ways that citizens consider legitimate, rather than appropriating them for private gain. Government spending can substitute for democratization because citizens may be less likely to demand democratic representation if the government is perceived as efficient, not corrupt, and acting in the public good. Finally, coercion can be used to force public compliance. Some coercion will be needed both to ensure that taxpayers meet their obligations (meeting the fairness condition of quasi-voluntary compliance) and to control and collect resource rents. Higher levels of coercion substitute for democracy or government spending as they can be used to keep governments in power and collect tax and rental revenues by force. In order to stay in power and collect revenues, all regimes need to provide a combination of these three options. The three are interchangeable, so their proportions may vary, but the total must be sufficiently high to match the regime's need for compliance, which will vary according to how much and what type of revenue the state collects. For example, one regime may provide democratic representation, some public spending and low levels of coercion, while another may provide little or no democracy but high levels of public spending and some coercion. Because taxation requires higher levels of consent than rents to collect, regimes that rely strongly on taxation will have to provide more of all three options in some combination than regimes that rely less on taxation.

In order to establish these relationships it is necessary to test whether taxation is correlated with higher levels of democracy and rents are correlated with lower levels of democracy. As alternatives to democracy, we should expect both government spending and coercion to be correlated with lower levels of democracy. (However, since government spending and coercion are also alternatives to one another, coercion may have little effect on democracy when spending is high, and spending may not be as influential when coercion is high.)

Rents undermine democracy because they allow rulers to replace tax revenues, which require widespread popular consent, with rent revenues, which do not. The first step in testing this hypothesis is to establish whether there is a substitution between rents and taxes. If rents do act as a substitute for taxes, we should expect increases in rent revenues to be correlated with decreases in tax revenues. A finding of Cheibub's 1998 study on the influence of regime type on tax revenues is that "the relative importance of mineral production affects taxation only in dictatorships" (369). I will therefore also test whether a substitution effect occurs in both dictatorships and democracies, which may shed light on the question of whether rents have similarly pernicious effects in all regimes, or only in dictatorships. Since authoritarian regimes do not secure consent through democratic representation, the model predicts that they must either secure consent with higher levels of government spending, force compliance with coercion, or decrease their need for consent. If dictators stabilize their rule by decreasing the need for consent, we should expect the substitution effect to be strong in dictatorships. Democracies, on the other hand, are able to secure widespread popular consent by virtue of being democracies, and we might therefore expect them to have less need to replace taxes with rent revenues.

**Alternative Theories: The Spending Effect and the Coercion Effect**

A secondary effect of rents is that they provide resources for buying the alternatives to democratic legitimacy: government spending on public goods or a coercive military apparatus.

A major theme in the rentier theory emphasizes the effect of government spending rather than lack of taxation, and argues that resource rents are anti-democratic because they give governments increased capacity to maintain their power through political patronage. Ross states that spending on patronage "dampens latent pressures for democratization" (2001, 333). Jensen and Wantchekon argue that states with high resource rents focus on distribution of these rents, which has negative impacts on democracy because politics will focus on the distribution of rents, not ideology, and because the power over distribution gives incumbents a large political advantage (Jensen and Wantchekon, 819). This analysis suggests that rents increase the level of government spending as a mechanism for negatively impacting democracy.

However, political patronage and incumbency advantages could theoretically be generated by tax revenues as well. The important difference between rents and tax revenues may not be how they affect spending, but how they affect the need for consent. Rents lead to lower taxation rates and lower needs for consent, however, they should not necessarily lead to higher rates of government spending, because rent collection does not generate increased compliance costs that must be paid for with government spending. If Ross, Jensen and Wantchekon are correct in their assertions that rents affect democracy through patronage spending, there should be a strong and positive relationship between rents and spending. But if rent revenues act primarily to lower the level of consent needed, we would not expect them to be strongly correlated with government spending after controlling for taxation, while there should be a lower correlation between rents and spending than between taxation and spending.

A second argument in the rentier literature is that rent revenues enable governments to "spend more on internal security and so block the population's democratic aspirations" (Ross 2001, 335). This logic predicts rents to be positively correlated with measures of government coercion such as the size of the military. However, as with government spending, tax revenues can also be used to fund a coercive military apparatus. If the most important characteristic of rents is that they lower the need for consent and decrease the need for coercion that the government would otherwise have if it relied primarily on taxation, then we may not see a strong correlation between rents and coercion once we control for taxation.

## Data and Method

I performed all calculations in Stata 10 using time series cross sectional regression with panel corrected standard errors (command: xtpcse). Gaps in the dataset meant it was not possible to use the default "casewise" setting so the alternate "pairwise" method had to be used.

My core dataset is taken from Ross (2004). It covers 100 country cases, all sovereign states with populations over 100,000, for the twenty-seven years from 1971 to 1997 (Ross, 243). Unfortunately, many countries have provided data for only some of the years covered, or for only some of the variables. These omissions limit the total number of observations available for the regressions. The key dependent variable is regime type, originally obtained from the Polity98 dataset of Gurr and Jaggers. Regime type is measured on a 0 to 10 scale with 10 being most democratic. Most other variables were obtained from the World Bank's World Development Indicators.

The key independent variables are fuel exports, mineral exports and tax revenues. All three are measured as a percentage of GDP. Tax revenue "refers to compulsory transfers to the central government for public purposes. Certain compulsory transfers such as fines, penalties, and most social security contributions are excluded" (World Bank). It should be noted that while all three variables are measured as a proportion of GDP, they are not directly comparable. Mahon suggests that "While it may be argued that the proportion of fuels and minerals in a country's exports measures the general tenor of its economic dependence on these commodities, it is only an indirect and uncertain indicator of the likely effects of resource abundance on politics" (Mahon, 5-6). Tax revenues are a resource that can be used fairly directly by governments, whereas resource exports may or may not represent revenue increases for governments. However, previous research has suggested that because resource exports are so easily captured, they do provide a reasonable estimate of the magnitude of rents available to governments.

Additional important variables are the measures for government spending and coercion. Government spending includes all current and capital expenditure, including interest payments on past debts. Coercion is measured by armed forces personnel as a percentage of the total labour force. "Armed forces personnel are active duty military personnel, including paramilitary forces if the training, organization, equipment, and control suggest they may be used to support or replace regular military forces. Labor force comprises all people who meet the International Labour Organization's definition of the economically active population. (Data for some countries are based on partial or uncertain data or rough estimates.)" (World Bank).

