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The resource curse mirage: the blessing of resources and curse of empire?

Ricardo Restrepo Echavarría; Carlos Vazquez; Karen Garzón Sherdek
[Universidad Nacional de Educación (UNAE) and Instituto de Altos Estudios Nacionales (IAEN); Instituto de Altos Estudios Nacionales (IAEN); Instituto de Altos Estudios Nacionales (IAEN)]

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Abstract
Auty (1993) and Sachs and Warner (1997) reignited the line of argument of *the resource curse*: the idea that natural resource wealth has negative net effects on the development of nations. However, the result has been found to be highly dependent on the types of variables used to represent natural resource wealth (Brunnschweiler, 2007) and similar questions can raised about variables used to represent being "cursed". In this paper we pursue the hunt for better variables by looking at the relationship between average income from natural resources per person and a wide array of key development indicators: Adjusted National Net Income, GDP per capita, an aggregate of services and industrialized goods, inequality measured by the Gini index, Poverty, the Human Development Index, the Prosperity Index, the Social Progress Index and the Fragile State Index. We do this on a global scale between 1970 and 2010. On the contrary, we find that natural resource wealth is positively linked to development. We suggest, alternatively, that much of the actual cases where abundant natural resources hurt nations have been cases of common theft by tyrants, often backed by imperial powers.

Key words resource curse, political economy, human rights, development, empire

1. Introduction

The history of colonial and imperial rule is significantly constituted by violent natural resource wealth transfers from peripheral developing nations to central imperial states, which today hold most of the world's wealth. This is a theme in the making of the modern world that gets invigorated with the European expansion over the Americas, and takes a macroscopic mutation in the making of the new world order at the dawn of the post War world, under the auspices of the new world political, economic and military institutions. Moderate National Security Council member and Director of Foreign Policy Planning at the US State Department, George Kennan, laid out the purposes for which international institutions he contributed to forming would function in his 1948 PPS23 Memo: "we have about 50% of the world's wealth but only 6.3% of its population... Our real task in the coming period is to devise a pattern of relationships which will permit us to maintain this position of disparity without positive detriment to our national security. To do so… our attention will have to be concentrated everywhere on our immediate national objectives. We need not deceive ourselves that we can afford today the luxury of altruism and world-benefaction" (Kennan, 1948, p. 524). "The protection of our raw materials" in the rest of the world, particularly in Latin America, would trump concern over "police repression" (Kennan, 1950). Moreover, the need to eradicate "the widespread idea that government has direct responsibility for the welfare of the people" (LaFeber, 1993, pp. 97-98) would trump the political goals of development for all.

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Auty (1993) and Sachs and Warner (1997) argued, with much resonance in the academic and policy-making circles, that in fact such natural resources were a developmental curse since their analysis of economic growth in the past few decades signalled that natural resource endowments contributed to less growth. It turns out on this account, that the designs of the world order designed to benefit the existing inequality between the 'developed' and 'not developed' might have been doing the developing nations a favor. This, because since natural resources are a hindrance to development, they would best be kept under someone else's possession. Moreover, possession of underdeveloped nations' resources burdened developed nations' own development until they finally "freed [themselves] from the shackles that have been associated with resources" (Duruigbo, 2005, p. 12). Or so the resource curse thesis would imply.

However, the resource curse result has been found to be highly dependent on the types of variables used to represent natural resource wealth and being cursed. For instance, Sachs and Warner (1997) used percentage of natural resource of exports as the representative variable of natural wealth. Brunnschweiler (2008) argues that this can at most show overspecialization and dependence, and that if natural resource abundance was represented better, in her study, by the World Bank's measure of natural capital, the supposed curse effect disappears and becomes a blessing. Brunnschweiler and Bulte (2008: 617) nevertheless point out that "the hunt for the perfect resource variable is on". Here we would like to make a contribution to this hunt, as well as the hunt for the more perfect curse variables, looking at the relationship between average income from natural resources per person and a wide array of key development indicators. Our study adds a strong confirmation (Wright and Czelusta, 2004; Sinnott, Nash and de la Torre, 2010) to the idea that the net statistical causal impact of natural resource abundance is far from being a curse for development, and to the contrary it is in fact a blessing. We explore the alternative hypothesis that the appearance of a resource curse is rather theft on a global scale, backed by empire.

