How do Natural Resource Rents Affect Government Spending Allocation?

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Abstract

This paper examines the effects of natural resource rents on Government Spending Allocation. I also analyze the role of election cycle, political ideology, and institutional quality in mitigating or exacerbating these effects. In order to do that, I run a panel data regression at the country level using a data set of 191 countries between 1970 and 2016. I use total natural resource rents, specific types of natural resource rents (oil, gas, coal, mineral, and forest rents), and several categories of government spending (military, subsidies, and education). In order to compare them, I create interaction terms for election cycle, party ideology, and institutional quality. The results suggest that the effects of natural resource rents on government spending varies mainly among countries political ideology and type of natural resource rent. Furthermore, elections increase the effects of a natural resource rents on government spending, and institutional quality has a negative impact on the relationship between forest rents and subsidies spending.

Introduction

Riches from natural resources can be a substantial source of revenue for governments. It has been estimated that natural resource rents, which the difference in revenue and average extraction cost, is roughly $4 trillion annually, representing 7 percent of global GDP (World Bank, 2011). This has been the consequence of a rise in commodity prices since 2000, which has drastically increased governments revenues. Although natural resource rents provide a valuable source of income that could increase economic development, it appears that resource rich countries do worse in terms of economic development and growth in general (Koslad, Wiig, 2009). In order to better understand why this happens, it is important to know how governments spend their natural resource rents. Depending on a country's situation and political ideology, the government may choose to allocate resource rents towards a particular public sector, which can have an important impact on citizens, or take a rent-seeking behavior stand.

This has led a strand of the literature to focus on the "Resource Curse", a theory that explores the effects of natural resource rents on economic growth and finds that natural resource rents have a negative relationship with economic growth (Salha, Dachraoui, and Sebri, 2018). This has been encouraged by a theory named "The Dutch Disease", arguing that the growth of the natural resource sector leads to a decrease in other sectors of the economy. Furthermore, the institutional quality of the government has an important effect on how natural resource rents are allocated as they can lead to corruption in undemocratic societies (Damania and Bulte, 2003; Melhum et al., 2006). Previous literature focuses on how natural resource rents affect government spending. However, it focuses on a specific type of spending and/or region, and do not include several types of government spending in order to analyze how governments in general allocate government spending. There is no previous research that focuses on how each

type of natural resource rent affects government spending on education, subsides, and the military, which is a clear weakness in the literature as natural resource rents can have important effects on social conditions, conflict, and human development.

This paper attempts to answer the following questions: (1) How do natural resource rents affect government spending on education, subsidies, and the military? (2) Do elections affect the effects of natural resource rents on these types of spending? (3) Can the executive's ideology and institutional quality affect these results? I answer these questions by running a panel data analysis at the country-year level. I run several regressions with different types of government spending as the dependent variables and total natural resource rents as the main independent variable. Further on, I also include different shares of natural resource rents as independent variables. I also add macroeconomic variables and an institutional variable as it has been emphasized in previous literature. I also separate in categories left-wing and non-left-wing countries. I create an election dummy variable for the election year. Finally, I create an executive ideology dummy variable for the type of government in office in each year. These dummies are used to test the effects of elections and political ideology on how natural resource rents affect the previously mentioned types of government spending.

Literature Review

Most of the literature that has been investigated regarding natural resources is related to the adverse effects that natural resources have on several sectors of the economy of a country. The term that is used to explain the negative correlation between natural resource abundance and growth of a country is the "Resource Curse". Sala-i-Martin, Subramanian, and Mehlum (2016) find that the negative relationship between resource abundance of a country and growth is related to the institutional quality. According to Mehlum (2016) institutions that are more corruption-

friendly tend to lead natural resource abundance to decrease aggregate income as rents induce costly behavior in terms of rent-seeking initiatives by producers and governments, while producer-friendly institutions do the opposite, by increasing aggregate income through distributing resource rents to the public.

The “Dutch Disease” is a term used to describe the over appreciation of a country’s currency due to positive oil price shocks, which leads to a contraction of the non-tradable sector. The “Dutch Disease” decreases growth in the long run as it negatively affects other sectors of the economy. These effects are the consequence of two dimensions, structural, which arise due to the fact that the high profitability of natural resources lowers the incentives to invest in other tradable sectors, such as manufacturing and high-technology (Sala-i-Martin., et al, 2003). The cyclical dimension arises from the commodity price cycles, which can drastically decrease revenues to a country that is natural resource abundant (Zhu, Cherif, Hasanov, 2016). Therefore, managing government spending towards areas of the economy that may be needed in order to diversify the economy when commodity prices are high, may increase a resource abundant country to remain more stable when natural resource prices decrease.

Countries with high level of human capital and natural resource abundance may lead to an increase in economic growth, while countries with low levels of human capital and natural resource abundance tend to have negative economic growth, which suggests that human capital can be a mechanism towards mitigating the natural resource curse (Behdbudi, et al., 2010). Barro (2001) argues that human capital, especially at secondary and higher education levels, facilitates the absorption of higher technologies, which can be important in learning how to use the technology needed to extract oil. Wade (1992) finds that in Latin America, governments that are led by owners of natural resources lack the incentive of investing in basic skills, but instead

invest in high-skilled human capital. On the other hand, Ascher (1999) finds that mineral states tend to increase spending among several projects and programs, excluding education.

Most of the previous literature consistently confirms that natural resource rents have a negative impact on education spending. Gyfason (2001) finds a negative correlation between public education and girls school duration, and natural resource abundance. Cockx and Francken (2016) also find a negative relationship between natural resource abundance and government spending on education. On the other hand, James (2007) finds government spending on education to be higher in resource abundant countries compared to resource scarce ones. Hua-ping Sun et al. (2018) claim that natural resource abundance can provide funding for education spending. They find that central and western regions of China have created a crowding-out effect of natural resources as the government has invested more in public education, while eastern China has experienced a crowding-in effect and lack of investment in education. However, to my knowledge, no research has taken place on the effects of natural resources and education spending considering election cycles.

According to Collier and Hoeffler (2007) consolidated democracies, mixed regimes, and autocracies have an incentive to increase government spending on the military. Democracies may increase expenditure in order to provide a public good for citizens through internal and external protection. Mixed regimes and autocracies may increase military spending in order to prevent possible coup attempts. Ali and Abdellatif (2013) find that oil and forests rents lead to an increase in military spending in North African and Middle Eastern rentier states. They argue that natural resources can be a source of international tension and conflict as an increase in military spending may be caused by a desire to protect natural resources from external and internal threats. This leads the income effect to treat military goods as normal goods. I expand this

research by including other types of government spending, natural resource rents, and countries from other regions as well.