I have used the same set of control variables as Ross (2004): the lagged regime type variable, the log of GDP per capita in purchasing power parities, OECD, Islam, and Catholic (241-242). These variables are intended to capture the factors other scholars have found to be strongly correlated with democracy scores. Including a lagged version of the regime type variable on the right hand side of the equation helps to control for any historical or cultural effects that may not be captured by the other controls. GDP per capita has often been found to be positively correlated with democracy. The dummy variable OECD is coded 1 for states that are members of the Organization for Economic Cooperation and Development (excluding newer members Mexico and South Korea) and 0 otherwise. OECD membership has been found to be positively correlated with democracy, so including this dummy helps control for any "Western" effects. The final control variables Islam and Catholic measure the percentage of the state's population that was Muslim or Catholic in 1970. Previous studies have suggested that, historically, states with large Muslim or Catholic populations have been negatively correlated with democracy.

**Endogeneity**

In this model, it is difficult to isolate the causal relationship concerning how rents affect levels of taxation, which then affect democracy, because the model also assumes that democracy, in turn, may lead to higher taxation rates. Because democratic regimes are considered more legitimate by their populations, they will have a greater capacity to raise tax revenues. The literature is divided on the question of how regime type affects taxation. Cheibub's 1998 time series cross sectional analysis of political regimes and the extractive capacity of governments finds the causal impact of political regimes on taxes to be "negligible". Timmons (2009), on the other hand, finds that democratization and increased voter turnout induce increases in regressive (sales) taxes but not in progressive (income) taxes. He also takes note of "less convincing" evidence that these factors are associated with higher levels of overall taxation.

Endogenous effects would pose a problem for my analysis if democracy is caused by some factor other than taxation, and greater democracy then leads to increases in taxation. Such a pattern could create a spurious correlation, suggesting taxation affects democracy when in fact it does not. By including control variables for the other factors that may affect democracy, I have sought to minimize this problem. I have focused on the causal logic of changes in rents and taxation affecting regime by following Ross's (2004) method of lagging the key independent variables by 5 years in the regressions, and performing a robustness check on the basic model by testing lags of 3 and 10 years as well.

## Results

I begin the statistical analysis by testing my initial hypotheses that rents are negatively correlated with democracy, while taxation is positively correlated because taxation requires high levels of consent while rents do not. I then test for whether government spending and coercion are negatively correlated with democracy and could therefore offer governments alternatives to democratization. I use a model similar to Ross (2004), with democracy score as my dependent variable, rents, taxation, government spending, and coercion as my explanatory independent variables, and lagged regime type, the log of GDP per capita, OECD, Islam and Catholic as control variables. Table 1 reports the results.

Model 1 tests the effects of rents alone on regime type and finds that both fuel exports and mineral exports are negatively correlated with democracy and their effects are strongly significant. Model 2 adds taxation alone to the equation and finds that taxation is positively correlated with democracy at the 10 percent significance level, though both the magnitude and significance of the taxation coefficient is smaller than for oil or minerals.

In Model 3 I add government spending as a percentage of GDP to the regression. Increases in spending are negatively correlated with democracy and strongly significant, indicating that government spending may act as an alternative to democracy. Interestingly, the estimated coefficient for taxation is also more strongly significant in this model. Ross (2004) does not find taxation alone to have any effect on democracy (without including government spending as a control variable), but finds the ratio tax/spending to be highly significant. The increase in the magnitude and significance of the taxation coefficient when spending is added to the regression supports Ross's assertion that government spending is an important influence on the effects of taxation. However, it is advantageous to include the variables for taxation and spending separately rather than as a single ratio, since this allows their effects to be examined individually.

TABLE 1: Effects of rents, taxes, spending and coercion on democracy

| VARIABLES | (1) democracy | (2) democracy | (3) democracy | (4) democracy |
|---|---|---|---|---|
| L5.fuel (%GDP) | -0.0297*** | -0.0281*** | -0.0263*** | -0.0388*** |
| | (0.00448) | (0.00677) | (0.00642) | (0.00578) |
| L5.metal (%GDP) | -0.0625*** | -0.0694*** | -0.0609*** | -0.0297 |
| | (0.0146) | (0.0124) | (0.0119) | (0.0293) |
| L5.taxes (%GDP) | | 0.0106* | 0.0201*** | 0.0301*** |
| | | (0.00637) | (0.00641) | (0.00614) |
| L5.govt spending | | | -0.0268*** | |
| | | | (0.00722) | |
| L5.democracy | 0.696*** | 0.668*** | 0.660*** | 0.645*** |
| | (0.0506) | (0.0517) | (0.0524) | (0.0735) |
| L5.GDP per capita | 0.348*** | 0.378*** | 0.441*** | 0.200* |
| | (0.0708) | (0.0664) | (0.0674) | (0.121) |
| OECD | -0.0486 | -0.164 | -0.192 | -0.475* |
| | (0.200) | (0.206) | (0.195) | (0.265) |
| Islam | -0.00819*** | -0.00904*** | -0.00825*** | -0.00883** |
| | (0.00250) | (0.00217) | (0.00219) | (0.00385) |
| Catholic | 0.00776*** | 0.00858*** | 0.00677*** | 0.00745*** |
| | (0.00126) | (0.00101) | (0.00117) | (0.00144) |
| military (%labour) | | | | -0.0405** |
| | | | | (0.0169) |
| Constant | -0.420 | -0.639 | -0.205 | 0.905 |
| | (0.585) | (0.568) | (0.615) | (1.115) |
| Observations | 1320 | 1141 | 1126 | 605 |
| R-squared | 0.780 | 0.773 | 0.781 | 0.757 |
| Number of countries | 100 | 93 | 93 | 85 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

While Model 2 indicates that taxation alone may have an impact on democracy, Model 3 presents evidence that the effects of taxation on democracy will be most evident when controlled for the amount of tax revenues spent. That is, increasing tax revenues promotes democracy but government spending decreases it, so if tax revenues also lead to large increases in spending we might expect the two effects to cancel one another.

Model 4 tests the effect of coercion, measured as armed forces personnel as a percentage of the labour force, on democracy. Due to missing data on coercion, the number of observations shrinks to 605 and some of the independent variables, most notably mineral exports, diminish in significance. Nevertheless, armed forces personnel as a proportion of the labour force is estimated to be negatively correlated with democracy and the coefficient is significant at the 5 percent level. Fuel exports and tax revenues remain strongly significant in this model as well. This result indicates that, like government spending, coercion may act as an alternative to democracy, as increases in the size of the military are correlated with lower democracy scores.

I tested to determine if using time lags on the independent variables other than five years generated substantial differences in the results. Using Model 3 and changing only the level of time lag, I found that the effects of fuel exports, mineral exports, and government spending were statistically significant with a three, five or ten year lag. The effect of tax revenues, while significant at the five and 10 year levels, lost its significance when I reduced the time lag to three years. This last result suggests that the effect of taxation on democracy may be gradual and only observable after longer time periods.