2. The natural resource curse theory

Various explanations have been posited to account for the resource curse phenomenon, including the idea that "men of a fat and fertile soil, are most commonly effeminate and cowards; whereas contrariwise a barren country makes men temperate by necessity, and by consequence careful, vigilant, and industrious" (Bodin, 1967), the worsening of terms of trade for natural resources versus industrialized goods (Prebisch, 1950, p. 9-11), the making of domestic industrial production more expensive by the appreciation of the national currency (Rajan, 2011; Palma, 2005; Bresser-Pereira and Gala, 2010), absorption of capital and human capacities with weak links to other sectors of the economy (Rajan, 2011; van Wijnbergen, 1984; van der Ploeg, 2011), and deterioration of institutions (Murshed, Badiuzzaman, and Pulok, 2015, p. 23). Our project here is not to find the explanation for the resource curse, but to make a contribution in finding appropriate ways of empirically verifying the resource hypothesis and argue that according to those appropriate standards, there is no curse. Here are some reference point formulations of the resource curse theory.

> "There is a curious phenomenon that social scientists call the 'resource curse' (Auty, 1993). Countries with large endowments of natural resources, such as oil and gas, often perform worse in terms of economic development and good governance than do countries with fewer resources. Paradoxically,

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despite the prospects of wealth and opportunity that accompany the discovery and extraction of oil and other natural resources, such endowments all too often impede rather than further balanced and sustainable development" (Humphreys, Sachs and Stiglitz, 2007, p. 1).

"Although leaving oil in the ground means that interest is forgone, the ground just might be the safest place for the asset, especially if there exists the risk that governments may use revenue for their purposes rather than for the good of society, as has happened so often already. In such cases, the people may benefit some, but clearly not as much as if the money were spent in ways that were directly intended to enhance their well-being" (Humphreys, Sachs and Stiglitz, 2007, p. 14).

"There is now strong evidence that states with abundant resource wealth perform less well than their resource-poor counterparts" (Ross, 1999, p. 297).

"Resource-rich countries, almost without exception, are riddled with multifarious and nefarious social, economic, and political problems" (Duruigbo, 2005, p. 2).

"Countries that have deposits of natural resources in abundant quantities have exhibited a gnawing tendency to perform worse than those not similarly endowed on virtually every social and economic indicator" (Gelb and Associates, 1988, pp. 32-45 cited in Duruigbo, 2005, p. 5).

"Lack of resources has not hindered resource-poor countries from rising to enviable heights in the arenas of economic growth and social development. It can actually be argued that not having resources freed these countries from the shackles that have been associated with resources. Unencumbered by resource wealth, and propelled by the circumstances in which they found themselves, they have been able to make their way toward rapid growth" (Duruigbo, 2005, p. 12).

"The concern that natural resource wealth may somehow be immiserating is a recurring theme in both policy discussions and in empirical analysis. The empirical regularity seems to be in the data but understanding its causes has been a much harder task" (Hausmann and Rigobon, 2002, p. 3).

Thus, we can conclude some common themes sustained by the theory of the resource curse: the resource curse is a hypothesis susceptible to empirical verification; the empirical observations support the existence of a positive relation between natural resource wealth and immiseration, or equivalently, a negative relation between natural resource wealth and social, political and economic development. The question now becomes how best to measure natural resource wealth and how best to measure development. We discuss some approximations and propose to do the analysis with another set of variables.

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2.1. Natural resource wealth measures

Sachs and Warner (1997) constructed their analysis by using percentage of exports as the representation of natural resources. Yet this variable, as a natural wealth variable is not central, since the central measure of wealth is GDP per capita and as Brunnschweiler (2008, pp. 400-1) points out "one should expect any conclusion on a 'curse' of natural resource wealth or abundance to be based on the closest possible approximation of such wealth". There is also a negative aspect in using percentages of the variable of wealth instead of absolute values of wealth in the analysis, since a central part of what is desirable in this kind of research is a diagnostic of reality that helps one decipher and identify the causal structures of the perceived problem. By analogy, consider the case of a hungry population who only gets one piece of bread a day per person and nothing else. By considering the disproportionate amount of carbohydrate intake of this population, relative to total intake, the ill-advised poverty scientist may come to the conclusion of the "carbohydrate curse" when clearly ex hypothesi there is no particular problem with the carbohydrate itself. Rather, the problem is not enough food in general. Similarly, the social scientist will do well to not disregard absolute figures, rather than concentrate on purely proportionate wealth terms. Atkinson and Hamilton (2003) use a variable closer to GDP, but still vulnerable to risks brought by purely proportional terms as they use percentage of natural resources per capita. Perhaps the problem is like it is for the hungry population just mentioned: not enough resources, natural and otherwise, getting to the people in general, while there is no particular problem with natural resources themselves.