Kim and Lee (2017) argue that regime type and ideological approaches are central to explain economic policy. They argue that institutional quality may not be an ideal explanatory variable when explaining economic performance as it is usually correlated to the error term and GDP growth. They find that presidential democracies with left-wing economic policy are the least growth enhancing systems.

Klomp's and de Haan's (2015) findings on the "Election Cycles in Natural Resources", are that democratic governments tend to increase taxes on natural resources in pre-election and election year in order to improve incumbents' chances of being re-elected, as governments rents from natural resources are not perceived as income forgone by the public. However, they find that the effects are stronger in countries that are new to democracy, weak institutions, limited free media and a presidential system. Government spending allocation is important to be explored in a variety of political ideologies, as some ideologies may be more likely to increase spending in particular public sectors compared to others.

According to Pickering and Rocky (2011), right-wing parties are more likely to reduce the public sector and generally limit spending. While left-wing parties advocate for higher public expenditure in order to increase redistribution and lower inequality. Therefore, it is important to understand how the presence of natural resource rents may affect this patterns by increasing or decreasing several types of government spending. Lind (2010) argues that in the United States, athough conservatives (Republicans) denounce government spending, they are still in favor of increasing support for military spending.

Data

The main dependent variables examined are Subsidies [1], Education [2], and Military [3] spending as a percent of GDP. Data on types of government spending are extracted from the World Bank. I use Total Natural Resource Rents as the main independent variable, and further expand this by including several measures of natural resource rents. I firstly include total natural resource rents as a share of GDP, which is the sum of oil, gas, coal, mineral, and forest. Then, I include each of the natural resource rents already mentioned, which are measured by the difference between the value of the natural resource at world prices minus the average cost of production per unit, multiplied by the physical quantity of extraction. Forest rents is the exception, as it is measured as the round wood harvest multiplied by the product of average prices in the specific region rental rate. Therefore, natural resources rents represent the profit generated from extracting resources. Every type of natural resource rent is taken from the World Bank.

I include five macroeconomic control variables: GDP per capita, GDP growth, inflation rate, total population, and population growth. GDP per capita represents the average domestic income in US dollars. GDP growth is measured as the percent annual growth and it attempts to determine domestic market potential. Inflation is measured as the percent change in consumer prices and it intends to control for macroeconomic stability. All macroeconomic variables are taken from the World Bank.

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[1] Subsidies is cash payments for operating activities of the government in providing goods and services. It includes compensation of employees (such as wages and salaries), interest and subsidies, grants, social benefits, and other expenses such as rent and dividends.

[2] Education spending includes spending on all levels of education.

[3] Military spending includes all current and capital spending on the armed forces.

My institutional control variable [4] measures how democratic a country is, which ranges from 1 (strongly autocratic) to 21 (strongly democratic). This variable is extracted from Polity IV project. My election cycle variable is a dummy that equals 1 in the election year and 0 otherwise. This variable is determined by the party orientation towards economic policy. I extract the election data from Election Guide. I create an executive ideology dummy[5] variable which considers the executive's ideology and equals 1 if the executive is left wing, and zero otherwise. This variable is extracted from the Inter-Development Bank.

Methodology

My dataset contains 191 countries for years 1970 through 2016. I run a panel data regression at the country-year level. In order to answer this paper's questions, I run two different regressions for total natural resource rents and each type of government spending (subsidies, education and military), all including macroeconomic control variables and the institutional control variable. My model consists of the following equations:

- $govexpen_{i,t} =$

  $\beta_0 + \beta_1 T_{i,t} + \beta_2 GDPc_{i,t} + \beta_3 GDPg_{i,t} + \beta_4 In_{i,t} + \beta_5 TP_{i,t} + \beta_6 PG_{i,t} + \beta_7 I_{i,t} + \varepsilon_{i,t}$

- $govexpen_{i,t} = \beta_0 + \beta_1 O_{i,t} + \beta_2 G_{i,t} + \beta_3 C_{i,t} + \beta_4 M_{i,t} + \beta_5 F_{i,t} + \beta_6 GDPc_{i,t} +$

  $\beta_7 GDPg_{i,t} + \beta_8 In_{i,t} + \beta_9 TP_{i,t} + \beta_{10} PG_{i,t} + \beta_{11} I_{i,t} + \varepsilon_{i,t}$

$Where$:

[4] Institutional control variable is determined by the competitiveness of Executive Recruitment, Openness of Executive Recruitment, Constraint on Chief Executive, and Competitiveness of Political Participation.
[5] Left-wing are parties that are defined as communist, socialist, social democratic or left wing.

i = year; t = time	O = oil rents
ε = error term	G = gas rents
T = total natural resource rents	C = coal rents
GDPc = GDP per capita	M = mineral rents
In = inflation	F = forest rents
TP = total population	PG = population growth
GDPg = GDP growth	I = institution score

The first equation is used to test my first hypothesis, where I expect $\beta_1 > 0$ for subsidies and the military, and $\beta_1 < 0$ for education. For the second equation, I expect similar results regarding natural resource rents effects on government spending. Being the magnitude stronger for oil and gas. I also expect macroeconomic control variables (GDP per capita, GDP growth, total population, population growth, and inflation) to be have a positive impact on government spending. Except for inflation, as high levels of inflation may discourage government spending. I am not sure on what the effects of institutional quality may be on government spending as there has not been any research regarding how institutional quality affect these types of government spending.

In order to measure any possible effects of elections and political ideology on how natural resource rents affects the already mentioned types of government spending, I add interaction terms for elections, political ideology, and institutions. I multiply each interaction term by total natural resource rents and each type of natural resource rent in order to determine the impact of these terms on the effects of natural resource rents on government spending. The terms for these are: for political ideology (ideology x T) and (ideology x share of natural resource rents); for elections (elections x T) and (elections x share of natural resource rents), and

for institutional quality (institutions x T) and (institutions x share of natural resource rent). Based on the literature, I expect governments to increase spending during election years. I expect left leaning governments to spend more on subsidies and less on the military than non-left leaning governments. I also use a dummy for right and left leaning governments in order to compare their descriptive statistics and reflect the importance of differentitating the results from the regression model.