**The Substitution Effect**

To examine whether there is a pattern of rents substituting for tax revenues requires a model that tests the effect of rents on tax revenues. Previous research has suggested that regime type, GDP per capita, trade as a percent of GDP, and size of the agricultural sector as a percent of GDP may have an effect on tax revenues, so these variables are included as controls. Cheibub (1998) finds that taxes increase as per capita income increases and as foreign trade as a proportion of GDP increases. He finds that they decrease when there is a larger agricultural sector or when mineral production is higher

(Cheibub, 363). Timmons (2009) finds evidence that democratization increases total tax revenues. I initially regressed tax revenues as a proportion of GDP on fuel exports and the set of control variables. Model 1 in Table 2 indicates that there is a statistically significant negative correlation between fuel exports and tax revenues, suggesting that a substitution effect does exist. As fuel exports increase as a percentage of GDP, governments tend to decrease their tax revenues as a proportion of GDP.

TABLE 2: Do fuel exports substitute for taxes?

| VARIABLES | (1) taxes (%GDP) | (2) taxes (%GDP) |
|---|---|---|
| fuel (%GDP) | -0.0801** | -0.173*** |
| | (0.0338) | (0.0472) |
| democracy | 0.700*** | 0.571*** |
| | (0.0631) | (0.0538) |
| fuelxregime | | 0.0248*** |
| | | (0.00451) |
| GDP per capita | 2.328*** | 2.498*** |
| | (0.245) | (0.225) |
| trade (%GDP) | 0.0210*** | 0.0197*** |
| | (0.00707) | (0.00675) |
| agriculture (%GDP) | 0.222** | 0.215** |
| | (0.108) | (0.107) |
| Constant | -4.100** | -4.695*** |
| | (1.689) | (1.601) |
| Observations | 1402 | 1402 |
| R-squared | 0.254 | 0.262 |
| Number of countries | 100 | 100 |

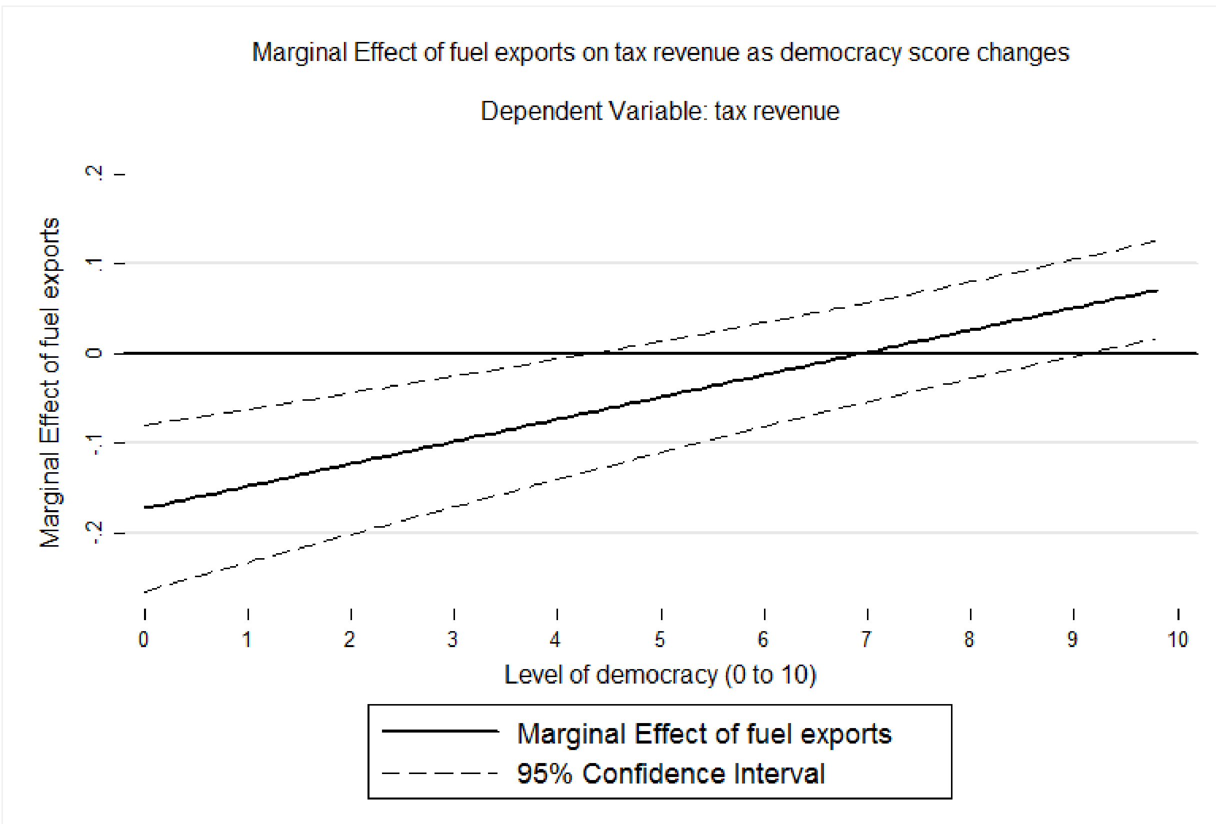
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Model 2 tests whether the effect of fuel exports on tax revenues varies dependent on level of democracy. As Figure 1[1] indicates, the relationship between fuel exports and levels of taxation is contingent on regime type. Fuel exports are highly correlated with lower levels of taxation in dictatorships. Interestingly, the effect is reversed in democracies, as fuel exports are positively correlated with taxation in the most strongly democratic regimes. These results indicate that the

[1] Brambor, T., Clark, W. R., & Golder, M. (2006). Understanding Interaction Models: Improving Empirical Analyses. *Political Analysis, 14*, 63-82. Code for graphs retrieved from http://homepages.nyu.edu/~mrg217/interaction.html

substitution effect is strongest in non-democracies, which suggests that authoritarian rentier states may indeed be maintaining their rule by substituting rents for tax revenues. Democracies may have no need to decrease their tax rates because they have been able to secure high levels of popular consent to the tax regime. Citizens who view taxation as fair and legitimate may not demand that tax rates be reduced because of windfall oil revenues.

FIGURE 1




**Do Taxation Rates Mediate the Effect of Rents on Democracy?**

I have argued that the substitution effect helps to explain the negative impact of rents on democracy, that is, rents affect democracy through their effects on taxation. If taxes do mediate the effect of rents on democracy, we should expect the addition of taxation to the model to reduce the estimated impact of oil rents on democracy because taxes help to account for part of oil's effect.

However, looking at changes in the coefficient on the estimated effect of fuel exports on democracy produces little evidence for a mediation effect. Referring back to Table 1, the addition of taxes to the model produces a decrease in the estimated coefficient for oil between Model 1 and Model 2 of only 0.0016, or less than one unit of standard error. If Models 1 and 2 are run again with the variable for government spending also included, the addition of taxation slightly increases the coefficient for oil by 0.0013, again less than one unit of standard error.