Brunnschweiler's proposal of using the relatively recently made available World Bank measure of natural capital is a step in the right direction. As stated before, using this measure does not yield a curse result. However, from a political economy point of view, one wants to know whether natural resources are causing poor performance with respect to development. Operationally, whether deriving income from natural resources when one has them is better for development or not. In this regard and taking into account our observations about percentage and absolute measures, looking at natural resource income is more optimally telling. Further, one should consider any kind of wealth in per capita terms, for obviously whether a nation with a given amount of resources will count as wealthy or not will depend on how many people would have to make ends meet with those resources.

Interestingly, the World Bank supplies percentage of natural resource rents in GDP[1] but does not supply an absolute measure of natural resource income. Thus, we used the World Bank GDP per capita and GDP percentage of natural resources in the world to obtain the desired measure of average absolute yearly natural resource income per person from 1970 to 2010, for all 183 nations for which such information could be derived. We used this measure to compute the 40 year average rather than aggregates in order to mitigate potential effects of small differences in years for which such information is variably registered.

2.2. Curse measures

Just as there are different alternative indicators for representing natural resource abundance, there are various alternatives for representing the curse variable. We believe that when evaluating the resource curse hypothesis it is best to take a multi-dimensional approach that

[1] By the definition of the World Bank, this considers the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.

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can more accurately take into to account fundamental aspects of development that people care about and for which there is not a unique single indicator. Indeed, the resource curse thesis has been used in a variety of ways to suggest a negative relation not only between natural resource abundance and economic growth, but also, with a variety of development indicators such as democracy, industrialization, and others. We propose to examine the individual relation that may exist between natural resource abundance and current state of national development, using a wide variety of indicators: Adjusted National Net Income[2], GDP per capita, an aggregate of services and industrialized goods, inequality measured by the Gini index, Poverty, the Human Development Index, the Prosperity Index, the Social Progress Index and the Fragile State Index.[3] Data for the first five of these indicators is from the World Bank. GDP per capita is basic in telling us whether natural resource income paradoxically has a negative effect on total GDP per capita. Measuring an aggregate of Services and Manufacturing,[4] by the World Bank's measure, is important for knowing whether natural

[2] Adjusted net national income is GNI minus consumption of fixed capital and natural resources depletion.

[3] We believe that if natural resource abundance has a negative effect on democracy, then it would be a curse. Indeed, an instance of this has been argued by Ross (2001). However, the data available used to derive the conclusion is of such bad quality at the present time, that it is best to remain scientifically agnostic about the issue until better quality measurements of cross national democracy indices become available. To illustrate our worries, consider the two most referenced democracy data sets: coming from the Polity project, used by Ross, and Freedom House. The Polity project, according to its website, is funded by the CIA through the Political Instability Task Force, and Freedom House is funded by various other instruments of US foreign policy (USAID, NED and the US State Department), which according to Iran-contra documents has been used as a propaganda instrument by the "late CIA director William Casey and a veteran of the CIA's clandestine overseas media operations, Walter Raymond, Jr.," (Parry and Kornbluh, 1988, p. 4) to support Reagan's Contras by denouncing the Sandinistas who rebelled against the US supported Somoza dictatorship (Parry and Kornbluh, 1988, p. 14). Respectively, these sources rank the United States as 100% democratic and a perfect score 'Full Democracy', including considerations of rights and rule of law, even when political and economic elites take the country to a war of aggression, with massive murder, based on deceiving the population as well as Congress (Bugliosi 2008), current studies show policy systematically represents the interests of economic elites over those of the majority (Gilens and Page, 2013, pp. 564-577), and bankers get rewarded for wrecking the economy and millions of lives through massive illegal actions, instead of going to jail (Greenwald, 2011; Ferguson, 2012; Chittum, 2014). In the time of slavery, the US ranks 9 out of 10 and during Jim Crow 10 out of 10. According to Polity, Colombia's democratic index does not go down when virtually the whole of the top and midlevel politicians of a mass-based political party, the Patriotic Union, were assassinated when entering the 1990s (Interamerican Comission on Human Rights of the Organization of American States, 1993, p. 1), while according to Freedom House it goes down only slightly. The democratic level of Ecuador ranks below Colombia according to both, even though reporters, trade unionists and political leaders, who communicate and compete for power are regularly assassinated in Colombia but not in Ecuador (see the murder of reporters figures by the Committee to Protect Journalists, the International Trade Union Confederation reports for union murders, and Green, 2015 for political murder in the region). Ecuador, unlike Colombia, has not been experiencing 60 or more years of bloody political conflict and civil war, displacing six million citizens from their families, lands and rights (above displacement in Iraq, and now only below Syria) and right wing death squads did not take over large portions of the state, including the military, the executive and legislative branches (Wilkinson, 2011; López, Ávila and Corporación Nuevo Arco Iris, 2010). An index that makes these elementary mistakes indicates its unreliability. While we await a better measure of democracy to incorporate into the factors that determine the degree to which a country has politically desirable development or is cursed, we believe the factors we consider in this work, albeit imperfectly, to measure the degree of "cursedness" or "blessedness" get us ahead in evaluating the resource curse thesis. We hope these issues do not curse the Prosperity and Social Progress indexes as well, given that they also take into account often mismeasured political components. This hope is not too unreasonable because they are only a part of the composition of these indexes.