Descriptive Statistics

Table 2 and 3 show the summary statistics for left-wing and right-wing countries. Firstly, the mean values for every type of spending is higher for right leaning governments than for left leaning governments as a % of GDP. Secondly, left-wing governments have higher total natural resource rents and among each type of resource rent. Thirdly, right wing governments have a higher GDP per capita than left wing governments, which may reflect why right wing governments have a higher mean value for each type of spending. Lastly, left wing governments have a higher institutional quality than right wing governments. Lower levels of institutional quality may reduce the transparency of governments spending and allow for more “rent-seeking“ behavior.

Results

This section explains the regression results for each type of natural resource rent with respect to each type of government spending. The results are presented as it follows: Table 4, 5 and 6, are the regression results for each type of government spending and are organized in the same way. Column 1 contains the results for total natural resource rents including control macroeconomic, institutional control variables and fixed effects. Column 2 shows the results when excluding total natural resource rents and including different shares of natural resource

rents. Column 3 shows the results only for left wing governments. Column 4 only shows right wing governments. Tables 7 – 9 have similar have a similar layout to tables 4 – 6, but these only include interaction terms with elections. Tables 10 – 15 show the results for the interaction terms for political ideology. Tables 13 – 15 show the results for the interaction terms for institutional quality. Levels of significance are (1% - ***, 5% - **, 10% - *).

Education Spending [6]

Total Natural Resource Rents

The coefficient for total natural resource rents is insignificant and negative with a value of -.0101124 (Table 4, Column 1). When only including left wing and right-wing countries separately, the coefficients remain negative and insignificant (Columns 3 & 4). When adding the interaction term for elections, the coefficient becomes significant at the 5% significance level, with a value of -.0442632 (Table 7, Column 1). This indicates that a one percentage point increase in natural resource rents leads election years to have a .0442632 percentage point decrease in education spending. The coefficient for total natural resource rents during non-election years is negative and insignificant (Column 1). When differentiating for political ideology, the coefficients become positive and insignificant (Columns 3 & 4). When adding the interaction term for political ideology, the coefficients becomes positive and insignificant (Table 10, Column 1). The coefficient becomes negative and significant at the 1% level of significance with a value of -.019893 for non-left wing countries (Column 1). This indicates that a one percentage point increase in natural resource rents leads non-left wing countries to generate a .019893 percentage point decrease in education spending.

Oil Rents

[6] No significant coefficients when interacted with institutional quality.

The coefficient for oil rents is negative and insiginificant for all countries at a value of -.0119557 and remains negative and insignificant when including only right wing countries (Table 4, Columns 2 & 4). When only including left wing governments, the coefficient for oil rents becomes negative and significant at the 5% significance level, with a value of -.0324752. This indicates that a one percentage point increase in oil rents decreases education spending by .0324752 percentage points when only left wing governments are included in the sample. When adding the interaction term for elections (Table 7, Column 2), the results for all countries becomes significant at the 1% significance level with a value of -.0512729. This means that a one percentage point increase in oil rents leads elections years to decrease education spending by .0512729 percentage points. The coefficient becomes positive and insiginificant when including left wing countries only (Column 3) and remains insignificant but becomes negative for right-wing countries only (Column 4). For non-election years, the coefficient for all countries is negative and insignificant (Column 2), and remains negative but becomes significant at the 5% level of significance for left-wing countries, with a value of -.0345438. This indicates that a one percentage point increase in oil rents leads non-election years to generate a .0345438 percentage point decrease in education spending when only including left-wing countries in the sample. The coefficient remains negative but becomes insignificant when only including right-wing countries.

Gas Rents

The coefficient for gas rents is negative and insignificant for all countries at a value of -.0089456 and remains negative and insignificant for left-wing countries (Table 4, Columns 2 & 3). The coefficient remains insignificant but becomes positive when including right-wing countries only (Column 4). When including the interaction term for elections, the coefficient is negative and insignificant for all countries (Table 7, Column 2). When adding left-wing

countries only, the coefficient becomes significant at the 1% significance level with a value of -2.289212 (Table 7, Column 3). This indicates that a 1 percentage point increase in gas rents leads election years to have a negative impact of 2.289212 on educations spending when only including left-wing countries in the sample. When adding the interaction term for political ideology, the coefficient becomes negative and insignificant (Table 10, Column 2). The coefficient remains insignificant but becomes positive for non-left wing governments (Column 2).

Coal Rents

The coefficient for coal rents is negative and significant at the 5% level with a value of -.1133209. This indicates that a 1 percentage increase in coal rents leads to a .1133209 decrease in education spending (Table 4, Column 2). The coefficients are negative and insignificant when only including left wing countries and when only including right wing countries (Table 4, Columns 3 & 4). When adding interaction terms for elections, the coefficients are positive and insignificant (Table 7, Columns 2 – 4). The interaction term for political ideology remains positive and insignificant (Table 10, Column 2).

Mineral Rents

The coefficients for mineral rents are insignificant and positive for all countries at a value of .0448473 and remains positive and insignificant when only including right wing governments (Table 4, Columns 2 & 4). When only including left wing governments, the coefficient remains insignificant but becomes negative (Column 3). When including the interaction term for elections, the coefficients for all countries and left wing countries only are positive and insignificant (Table 7, Columns 2 & 3). Including right wing countries only has a significant coefficient in the 10% siginificance level, with a value of -1.733333 (Table 7, Column 4). This

indicates that a one percentage point increase in mineral rents leads election years to have a negative impact of -.733333 on education spending when only including right-wing countries in the sample. The coefficient becomes positive an insignificant in non-election years (Column 4). When adding the interaction term for political ideology, the coefficients are negative and insignificant (Table 10, Column 2).

Forest Rents

The coefficient for forest rents is negative and significant at the 5% significance level at a value of -.0414769 (Table 4, Column 2). This indicates that a one percentage point increase in forest rents generates a .0414769 percentage points decrease in education spending. When differentiating between left and right wing governments, the coefficients become positive and insignificant. When including the interaction term for elections, the coefficient becomes positive and insignificant for all countries and left wing countries (Table 7, Columns 2 & 3). The coefficient becomes negative and insignificant when including right wing governments only (Column 4). The coefficient becomes negative and significant at the 5% level of significance with a coefficient of -.0411194 in non-election years (Table 7, Column 2). This indicates that a one percentage increase in forest rents leads non-election years to have a negative impact of -.0411194 percentage points on education spending. The coefficient becomes insignificant and positive when including left wing and right wing countries only, during non-election years (Columns 3 & 4). When including the interaction term for political ideology, the coefficient becomes positive and insignificant for left wing governments, and becomes negative and significant at the 5% level of significance at a value of -.0447866 for non-left wing countries (Table 10, Column 2). Indicating that a one percentage point increase in forest rents leads non-

left wing countries to have a negative impact of .0447866 percentage points on education spending.