A formal method for examining mediation effects is the Sobel-Goodman mediation tests. This set of tests measures when mediation can be said to occur based on whether (1) the independent variable significantly affects the mediator, (2) the independent variable significantly affects the dependent variable in the absence of the mediator, (3) the mediator has a significant unique effect on the dependent variable, and (4) the effect of the independent variable on the dependent variable shrinks upon the addition of the mediator to the model (Stata help: Sobel-Goodman mediation tests).

I ran the Sobel-Goodman mediation tests with regime type as the dependent variable, fuel exports as the independent variable, tax revenues as the mediator, and government spending and logged GDP per capita as controls. The results suggest that tax revenues meet all four conditions for mediation: (1) fuel exports significantly affect taxes, (2) fuel exports significantly affect democracy in the absence of taxes, (3) taxes significantly affect democracy, and (4) the effect of fuel exports on democracy shrinks when taxes are added to the model. The estimated reduction in the effect of fuel exports on democracy is -0.0139 with a standard error of 0.00272. The test estimates that tax revenues mediate 16.23 percent of the total effect of fuel exports on democracy. These results suggest fairly strong evidence for a mediation effect.

However, if I add additional control variables for OECD, Islam, and Catholic to the test, the results are not as clear. While three of the four conditions are still met, the addition of these control variables reduces the effect of fuel exports on taxes so that it is no longer statistically significant (condition 1 fails). The estimated reduction in the effect of fuel exports is only -0.00111 with a standard error of 0.000959, and taxes are estimated to mediate only 2.99 percent of the effect of fuel exports on democracy. Because these control variables reduce the significance of the mediation by eliminating the effect of fuel exports on taxation, this second set of results may not be definitive. Authors such as Cheibub and Timmons have not suggested that there are important effects of being in the OECD, or having significant Muslim or Catholic populations that have an impact on taxation rates, or change the effect of oil exports and taxation rates.

**Do Rents Negatively Affect Democracy by Allowing States to Buy Compliance?**

My theory suggests that tax revenues increase pressures to democratize, primarily because they increase the level of consent that governments need to secure. Though tax revenues can be used to pay for consent through government spending, or force compliance with coercion, these alternatives to democratization become costly when governments try to collect substantial tax revenues. Rents behave differently from tax revenues because they provide revenues that can be used for government spending or coercion, but increases in rent revenues do not significantly affect level of compliance needed. Therefore, the amount of revenue that states collect and the sources of that revenue have two implications that are relevant for democracy:

1. The quantity and sources of state revenue will affect the level of compliance states need to secure.
2. More revenue from any source will increase the state's capacity to buy compliance. (The rentier state literature focuses on the ability to buy compliance with rents, but there is no reason to assume tax revenues cannot be used in the same fashion.)

My results on the substitution effect suggest that rents are part of the first effect because they can decrease the total level of compliance needed. The next question is whether and under what circumstances rents might act to increase the state's capacity to buy compliance. The next regression attempts to isolate this second effect of rents on democracy by not allowing rents and taxes to substitute for one another. To Model 3 from my first set of regressions I add an interaction term for rents*taxes, in order to observe the effects of rents on democracy at different levels of taxation. The results are reported in Table 3 and Figure 2.

TABLE 3: The effect of rents on democracy as level of taxation changes

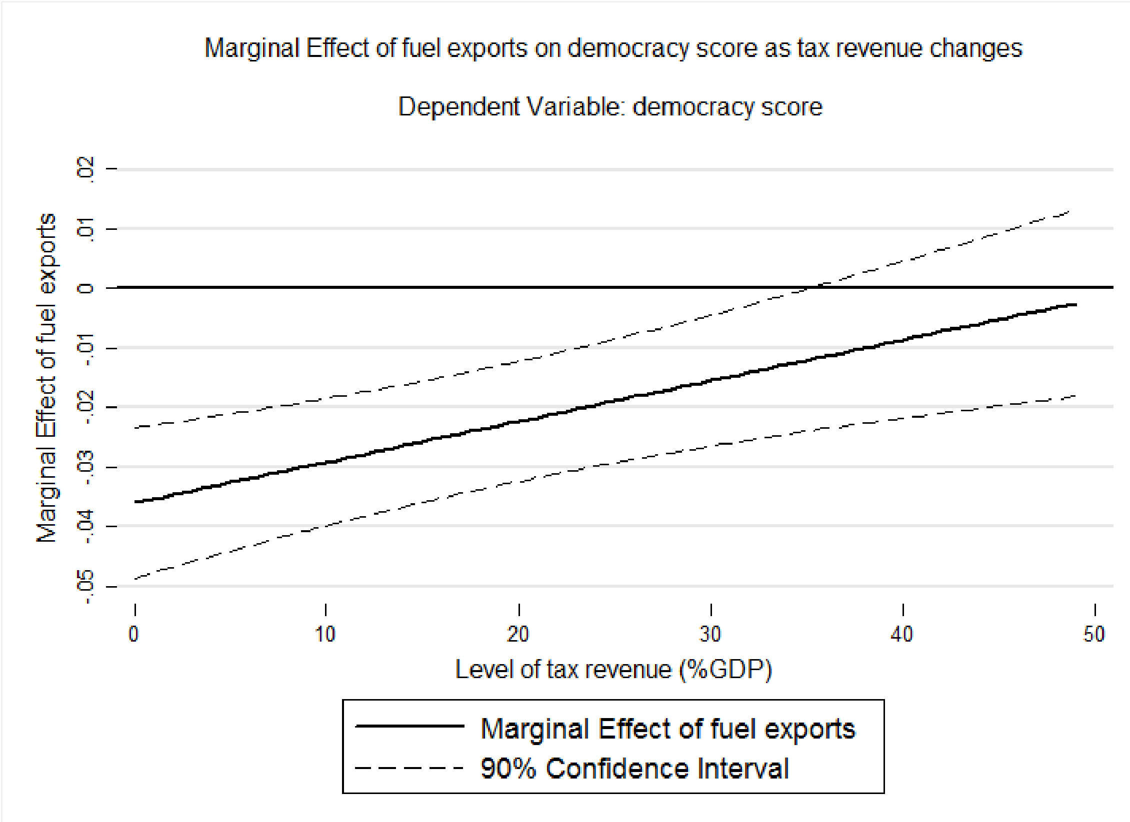
| VARIABLES | democracy |
|---|---|
| L5.fuel (%GDP) | -0.0360*** |
| | (0.00766) |
| L5.taxes (%GDP) | 0.0130* |
| | (0.00753) |
| L5.taxxfuel | 0.000684*** |
| | (0.000243) |
| L5.govt spending | -0.0298*** |
| | (0.00742) |
| L5.democracy | 0.676*** |
| | (0.0510) |
| L5.GDP per capita | 0.443*** |
| | (0.0712) |
| OECD | -0.112 |
| | (0.194) |
| Islam | -0.00633*** |
| | (0.00203) |
| Catholic | 0.00678*** |
| | (0.00129) |
| Constant | -0.232 |
| | (0.703) |
| | |
| Observations | 1135 |
| Number of countries | 94 |
| R-squared | 0.775 |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The regression results indicate that the negative effect of rents on democracy is highest in states with low tax revenues and lowest in states with higher levels of tax revenue. Figure 2 shows the marginal effect of fuel exports on democracy score as level of taxation changes. The interaction between fuel exports and tax revenue is significant at the 90 percent level, so we can be reasonably certain that the effect of fuel exports does vary depending on the level of taxation.