[4] We derive a Manufacturing and Services per capita aggregate from the World Bank Manufacturing Value Added (% of GDP), Service Production Value Added (% of GDP) and GDP per capita. Manufacturing referring to industries belonging to ISIC divisions 15-37. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by International Standard Industrial Classification (ISIC), revision 3.

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resource income is a curse for the participation of more knowledge intensive sectors. Looking at the relation between natural resource wealth and what the World Bank Gini index reveals, takes a central measure of whether natural resource income is a curse for socioeconomic equality and the democratization of economic relations. Exploring the relationship between natural resource wealth and poverty, from the World Bank database, takes a central measure of whether natural resource abundance is a curse for the ideal of having at least a minimal survival level income for all that can lift people out of dire necessity. Observing the relation with the human development index, from the UN database, tells us about whether natural resource wealth is a curse for universal access to minimal income, life expectancy and educational opportunities.

The Prosperity Index is an annual ranking, created by the Legatum Institute that takes into account 89 sub-indexes in eight areas: economy, entrepreneurship and opportunity, governance, education, health, safety and security, personal freedom and social capital. This Index covers 142 countries in the world, accounting for 96 per cent of the world's population and 99 per cent of global GDP (Legatum Prosperity Index, 2015).

The Social Progress Index aims to measure societies' capacity to satisfy basic human needs that allow citizens and communities to improve and maintain their quality of life, and create optimal conditions for people to reach their potential. The model considers three diverse dimensions: basic human needs (nutrition and basic health care, water and sanitation, housing and personal security), foundations of wellbeing (access to basic knowledge, access to information and communications, health & wellness and ecosystem sustainability), and opportunities (personal rights, personal freedom and election, tolerance and inclusion, and access to higher education). The index includes 52 countries' indicators (Social Progress Imperative, 2015).

The Fragile State Index focuses on the indicators of risk and is based on thousands of articles and reports that are processed by the Conflict Assessment Software Tool from electronically available sources. It reflects political risks through indicating the pressures that states have and recognizing when those pressures are pushing a state to the border of a failure (Fund for Peace, 2015).

For the development indicators we took an average for the last three years for which there is data. The reason for just taking into account these recent years is because this is the end result measure of development against which we judge whether natural resource wealth results in a curse or not.

For VAB countries, gross value added at factor cost is used as the denominator. Together with Services, which correspond to ISIC divisions 50-99, they include value added in wholesale and retail trade (including hotels and restaurants), transport, and government, financial, professional, and personal services such as education, healthcare, and real estate services. Also included are imputed bank service charges, import duties, and any statistical discrepancies noted by national compilers as well as discrepancies arising from rescaling. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The industrial origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3. Note: For VAB countries, gross value added at factor cost is used as the denominator (World Bank, 2015).