Subsidies Spending [7]

Total Natural Resource Rents

The coefficient for total natural resource rents is negative and insignificant at a value of -.073874 (Table 5, Column 1). When including left wing and right wing countries only, the coefficient remains negative and insignificant (Columns 3 & 4). When including the interaction term for elections, all countries and left wing countries have a positive and insignificant coefficient (Table 8, Columns 1 & 3). The coefficient for right wing countries remains insignificant and becomes negative (Column 4). The coefficient is positive and insignificant in non-election years for all countries, right, and left wing countries (Table 8, Columns 1, 3, & 4). When adding the interaction term for political ideology, the coefficient becomes positive and insignificant for both, left wing and non-left wing countries (Table 11, Column 1).

Oil Rents

The coefficient for oil rents is negative and insignificant at the 1% significance level with a value of -.1442144 (Table 5, Column 2). This indicates that a one percentage point increase in oil rents leads to a .1442144 percentage point decrease in subsidies spending. When including left and right wing governments, the coefficients become positive and insignificant (Table 5, Columns 3 & 4). When adding the interaction term for elections, the coefficient becomes significant at the 5% level of significance with a value of -.5329817 (Table 8, Column 2). This indicates that a one percentage point increase in oil rents leads election years to generate a .5329817 percentage point decrease on subsidies spending. The coefficient becomes positive and

[7] Only forest rents are significant when interacted with institutional quality.

insignificant for left and right wing countries during elections (Table 8, Columns 3 & 4). The coefficient becomes negative and insignificant in all countries, left, and right wing countries (Table 8, Columns 2, 3, & 4). When adding the interaction term for political ideology, the coefficient becomes positive an insignificant for left wing and non-left wing countries (Table 11, Column 2).

Gas Rents

The coefficient for gas rents is positive and insignificant at a value of .083701 (Table 5, Column 2). When including only left and right wing countries, the coefficients become negative and remain insignificant (Columns 3 & 4). When including the interaction term for elections, the coefficient becomes positive and insignificant for all countries and left wing countries only during election years (Table 8, Columns 2 & 3). The coefficient remains insignificant and becomes negative for right wing countries during election years (Column 4). When adding the interaction term for political ideology, the coefficient becomes positive and insignificant for left wing countries only, and remains insignificant and becomes negative for non-left wing countries (Table 11, Column 2).

Coal Rents

The coefficient for coal rents is significant at the 5% level of significance with a value of -1.170147 (Table 5, Column 2). This means that a one percentage point increase in coal rents leads to a 1.170147 percentage point decrease in subsidies spending. The effect remains negative but becomes insignificant when only right wing countries are included, and remains insignificant but becomes positive when only left wing countries are included (Columns 4 & 3). When adding the interaction term for elections, the coefficient is positive and insignificant for all countries, and negative and insignificant when including left and right wing countries during election years

(Table 8, Columns 2, 3, & 4). The coefficient becomes negative and significant at the 5% level of significance with a value of -.1181359 for non-election years (Table 8, Column 2). This indicates that a one percentage point increase in coal rents leads non-election years to decrease subsidies spending by .1181359 percentage points. The coefficient remains negative and becomes insignificant for right wing countries only, and is insignificant and positive among left wing countries (Table 8, Coulmns 3 & 4). When adding the interaction term for political ideology, the coefficient becomes positive and significant at the 5% significance level with a value of 3.76009 (Table 11, Column 2). This indicates that a one percentage point increase in coal rents leads left wing countries to increase subsidies spending by 3.76009 percentage points. The coefficient for non-left wing governments becomes negative and significant at the 1% level of significance with a value of -1.75948 (Column 2). This indicates that a one percentage point increase in coal rents leads non-left wing governments to decrease subsidies spending by -1.75948 percentage points. Therefore, coal rents are predicted to increase subsidies spending by 5.551957 percentage points more in left-wing countries compared to non-left-wing countries.

Mineral Rents

The coefficient for mineral rents is positive and insignificant at a value of .2782555 (Table 5, Column 2). The coefficient remains positive and insignificant when including only left wing governments and becomes positive and remains insignificant whe only including right wing governments (Columns 4 & 3). When including the interaction term for elections, the coefficient becomes positive and insignificant for all countries (Table 8, Column 2). The coefficient remains positive but becomes significant when only including left wing governments at the 1% significance level with a value of 5.461618 (Column 3). This indicates that a one percentage point increase in mineral rents, leads elections to have a positive impact of 5.461618 percentage

points increase in subsidies spending when only including left wing governments in the sample. The coefficient becomes negative and insignificant when only including right wing governments (Column 4). When including the interaction term for political ideology, the coefficient becomes positive and insignificant for left and non-left wing governments (Table 11, Column 2)

Forest Rents

The coefficient for forest rents is negative and insignificant when including all countries at a value of -.2753378 (Table 5, Column 2). The coefficient remains negative and insignificant when only including left and right wing countries (Columns 3 & 4). When including the interaction terms for elections, the coefficient becomes negative and significant at the 1% level of significance with a value of -1.483559 during elections (Table 8, Column 2). This means that a one percentage point increase in forest rents leads elections to have generate a 1.483559 percentage point decrease in subisidies spending. The coefficients become positive and insignificant for left wing countries and negative and significant at the 5% level of significance with a value of -2.094627 when only including right wing countries during election years (Columns 3 & 4). This indicates that a one percentage point increase in forest rents leads election years to have a -2.094627 percentage points decrease on subsidies spending. The coefficient becomes negative and significant at the 5% significance level with a value of -.0411194 for non-election years (Column 2). This indicates that a one percentage point increase in forest rents leads non-election years to reduce expenditure by .0411194 percentage points on subisides. Therefore, forest rents are predicted to decrease subsidies spending by 1.4424396 percentage points less during elections than during non-election years. When the interaction term for political ideology is included, the coefficient becomes positive and insignificant for left wing countries and negative and insignificant for non-left wing countries (Table 11, Column 2). When

adding the interaction term for institutional quality, the coefficient becomes negative and significant at the 1% level of significance with a value of -.1143043 (Table 14, Column 2). This means that a one unit increase in institutional quality, evaluated at an average of 1.898453 forest rents, generates a .217 percentage point decrease in subsidies spending.