FIGURE 2




These results suggest that states that possess oil rents may indeed be able to use them effectively to buy alternatives to democracy, but that buying compliance in this way is most effective when taxes are low. At high tax rates, my theory suggests that states will need to secure much higher levels of compliance, so the marginal effect of adding an additional unit of fuel revenue may not be nearly as effective in securing additional compliance. This analysis suggests some nonlinearity in the ability to pay for compliance through alternatives to democracy. It may be relatively inexpensive to buy the low levels of compliance needed at low tax levels, by providing public order and protecting natural resource sites, for example. Therefore, oil rents may be quite effective in providing the ability to buy compliance at this level. On the other hand, we might expect much greater expense to buy compliance when governments place demands on citizens for high levels of tax revenues, because citizens are more likely to resist coercion under these circumstances. In sum, these results suggest that rents can negatively impact democracy by providing revenues that can be spent on securing compliance, and this effect will be strongest when tax levels are low and governments do not need to secure large amounts of compliance.

**The spending effect**

I have argued that rents have a negative impact on democracy because they relieve the government of the need to collect tax revenues, which require widespread popular consent. Lower levels of taxation reduce governments' need for all three consent-generating mechanisms: democracy, government spending, and coercion. The literature on the rentier state has suggested that, in addition, rent revenues can be used for political patronage and government spending that generally dampens citizen dissatisfaction or demands for democracy. The effects of government spending on democracy demonstrated in Table 1, Model 3 above support the hypothesis that spending is negatively correlated with democracy.

There are two alternative mechanisms that could explain why rent revenues are negatively correlated with democracy:

1. According to my model, rents decrease the need to provide democracy, increase government spending, or use coercion because governments that rely on rents do not require as much consent. We should expect rent revenues to be negatively correlated or have no effect on each of the three options, because regimes that rely on rents can provide less of all three than regimes that rely on taxation. Therefore, if this effect dominates, rents will not be correlated with higher levels of government spending.
2. Authors who argue for the spending effect suggest rents provide governments with additional revenues that can be spent on the alternatives to democracy, government spending and coercion. If this effect dominates, we should expect rents to be correlated with higher levels of government spending.

Taxation, on the other hand, should always increase government spending in the theory I have developed, because it both generates the need for consent and provides revenues that can be spent, and indeed, taxpayers will expect to be spent. Taxation, therefore, should be clearly and positively correlated with spending, whereas the correlation between rents and spending will depend on which of the two alternative mechanisms predominates.

To test the varying effects of rents and taxation on government spending, I used a model similar to Morrison (2009). Total government spending as a percent of GDP is the dependent variable, while tax revenues as a percent of GDP and fuel exports as a percent of GDP are the key independent variables. Morrison finds GDP per capita, trade as a proportion of GDP, total tax revenue per capita, and change in GDP per capita to have an effect on social spending in dictatorships (127). As controls, I use the World Bank variables log of GDP per capita (PPP), GDP growth (annual %), current revenue, excluding grants (% GDP), and trade (%GDP, PPP). I also add a variable for regime type, to control for patterns of government spending in dictatorships or democracies that may be driving levels of spending. Following Morrison, I use a one year time lag for all independent variables. The results are reported in the first model in Table 4. They indicate that tax revenues are, as expected, positively and significantly correlated with government spending. Fuel exports are negatively and significantly correlated with spending. This result suggests that the first effect of rents on spending is more powerful. That is, rents decrease the need to maintain citizen consent through government spending.

TABLE 4: Effects of taxes and rents on government spending

| VARIABLES | (1)<br>govt spending | (2)<br>govt spending |
|---|---|---|
| L.taxes (%GDP) | 0.148** | 0.305*** |
| | (0.0578) | (0.0889) |
| L.fuel (%GDP) | -0.0779** | -0.0317 |
| | (0.0313) | (0.0504) |
| democracy | -0.290*** | 0.121 |
| | (0.0797) | (0.143) |
| L.taxxregime | | -0.0206*** |
| | | (0.00545) |
| L.fuelxregime | | -0.0112* |
| | | (0.00635) |
| L.GDP per capita | 0.243 | 0.287 |
| | (0.352) | (0.342) |
| L.GDP growth | 0.550*** | 0.542*** |
| | (0.0795) | (0.0778) |
| L.revenue (%GDP) | 0.203*** | 0.196*** |
| | (0.0428) | (0.0447) |
| L.trade (%GDP) | 0.0586*** | 0.0631*** |
| | (0.00683) | (0.00753) |
| Constant | 26.67*** | 23.51*** |
| | (2.342) | (2.354) |
| Observations | 1328 | 1328 |
| R-squared | 0.336 | 0.344 |
| Number of countries | 100 | 100 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In Model 2, I tested whether the effects of taxation and rents were different in dictatorships and democracies. If dictators do not secure consent through democratic representation, do they need to spend more as a result when they increase taxation or rent revenues? Increases in tax revenues generate higher compliance costs, so we might expect dictators, who do not gain consent through democracy, to spend more. Rents do not generate the same increases in the need for compliance and therefore may not be correlated with higher levels of spending, even in dictatorships. The results pictured in Figures 3 and 4 indicate that authoritarian regimes may need to increase spending more than democracies when they increase taxation or rent revenues, however, the interaction is not statistically significant at the 90 percent level for either taxes or fuel exports. The basic findings of Model 1 also hold in this model: increases in taxation are correlated with increases in government spending, while increases in rents are less strongly and negatively correlated with spending.