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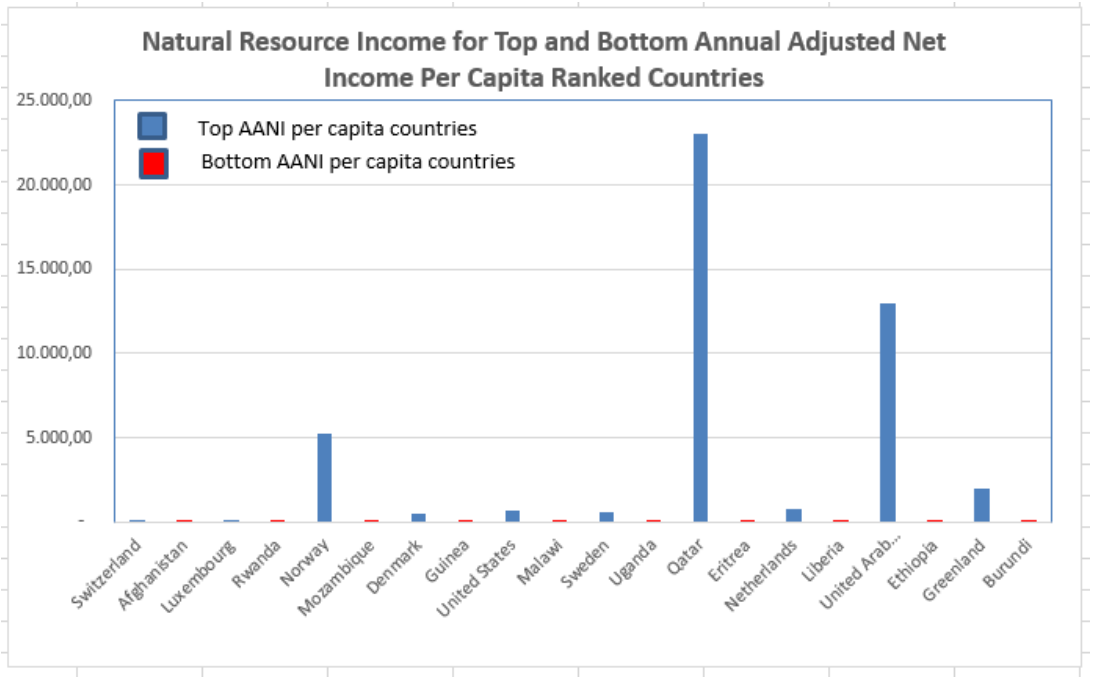
3. Two sets of results that natural wealth is a developmental blessing

In this section, using the above variable definitions, we first perform a preliminary test on all the variables comparing the ten most developed countries with the bottom developed countries with respect to their amount of natural resource income per capita. Next, we perform linear and logarithmic econometric tests on the relation between these variables for all countries for which there is data. We find no support for the resource curse thesis, but we do find support for the idea that natural resources are a blessing for development.

3.1. Natural resource wealth comparison for top and bottom developed countries

Having constructed the variables against which the resource curse hypothesis can be tested, one can affirm that we should expect that if the resource curse thesis is true, then the most developed countries should not have received a disproportionately higher natural resource income per person than the least developed. However, the data contradicts these test implications of the resource curse theory, since on the contrary, they indicate a curse of lack of natural resources. Let us look at these results one by one.

Graph 1



It can be observed in the graph that the top ten developed countries as measured by Annual Adjusted Net Income per person received much more income per person than the least developed. On average, the most developed countries received 4,569.11 USD per person from natural resources a year, while the least developed countries received $35.93. Developed countries received a full 126 times more income than the least developed nations from natural resources.