Military Spending [8]

Total Natural Resource Rents

The coefficient for total natural resource rents is negative and insignificant with a value of -.0013584 (Table 6, Column 1). The coefficient remains insignificant and becomes positive for left wing governments and becomes negative and insignificant for right wing countries (Columns 3 & 4). The coefficients are positive for every sample in election years and negative for non-election years including all countries and right wing countries, and becomes positive for left wing countries (Table 9, Columns 1, 3, & 4). When including the interaction term for political ideology, the coeffcient becomes negative and insignificant for left wing countries and positive and insignificant for non-left wing countries (Table 12, Column 2).

Oil Rents

The coefficient for oil rents is positive and insignificant at a value of .0042408 and remains positive and insignificant for left and right-wing countries (Table 7, Columns 2, 3, & 4). When including the interaction term for elections, the coefficient becomes positive and significant at the 1% level of significance with a value of .0374531 (Table 9, Column 2). This means that a one percentage point increase in oil rents leads elections to generate a .0374531 percentage points increase in military spending. When including only left wing countries, the coefficient remains positive but becomes insignificant (Column 3). The coefficient remains

[8] No significant coefficients for interactions with institutional quality.

positive and becomes significant at the 5% level of significance with a value of .1962662 when including right wing countries (Column 4). This indicates that a one percentage point increase in oil rents leads elections to generate a .1962662 percentage points increase in military spending, when inlcuding right wing countries only. The coefficient is positive and insignificant during non-election years for all countries, left, and right wing countries (Table 13, Columns 2, 3, & 4).

Gas Rents

The coefficient for gas rents is negative and significant at the 1% level of significance at a value of -.0365416 (Table 7, Column 2). This indicates that a one percentage point increase in gas rents generates a .0365416 percentage points decrease in military spending. When only including left wing countries, the coefficient remains significant at the 1% level of significance with a higher value of -.048623 (Column 3). This means that a one percentage point increase in gas rents generates a .048623 percentage points decrease in military spending when only including left wing countries in the sample. The coefficient becomes positive and remains significant at the 1% level of significance at a value of .1677065 when only including right wing governments in the sample (Column 4). This indicates that a one percentage point increase in gas rents generates a .1677065 percentage points increase in military spending when only including right wing governments in the sample. When including the interaction term for elections, the coefficient becomes negative and significant at the 1% level of significance with a value of -.0362894 (Table 9, Column 2). This means that a one percentage point increase in gas rents leads elections to generate a .0362894 percentage point decrease in military spending. When including left wing countries only, the coefficient becomes positive and insignificant, and remains insignificant but becomes negative for right wing countries (Columns 3 & 4). The coefficient becomes larger, negative, and significant at the 1% level of significance with a value of -

.0493439 for non-election years (Column 2). This indicates that a one percentage point increase in gas rents leads non-election years to generate a .0493439 percentage point decrease in military spending. Therefore, gas rents are predicted to decrease military spending by 0.130545 more in non-election years than during election years. The coefficient remains negative and significant at the 1% level of significance with a value of -.0487252 when only including left wing countries in the sample (Column 3). This indicates that a one percentage point increase in gas rents leads non-election years to generate a .0487252 percentage point decrease in military spending when only including left wing countries. When only including right wing countries, the coefficient becomes positive and remains significant at the 1% level of significance with a value of .1692583 (Column 4). This indicates that a one percentage point increase in gas rents leads to a .1692583 percentage point increase in military spending. When including the interaction term for political ideology, the coefficient becomes negative and insignificant for left wing countries and positive and insignificant for non-left wing countries (Table 13, Columns 2, 3, & 4).

Coal Rents

The coefficient for coal rents is negative and insignificant at a value of -.0061696 and remains negative and insignificant when including left wing countries (Table 7, Columns 2 & 3). The coefficient becomes positive but remains insignificant when only including right wing countries (Column 4). When including the interaction term for elections, the coefficient becomes positive and significant for all countries and right wing countries (Table 9, Columns 2 & 4). The coefficient remains insignificant but becomes positive when including left wing countries (Column 3). When including the interaction term for political ideology, the coefficient becomes negative and significant at the 1% level of significance with a value of -.2837243 (Table 13, Column 2). This indicates that a one percentage point increase in coal rents leads left wing

countries to decrease military spending by .2837243 percentage points. The coefficient is positive and insignificant for non-left wing countries (Column 2).

Mineral Rents

The coefficient for mineral rents is positive and significant at a value of -.0099513 and remains negative and insignificant for right wing countries (Table 7, Columns 2 & 4). The coefficient becomes positive and insignificant for all left wing countries only (Column 3). When including the interaction term for elections, the coefficients for all countries, left wing, and right wing countries become positive and insignificant (Table 9, Columns 2, 3, & 4). For non-election years, the coefficient becomes negative and insignificant for all countries and right wing countries (Columns 2 & 4). The coefficient remains insignificant but becomes positive for left wing countries (Column 3). When including the interaction term for political ideology, the coefficient becomes positive and insignificant for left wing countries and negative and insignificant for non-left wing countries (Table 13, Column 2).

Forest Rents

The coefficient for forest rents is positive and insignificant with a value of .0153484 and remains positive and insignificant for left wing countries (Table 7, Columns 2 & 3). The coefficient becomes negative and remains insignificant for right wing countries (Column 4). When including the interaction term for elections, the coefficient becomes positive and insignificant (Table 9, Columns 2, 3, & 4). The only exception is during non-election years when including only left wing countries, as the coefficient becomes negative and insignificant (Column 2). When including the interaction term for political ideology, the coefficient becomes negative and insignificant for left wing countries and positive and insignificant for non-left wing countries (Table 13, Column 2).

Discussion

Education Spending

The results for education spending are aligned with most of the literature, indicating that the presence of natural resource rents lead to lower spending on education. When adding the interaction terms for elections and political ideology, the results remain negative. It is interesting to notice that during elections, left wing governments have a negative coefficient for gas of -2.289212, while right wing countries have a negative coefficient of -1.733333. This suggests that both left and right wing governments decrease spending when natural resource rents are present, with left wing governments having a larger negative magnitude compared to right wing governments for gas.

Subsidies Spending

The main results for subsidies spending are also negative, suggesting that the presence of natural resource rents, specifically oil and coal, have a negative impact on subsidies spending. Which may also suggest that governments allocate their government spending towards other areas. However, when including the interaction term for elections, the coefficient for minerals acquires a large, positive, and significant value for left wing countries. This is aligned with previous literature, which suggests that some governments may increase subsidies spending during elections in order to gain popularity. It is interesting to notice that the results become negative for oil rents and coal rents among non-left-wing countries but become positive for coal rents for left-wing countries. This is also aligned with previous literature regarding political ideology and government spending. When adding the interaction term for institutional quality, the coefficient for forest rents suggest that as institutional quality increases, and the impact of natural resources on subsidies spending decreases. This may be the case for countries that have

better institutional quality, which may also be more developed and have more budget oversight. Consequently, not being able to have much discretion on subsidies spending.