FIGURE 3

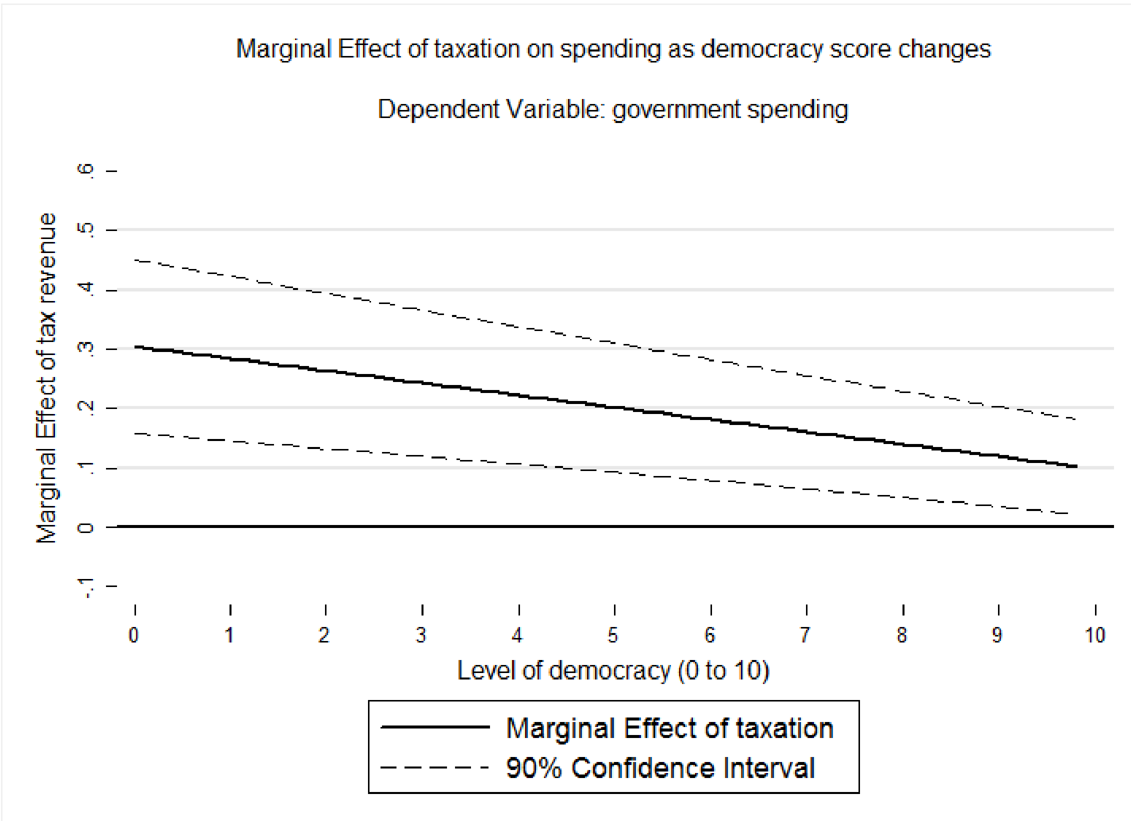
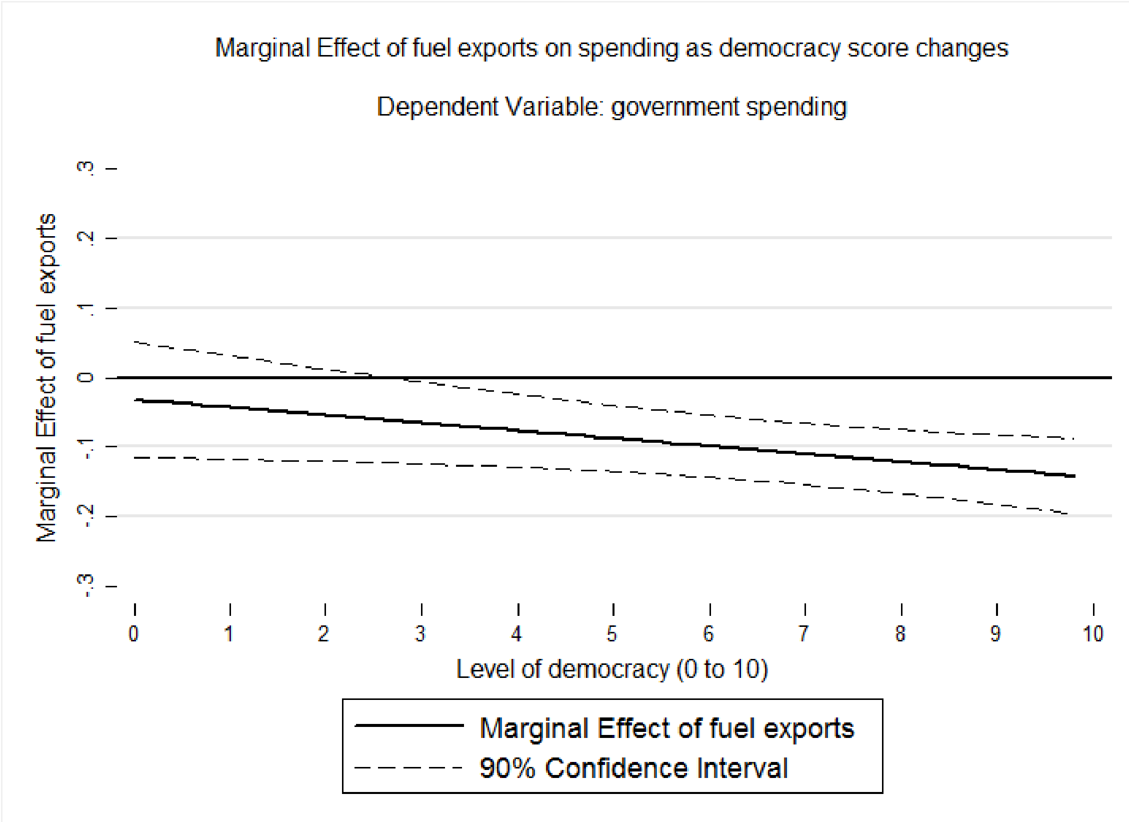


FIGURE 4




**The Coercion effect**

Coercion provides governments with a second alternative to democracy for securing compliance. The negative relationship between coercion and democracy is established in Table 1, Model 4 above. Similar to the model on spending, we might expect rent revenues to have either positive or negative effects on the size of the military, depending on which mechanism for how rents affect democracy predominates.

1. According to my theory, rents decrease the need for a large military apparatus by substituting for taxes and lowering the need for consent. If this effect is more important, rents will not be correlated with higher levels of coercion.

2. The coercion hypothesis suggests that rents primarily affect democracy by providing additional revenue to fund coercion. This theory predicts that rents will be positively correlated with coercion.

As with government spending, my model suggests that taxation should increase coercion, because as taxes rise, the need for consent rises, and tax revenues can be used to fund coercion.