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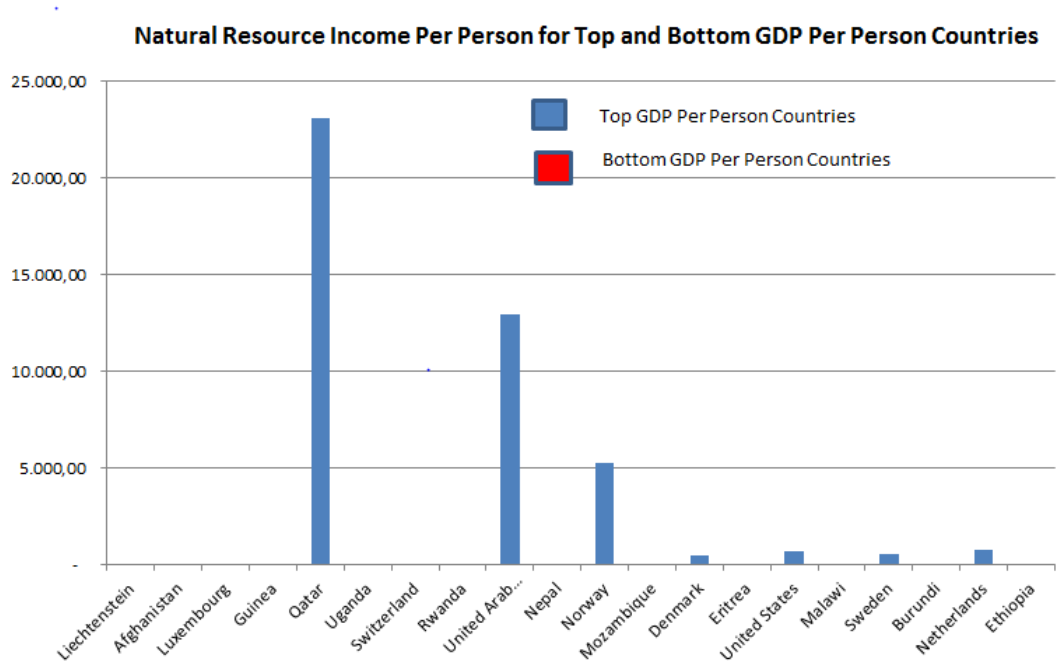
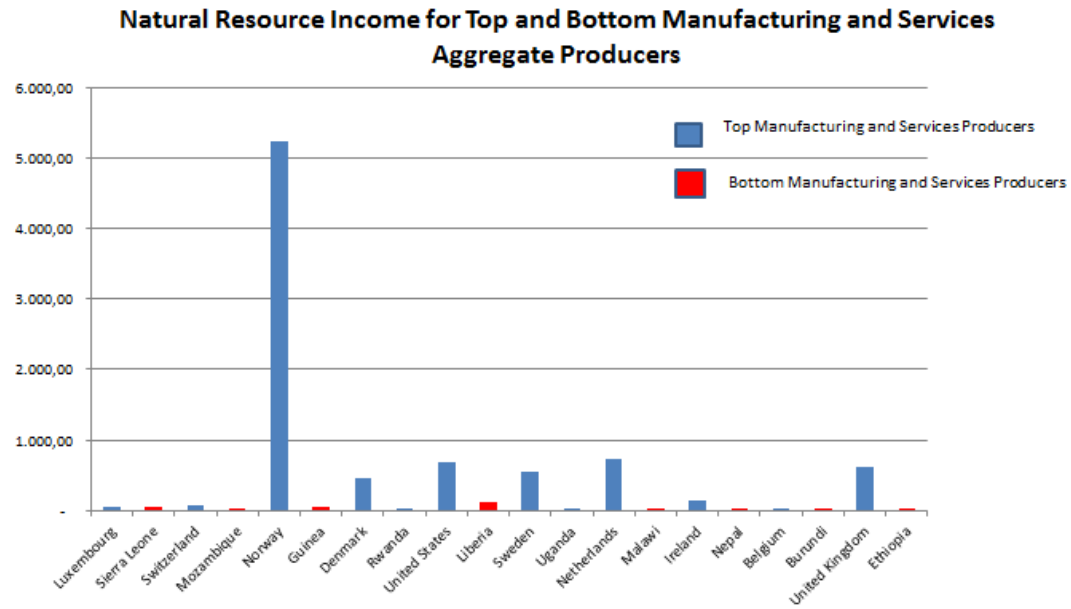
Graph 2



It can be observed in the graph that the top ten developed countries as measured by GDP per person received much more income per person than the least developed. On average, the most developed countries received 4,378.33 USD per person from natural resources a year, while the least developed countries received $26.84. Developed countries received 16,212% more income than the least developed nations from natural resources.

Graph 3



It can be observed that the top manufacturing and services producing countries also received much more natural resource income per person than the least developed. The most