Military Spending

There is a clear pattern when distinguishing between left and right-wing countries. Left-wing countries decrease military spending when natural resource rents are present. This may be related to the ideology and values of left and right-wing parties. When including the interaction term for elections and political ideology, the pattern remains, as left wing countries continue to decrease spending on the military, while right wing countries increase it when the sample only includes right wing countries.

Conclusion

In this paper, I analyzed how natural resource rents affect government spending allocation, specifically on education, subsidies, and the military. I also analyzed how elections, political ideology, and institutional quality affect the results by creating interaction terms with total natural resource rents and each share. To obtain my results, I ran a panel data regression model at the country-year level using data for a set of 191 countries in a period between 1970 – 2016 for each type of government spending. Although my main independent variable is total natural resource rents, I also include specific categories of natural resource rents (oil, gas, minerals, coal, and forest rents).

I find that the effects of natural resource rents on government spending allocation varies depending on the election cycle, political ideology, and institutional quality. I find that left wing countries tend to decrease spending on education and the military and increase subsidies spending (only during election years). Right-wing countries decrease spending on education and subsidies and increase spending on the military. I also find that elections have a significant

negative impact on the effects of natural resource rents on all types of government spending. The exceptions are right-wing governments spending on the military and left-wing governments spending on subsidies. The results suggest that better institutional quality has a negative impact on government spending, particularly on subsidies. The type of natural resource rent also seems to have a different effect for each type of government spending. For education spending, oil coal and forest rents are negative and significant. For subsidies spending, oil and coal rents are negative and significant, but forest rents are insignificant. For military spending, gas rents become significant, but oil, coal and forest rents are not.

My main hypothesis holds for education holds for all countries, left, and right wing. My hypothesis for subsidies does not hold for any of the samples, but the coefficient for minerals becomes positive for left wing countries during elections. My hypothesis for the military does hold for right wing countries and obtains a negative value for left wing countries, as the literature suggests. Elections seems to not change the pattern as much as the political ideology of a country. Institutions were only significant for forest rents and subsidies, with a negative coefficient. Indicating that better institutional quality may lead forest rents to decrease subsidies spending. An extension of this paper could include more types of government spending and other types of institutional quality measures.

Appendix

Table 1 – Sumary statistics for all observations

Variable	Mean	Std. Dev.
Education Spending |	1.729158	2.458092
Subsidies Spending |	10.41584	19.83097

Military Spending	1.891781	3.037547
Total Natural Res	5.678078	10.07758
Oil rents	2.695066	8.10395
Coal rents	.1556909	.5670857
Gas rents	.3869197	2.328894
Forest rents	1.898453	4.272277
Mineral rents	.9536691	3.061475
GDP pc	5419.992	12989.77
GDP g	3.673784	6.319283
Inflation	29.95876	444.355
Total Pop	54.31324	17.39954
Institutional Quality	12.58243	7.193955
Population g	1.737005	1.579406

Table 2 – Summary statistics for left leaning countries

Variable	Mean	Std. Dev.
Education Spending	2.173596	2.676768
Subsidies Spending	13.32953	22.1988
Military Spending	1.823147	2.110243
Total Natural Res	6.402491	10.47633
Oil rents	2.842567	8.297336
Coal rents	.2193258	.5586251
Gas rents	.7264494	3.628536

Forest rents	2.06283	3.829284
Mineral rents	1.148561	2.908719
GDP pc	4605.775	9153.203
GDP g	3.360369	5.730665
Inflation	50.02647	501.5128
Total Pop	53.27763	19.86594
Institutional Quality	13.11443	7.363106
Population g	1.487812	1.153989

Table 3 – Summary statistics for right leaning countries

Variable	Mean	Std. Dev.
Education Spending	2.515575	2.641869
Subsidies Spending	19.75459	24.76431
Military Spending	2.156735	2.306446
Total Natural Res	2.752722	4.434307
Oil rents	1.002469	3.165816
Coal rents	.1992332	.4995451
Gas rents	.2793005	.5995382
Forest rents	1.17552	2.434764
Mineral rents	.5338337	1.159316
GDP pc	7918.024	12603.07
GDP g	3.382421	4.291642
Inflation	14.87751	54.25798

Total Pop |	56.96466	16.96215
Institutional Quality |	17.64312	4.792086
Population g |	1.298931	1.127521

Table 4 - Regression results for Education Spending

	(1) Controls and Fixed Effects (T)	(2) Controls and Fixed Effects (S)	(3) Left	(4) Right
TotalNat	-.0101124		-.0127031	-.0469528
	.005818		.008957	.0355451
Oil Rents		-.0119557	-.0324752**	-.0304546
		.0070769	.0141116	.0474717
Gas Rents		-.0089456	-.0102861	.039385
		.0123389	.0125975	.254493
Coal Rents		-.1133209**	-.0555597	-.4376578
		.0525992	.1254135	.4569838
Mineral Rents		.0448473	-.0389075	.0445083
		.0349329	.0467935	.0836915
Forest Rents		-.0414769**	-.0832179	-.0453769
		.0190714	.0472807	.05294
Inflation	-.0000891*	-.0000799	-.0000748	-.0010925
	.0000368	.0000414	.0000444	.0011536
GDP pc	-.0000125	-.0000134	3.69e-06	-.0000177
	8.76e-06	8.77e-06	.0000143	9.06e-06

GDP g	-.0013929	-.0013551	-.016241	-.0398298
	.0066702	.0067338	.0185178	.0202231
Total p	.001371	.0010016	.0005473	-.0132337
	.0037717	.00365	.0093965	.0069035
Population g	-.0498224	-.0481395	-.0286706	.0985698
	.0768653	.0762077	.1777212	.4337856
Institution	.0166155	.0180735	.0139499	.04652
	.0181014	.0181224	.0449141	.0404126
cons TotalNat	-2.010398		6.242149	2.142022
cons Shares		-2.03767	0.5023	0.5205
Observations	4,436	4,436	1,217	836
R squared Shares		0.3913	0.5023	0.5205
R squared – Totnat	0.3888		0.4942	0.5173