TABLE 5: Effects of taxes and rents on coercion

| VARIABLES | (1)<br>military (%labour) | (2)<br>military (%labour) |
|---|---|---|
| L.taxes (%GDP) | 0.0112** | 0.0490*** |
| | (0.00508) | (0.0133) |
| L.fuel (%GDP) | 0.00216 | 0.0278 |
| | (0.0121) | (0.0202) |
| democracy | -0.193*** | -0.0981*** |
| | (0.0249) | (0.0380) |
| L.taxxregime | | -0.00478*** |
| | | (0.00147) |
| L.fuelxregime | | -0.00581** |
| | | (0.00236) |
| L.GDP per capita | 0.203** | 0.265*** |
| | (0.0931) | (0.0820) |
| L.govt spending | 0.0783*** | 0.0756*** |
| | (0.0184) | (0.0190) |
| Constant | -1.608*** | -2.726*** |
| | (0.447) | (0.502) |
| Observations | 611 | 611 |
| R-squared | 0.169 | 0.178 |
| Number of countries | 86 | 86 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The results of regressing armed forces personnel as a percentage of the labour force on tax revenue and fuel exports are reported in Table 5. I controlled for several other variables that might be expected to affect the size of the military: regime type, GDP per capita, and total government spending. As with the model for government spending above, I use one year time lags on each of the independent variables. Model 1 indicates that tax revenues are positively and significantly associated with higher levels of armed forces personnel. Fuel exports are not significant, indicating that increases in rent revenues have no effect on the level of coercion. This result suggests that the first alternative above more accurately describes the effects of rents. While taxation creates the need for more coercion, rents do not.

In Model 2, I test whether the effects of taxation and rents on coercion vary with regime type. We might expect authoritarian regimes to spend more on coercion than democracies when they increase revenues, especially through taxation. Because authoritarian states do not gain voluntary consent by providing democratic representation, they may have to use higher levels of coercion instead. The results are displayed graphically in Figures 5 and 6. They indicate a statistically significant interaction between both taxes and rents and regime type, indicating that the marginal effects of taxes and rents on coercion vary depending on regime type.

Figure 5 demonstrates that the effect of increases in taxation on coercion is always positive in all regimes. However, the correlation is much stronger in dictatorships, indicating that authoritarian rulers must increase coercion much more than democratic rulers when they want to raise tax revenues. This result supports the theory that coercion is an alternative to democracy, because when regimes are not democratic, they are forced to use higher levels of coercion to force compliance with their tax regimes. In democracies, tax increases are more likely to be viewed as legitimate, therefore the need to increase coercion is less.

FIGURE 5

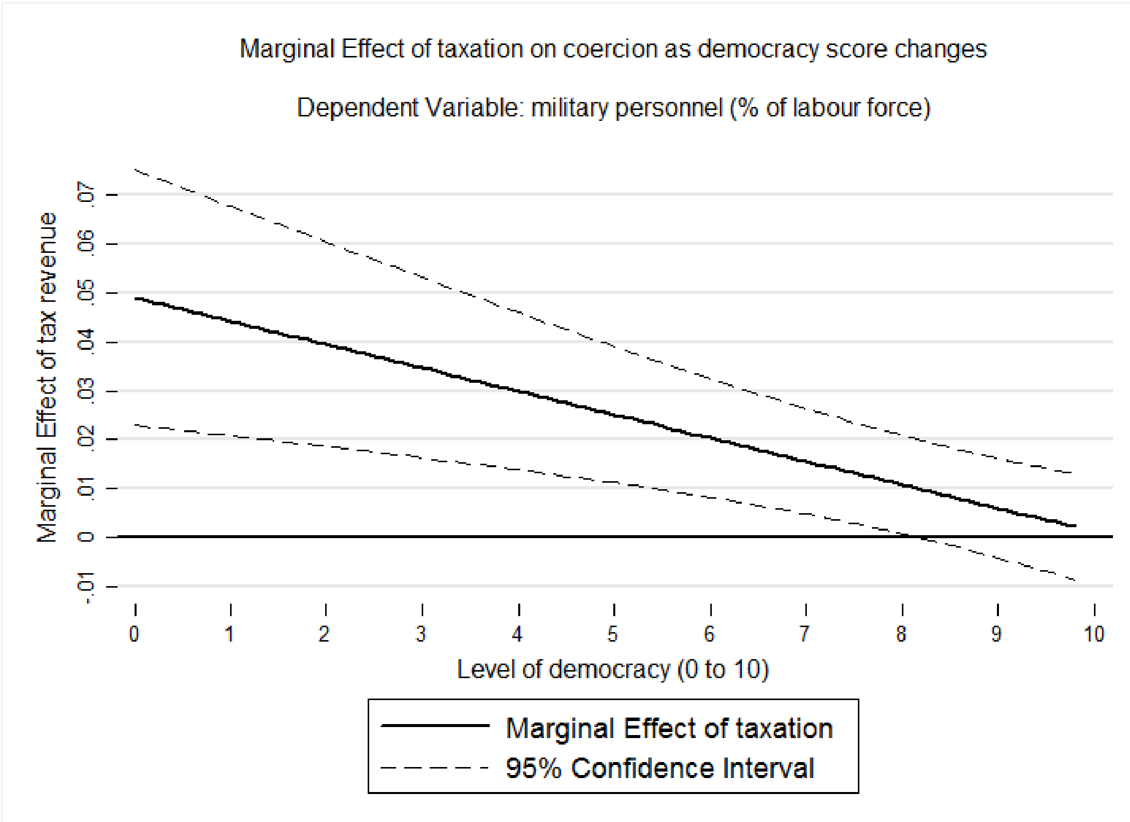
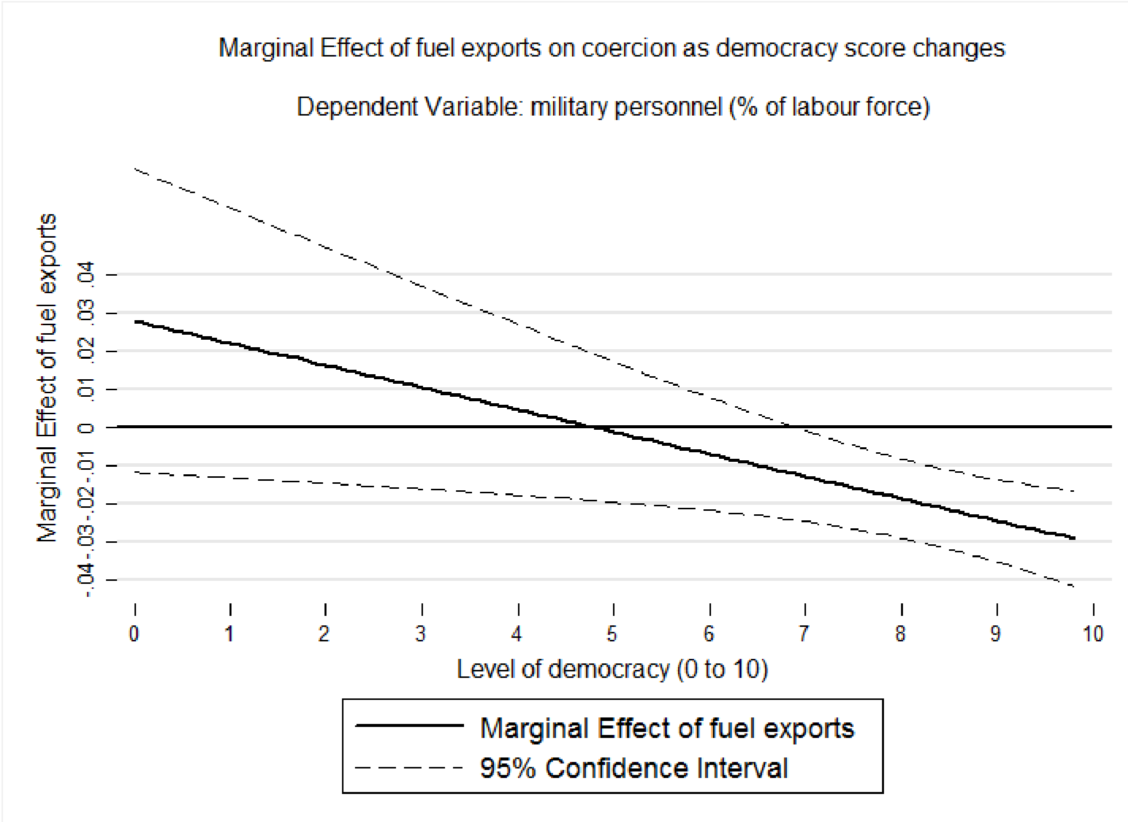