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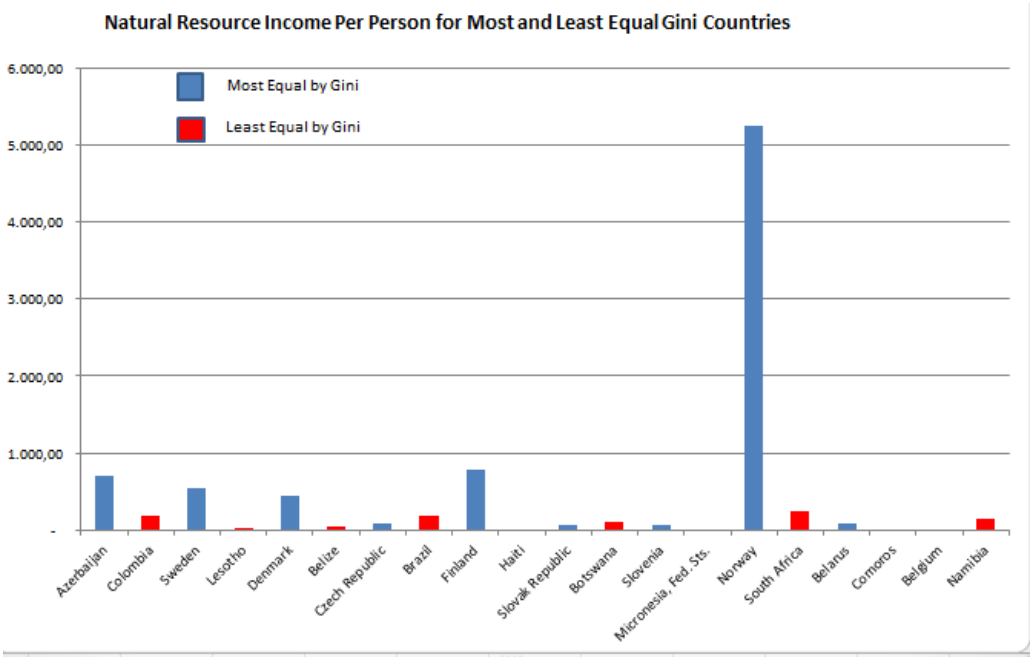
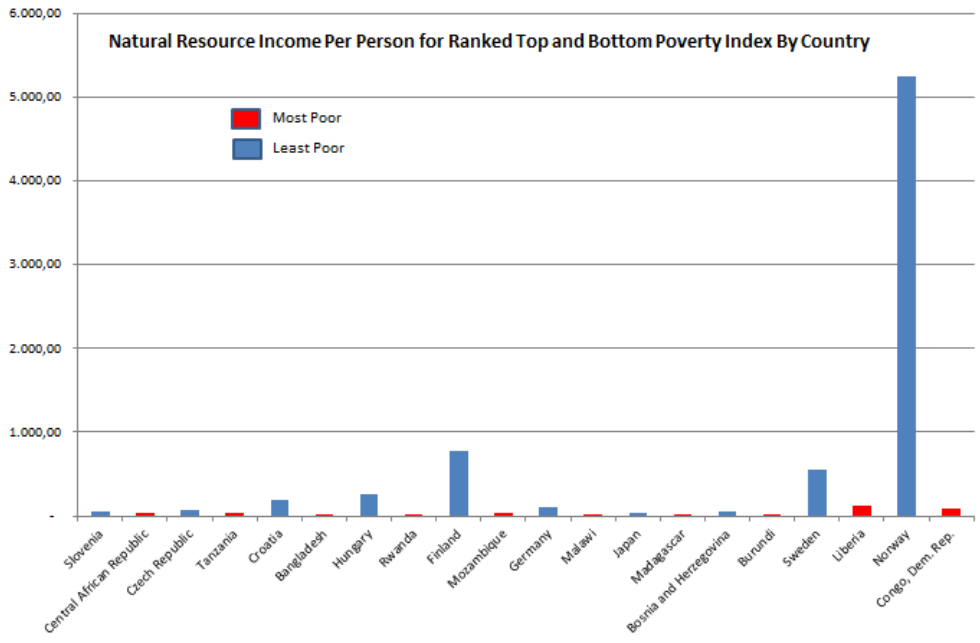
developed countries received an average of $851.49 per person per year from natural resources, while the people of the least developed countries received $39.51, equivalent to only 4.6% what the top developed countries received from natural resources.

Graph 4



Here it can also be observed that the most developed countries as measured by the Gini Index have received notably higher natural resource income per person. On average, the most equal countries received a natural resource income of $804.04, while the most unequal countries received $96.66, which is only 12% what the people of the most equal countries received.