Table 5 – Regression results for Subsidies Spending

	(1)Controls and Fixed Effects (T)	**(2)Controls and Fixed Effects (S)**	**(3) Left**	**(4) Right**
TotalNat	-.073874		-.0297252	-.1840756
	.0429384		.0721474	.2804326
Oil Rents		-.1442144***	-.1482588	-.2388141
		.0485424	.0843172	.4711093
Gas Rents		.083701	-.0266059	-.114901
		.1473853	.1056496	2.335637
Coal Rents		-1.170147**	1.246167	-1.764473

		.55052	.7540127	1.720158
Mineral Rents		.2782555	.7018865	-.6302273
		.2351126	.3815159	.7162119
Forest Rents		-.2753378	-.2450857	-.2694002
		.1805675	.1575416	.3506755
Inflation	-.0005386	-.0004576	.000113	.0163781
	.0003812	.0004204	.0002733	.0133713
GDP pc	.0005726***	.0004549***	.0005288***	.0002587
	.0000738	.0000682	.0001111	.0001472
GDP g	.0228279	.056001	.0154382	-.0647103
	.0415233	.0490843	.0678785	.1320542*
Total p	-.0297159	-.040097	-.0492581	-.097324*
	.0201398	.0228277	.033937	.0391764
Population g	.1700691	.387458	1.002935	2.108261
	.4825411	.5051933	1.723962	2.518887
Institution	-.1400989	-.2075106	-.4755467	-.5821662
	.1569218	.1760551	.2865053	.4647157
cons TotalNat	2.142022		45.82975	3.47882
cons Share		-1.130414	1.95385	2.789647
Observations	4,436	4,436	1,217	836
R squared Shares		0.5971	0.7044	0.6858
R squared – TotalNat	0.5850		0.7009	0.6825

Table 6 – Regression results for Military Spending

	(1)Controls and Fixed Effects (T)	(2)Controls and Fixed Effects (S)	(3) Left	(4) Right
TotalNat	-.0013584		.0081332	-.0042174
	.0110681		.0211285	.0237743
Oil Rents		.0042408	.0161829	.0264181
		.0121345	.0337326	.0209851
Gas Rents		-.0365416***	-.048623***	.1677065***
		.0103136	.0092819	.0626999
Coal Rents		-.0061696	-.1553644	.069139
		.0376132	.0905601	.1381805
Mineral Rents		-.0099513	.0827368	-.0521772
		.0231214	.068836	.0410598
Forest Rents		.0153484	.0186202	-.0112847
		.0198028	.0449107	.0373559
Inflation	-.0000609	-.0000657	-.0001065	.000836
	.0000377	.0000358	.0000669	.0008391
GDP pc	-.0000145*	-.0000143*	-.0000119	-5.02e-06
	6.74e-06	6.74e-06	7.41e-06	4.91e-06
GDP g	-.0145836	-.0148814	-.0317867	-.013802
	.0092496	.0092584	.0221418	.0079618
Total p	.0019615	.0021624	.0009093	.0049488
	.0025557	.0025483	.0062532	.0044057
Population g	.0361879	.0320086	-.4217309	-.2031935
	.1022758	.1008932	.2921843	.2012536

Institution	-.01749	-.0178604	-.0508374	-.0068506
	.0174332	.0173841	.0345764	.0461508
cons TotalNat	1.837485		2.430176	6.651694
cons Share		2.216084	-.9673262	7.086961
Observations	4,436	4,436	1,217	836
R squared Shares		0.5971	0.5800	0.8227
R squared Totalnat	0.6448		0.5754	0.8204

Table 7 – Regression results for Education Spending and interaction with elections

	(1) **All countries**	**(2)** **All countries**	**(3)** **Left**	**(4)** **Right**
Totalnat x elections	-.0442632**		-.0837747	.0425086
	.0177941		.0461082	.0981163
Totalnat	-.0093184		-.0119636	-.0468718
	.0059193		.0090577	.0354404
Oil x election		-.0512729***	.0471006	-.0396099
		.0185546	.0641735	.1722596
Oil		-.0108417	-.0345438**	-.0295257
		.007286	.0136715	.0444762
Gas x election		-.1235281	-2.289212***	.5451775
		.393432	.420042	.4236649
Gas		-.0075764	-.0065924	.0017774
		.0117282	.0120644	.2474587
Coal x election		.7031486	.4762754	.119651

		.5792781	.3240555	.6801953
Coal		-.1181359**	-.0517963	-.433878
		.0509301	.1283019	.4624387
Mineral x election		-.1063397	.0139586	-1.733333**
		.1557759	.1178472	.8636358
Minerals		.0448754	-.039642	.0447991
		.0348118	.046283	.0833009
Forest x election		-.0093998	.1127359	-.0434735
		.0666824	.4826366	.0525551
Forest		-.0411194**	-.0829418	-.0434735
		.0190767	.0468375	.0525551
Elections TotNat	.1590048		.3276758	.3276758
	.007286		.4507217	.4507217
Elections Shares		.1484964	.9267811	.5605092
		.2924264	.6195552	.5737176
cons TotalNat	-2.194612		3.92708	3.229151
cons Share		-.4589511	.5235829	1.391147
Observations	4,436	4,436	1,217	836
R squared Shares		0.3926	0.5082	0.5243
R squared Totalnat	0.3894		0.4865	0.5131

Table 8 – Regression results for Subsidies Spending and interactions with elections

	(1)	**(2)**	**(3)**	**(4)**
	All countries	**All countries**	**Left**	**Right**

Totalnat x elections	.4303514		.4141038	-1.023459
	.6692936		.6785984	1.040526
Totalnat	-.0683718		-.0329462	-.1723412
	.0423643		.0722621	.2730681
Oil x election		-.5329817**	-.9408436	.1720848
		.2662472	.5141568	2.123623
Oil		-.0108417	-.1350613	-.248126
		.007286	.0811182	.4737426
Gas x election		2.380052	3.941608	-.0006832
		2.306383	3.822764	4.684364
Gas		-.0075764	-.0278297	-.1867156
		.0117282	.1047942	2.369567
Coal x election		.8471714	-2.599226	-1.59285
		3.536468	3.238066	8.510961
Coal		-.1181359**	1.236588	-1.559042
		.0509301	.7397713	1.723207
Mineral x election		3.00836	5.461618***	-15.32195
		1.653938	.8323372	8.185487
Minerals		.0448754	.7329479	-.5966057
		.0348118	.3874358	.7034247
Forest x election		-1.483559***	-2.336573	-2.094627**
		.3859377	3.246922	.8763124
Forest		-.0411194**	-.2506792	-.2416436
		.0190767	.1573753	.3356917