Figure 6 shows that the effect of fuel exports on size of the military also varies according to regime type. The results indicate that increases in fuel exports are positively correlated with coercion in dictatorships, but negatively correlated with coercion in democracies. This result may suggest that dictators use rents to invest in coercion, but democracies have no need to do so. Why fuel exports should be correlated with decreases in the size of the military in democracies is mysterious, but the correlation may be the result of particularities in the dataset around democratic oil exporters.

FIGURE 6




It should be noted that these regressions using size of the military as the dependent variable may suffer from omitted variable bias, as factors such as internal and external conflict that most probably have significant effects on the size of the military and key independent variables are not included. External conflict will likely increase the size of the military and may decrease the ability to export fuel, generating a negative correlation between coercion and rents that is unaccounted for. If this is the case, my estimate finding no correlation between rents and coercion across regime types (Model 1) may be artificially low. Internal conflict may increase the size of the military while decreasing the state's ability to collect tax revenues. This relationship would create a negative correlation between tax revenue and coercion that is unaccounted for in my model. However, I have found taxation and coercion to be strongly positively correlated, so if the results are affected by this type of omitted variable bias it may be that there is in fact a stronger correlation between taxation and coercion.

## Conclusion

A relationship between taxation and democracy has powerful implications for how to develop democracy in many of the world's states that are currently authoritarian or weakly democratic. Modern oil states have posed a challenging theoretical puzzle in their longstanding authoritarian stability despite tremendous wealth. If taxation provides certain democratic benefits, it offers a way out of the democratic resource curse. If authoritarian rentier states were forced to rely more on tax revenues, they might face greater pressures to democratize, and rentier states that succeed in becoming somewhat democratic may be able to protect against a return to authoritarian rule through taxation. A link between taxation and democracy also provides a warning for those democratic states that discover substantial revenue-generating natural resources that it would be prudent to avoid an overreliance on these new revenues.

Because most modern states require tax revenues and the voluntary consent of their citizens to collect them, they have powerful incentives to develop effective extractive and administrative institutions that citizens trust to be free of corruption. Governments, in turn, have incentives to make their taxation and spending policies appear legitimate and accountable in order to encourage citizens to pay their taxes. Therefore, states may develop stronger democratic mechanisms to secure citizens' consent to taxation. Taxation further provides material incentives for citizens to monitor government performance and participate in democratic processes. Because government corruption or mismanagement will result in citizens being taxed at a higher level than necessary, citizens will seek to keep their governments accountable. When authoritarian states use rent revenues to substitute for the need to tax, it prevents the democratic bargain normally prompted by taxation from occurring. Rents thus prevent democratization by eliminating the need to tax and therefore the need for consent.

There are several limitations of the present analysis that suggest useful avenues for future research. I have found that the aggregate measures for total tax revenues as a percentage of GDP and total government spending as a percentage of GDP have significant effects on democracy. However, my theory implies that different types of taxation and spending may have varying effects on democracy. Because taxation creates pressures to democratize through the need to generate widespread popular consent, taxes that are easier for governments to collect, such as taxes on international trade, may have less of an effect on democratization than taxes on income. Similarly, because government spending acts as a substitute for democracy by providing public goods that citizens value, it may be that particular types of government spending on services such as health or education generate higher levels of public consent than spending to service public debt, for example. (Though the question of which goods citizens value may be highly subjective and vary by country.) Future work that disaggregates measures for taxation and spending may provide useful insights in how these variables affect democracy in more nuanced ways.

While my study focuses on fuel exports, a number of authors have suggested that other types of rent revenue may negatively affect democracy. Ross argues that forms of mineral wealth other than petroleum impede democratization (2001, 356). Morrison (2007, 2009) has suggested that foreign aid and other nontax revenues function much like the resource revenues of oil states, and have similarly pernicious effects on the development of democracy. Other authors insist that oil is different from other sources of economic rents and even other minerals. "The petro-state is more dependent on a single commodity than any other state, and the exploitation of this commodity is more depleteable, more capital-intensive, more enclave-oriented, and more rent-producing than the exploitation of any other commodity" (Karl, 238). Yates argues that oil is different from other minerals such as diamonds because of its central position in modern mechanized societies, where its necessary presence gives it a unique political and strategic significance (Yates, 235).

Oil is by far the most heavily studied of the resource curse commodities, and oil’s unique political importance has some implications for how oil-dependent states interact with the international system. However, other nontax revenues may generate similar effects to oil rents if they provide a substantial proportion of government revenues without generating the need for higher levels of compliance. Future studies focusing on the economic rents from other sources such as mineral exports, military bases, workers’ remittances, or foreign aid would likely prove useful. In particular, if foreign aid has similar effects to oil rents, there are worrying implications for the efficacy of trying to develop democracy through aid. If foreign aid does have negative effects on the need to collect tax revenue and therefore on pressures to democratize, we need to examine closely the circumstances under which these effects occur, and carefully consider how foreign aid is best distributed and used.

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