Elections TotalNat	7.481701***		.711048	5.180947
	1.985738		3.827967	3.518319
Elections Shares		5.979257**	.8247973	8.254154**
		2.623257	5.410489	3.873498
cons TotalNat	-17.57549		14.66776	31.47605
cons Share		-10.07388	19.11959	36.03794
Observations	4,436	4,436	1,217	836
R squared Shares		0.5919	0.7079	0.6887
R squared Totalnat	0.5874		0.6939	0.6711

Table 9 – Regression results for Military Spending and interaction with elections

	(1) **All countries**	**(2)** **All countries**	**(3)** **Left**	**(4)** **Right**
Totalnat x elections	.0197473		.0331734	.1290063
	.0195		.0317691	.0666532
Totalnat	-.0017139		.0078179	-.0053811
	.0110612		.0212478	.0242684
Oil x election		.0374531***	.0306226	.1962662**
		.0131984	.0450966	.0980813
Oil		.0034144	.0158801	.0249036
		.0121072	.0339741	.0207618
Gas x election		-.0362894***	.0955376	-.1728183
		.0101279	.1132552	.2113013

Gas		-.0493439***	-.0487252***	.1692583***
		.0101279	.0092091	.0612796
Coal x election		.0660343	-.3354539	.4221848
		.293748	.2493603	.2606465
Coal		-.0071111	-.1548974	.0450743
		.0375893	.0903033	.1399682
Mineral x election		.0354873	.0748291	.4778445
		.1210796	.0489737	.4697521
Minerals		-.0098037	.0826617	-.051727
		.0232468	.0689232	.041044
Forest x election		.0147929	.0165774	.1123706
		.0197808	.091258	.0701881
Forest		.0147929	.0185616	-.0128448
		.0197808	.0450823	.0380069
Election TotalNat	-.383439***		-.1353697	-.4972256**
	.1459982		.1759791	.2048617
Election Shares		-.4908767***	-.0750336	-.6570683**
		.1815581	.251581	.2827674
cons TotalNat	1.868398		1.649887	5.549218
cons Share		.9289738	1.649887	5.549218
Observations	4,436	4,436	1,217	836
R squared Shares		0.6487	0.5803	0.8237
R squared Totalnat	0.6648	0.4414	0.5019	0.8216

Table 10 – Regression results for Education Spending and interaction with political ideology

	(1) All countries	(2) All countries
Totalnat x left	.012032	
	.011022	
Totalnat	-.019893***	
	.008129	
Oil x left		-.0140649
		.0108999
Oil		-.0149437**
		.006815
Gas x left		-.0658334
		.1597231
Gas		.055444
		.1603502
Coal x left		.1981103
		.1626416
Coal		-.1785028
		.0932921
Mineral x left		-.0685115
		.0667315
Minerals		.0670091
		.0597884

Forest x left		-.0035139
		.043378
Forest		-.0447866**
		.0212472
left	.1093519	.1636699
	.1823694	.1944818
cons	0.3789	0.3591
Observations	3,846	3,846
R squared	0.3805	0.3836

Table 11 – Regression results for Subsidies Spending and interaction with political ideology

	(1) **All countries**	**(2)** **All countries**
Totalnat x left	.0769533	
	.104488	
Totalnat	-.0901633	
	.0747033	
Oil x left		-.0043097
		.1109466
Oil		-.1484252**
		.0580745
Gas x left		-1.70362
		1.223011

Gas		1.700807
		1.255771
Coal x left		3.76009**
		1.577788
Coal		-1.75948***
		.4428282
Mineral x left		.1135497
		.5287161
Minerals		.3463847
		.3164237
Forest x left		.3162447
		.2457378
Forest		-.3425765
		.2155245
left	.4199165	-1.093463
	1.430637	1.346427
cons	0.5906	0.5630
Observations	3,846	3,846
R squared	0.5946	0.6007

Table 12 – Regression results for Military Spending

and interaction with political ideology

	(1) **All countries**	**(2)** **All countries**
Totalnat x left	-.0044644	

	.0211214	
Totalnat	.0052098	
	.0176427	
Oil x left		-.0032983
		.0255781
Oil		.0146978
		.0167851
Gas x left		-.1093153
		.1508961
Gas		.0770928
		.1494204
Coal x left		-.2837243***
		.0544527
Coal		.0199012
		.0318896
Mineral x left		.048419
		.0660533
Minerals		-.0152228
		.0262332
Forest x left		-.0086643
		.0354216
Forest		.009744
		.0245546
left	-.1567819	-.1094825

	.1392462	.1294246
cons	0.6812	0.4215
Observations	3,846	3,846
R squared	0.6674	0.6687

Table 13 – Regression results for Education Spending and interaction with institutional quality

	(1) **All countries**	**(2)** **All countries**
Totalnat x Institution	.0006605	
	.0016451	
Oil x Institution		-.0000607
		.001535
Gas x Institution		.0056129
		.0253389
Coal x Institution		.0170872
		.0380777
Mineral x Institution		-.0054378
		.0062133
Forest x Insitution		.0008953
		.0033124
Institution	.0214627	.0216278
	.019646	.0203352

cons	-1.127866	-1.160882
Observations	6,569	6,569
R squared	0.3594	0.3631

Table 14 – Regression results for Subsidies Spending and interaction with institutional quality

	(1) **All countries**	**(2)** **All countries**
Totalnat x Institution	-.0245103	
	.0141126	
Oil x Institution		-.0079828
		.0135652
Gas x Institution		.0916104
		.1418211
Coal x Institution		.1106238
		.3328639
Mineral x Institution		-.0054629
		.0551826
Forest x Insitution		-.1143043***
		.0366595
Institution	-.0199957	.1165977
	.1754003	.1916542
cons	-18.78246	-21.17351

Observations	6,569	6,569
R squared	0.5645	0.5709

Table 15 – Regression results for Military Spending

and interaction with institutional quality

	(1) **All countries**	**(2)** **All countries**
Totalnat x Institution	-.00232	
	.0027375	
Oil x Institution		-.0006535
		.0020044
Gas x Institution		.0045079
		.0127485
Coal x Institution		-.0187238
		.0293427
Mineral x Institution		-.0016885
		.0066549
Forest x Insitution		-.0052709
		.0052986
Institution	.0214627	-.0228462
	.019646	.0202195
cons	1.257192	1.156676
Observations	6,569	6,569

R squared	0.4210	0.4234

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