Graph 5



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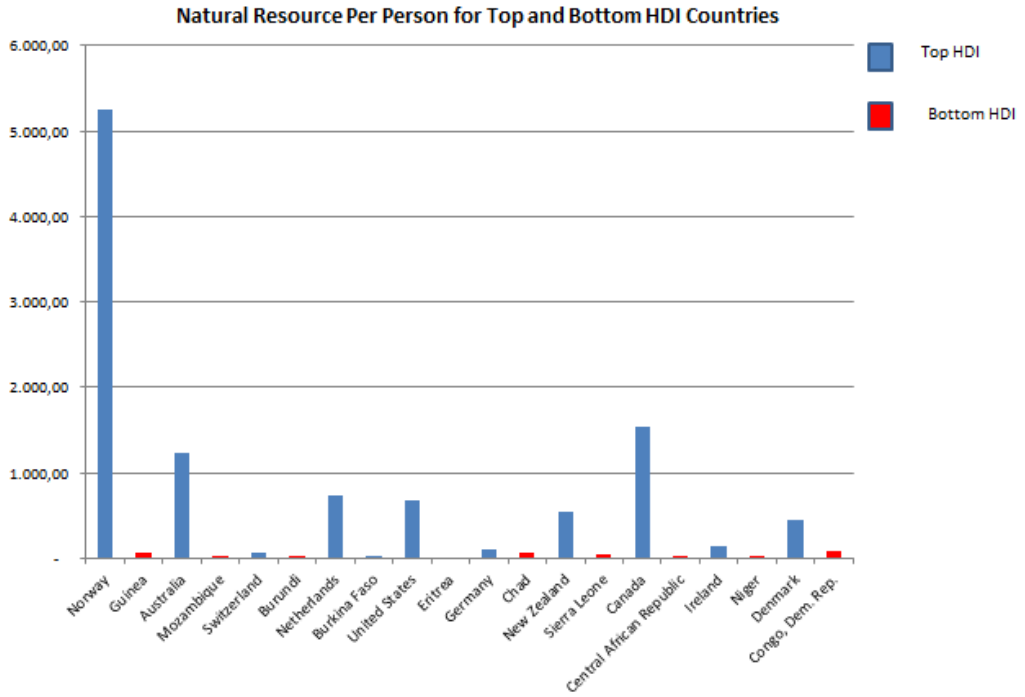
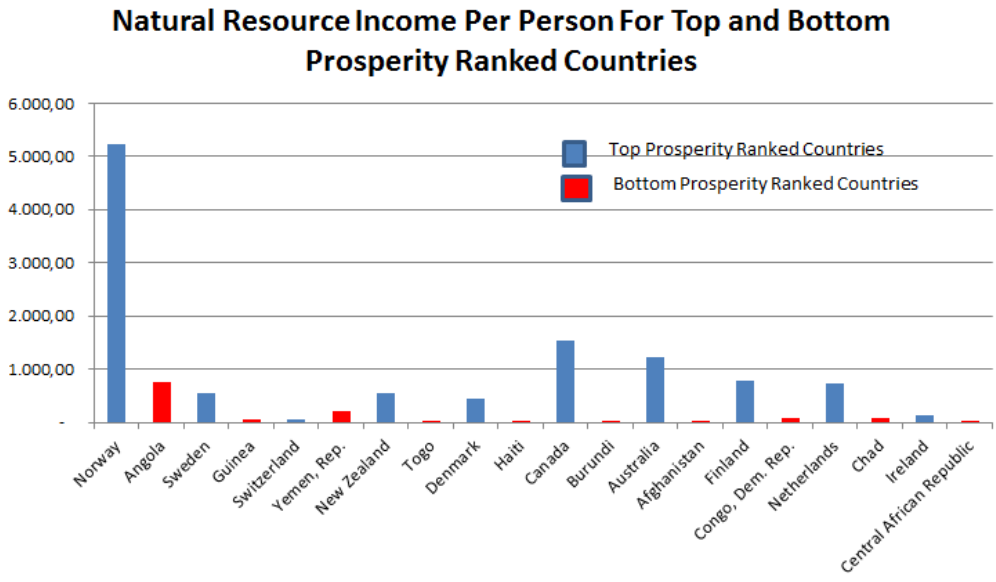
This graph also allows us to see the inequality of income from natural resources going to countries where poverty is least present and where poverty is most present. Least poor countries received $733.03 on average per year per person from natural resources, while the poorest countries received only $38.72. The richest countries received 18.9 times what the poorest countries received.

Graph 6



This graphed comparison also shows that the countries with the top human development index had significantly more natural resource income than the bottom human development countries. The top HDI countries received an average of $1,070.97 per person per year from natural resources, while the bottom HDI countries received $39.57, which is only 3.6% what the people of the developed world received from natural resources.

Graph 7



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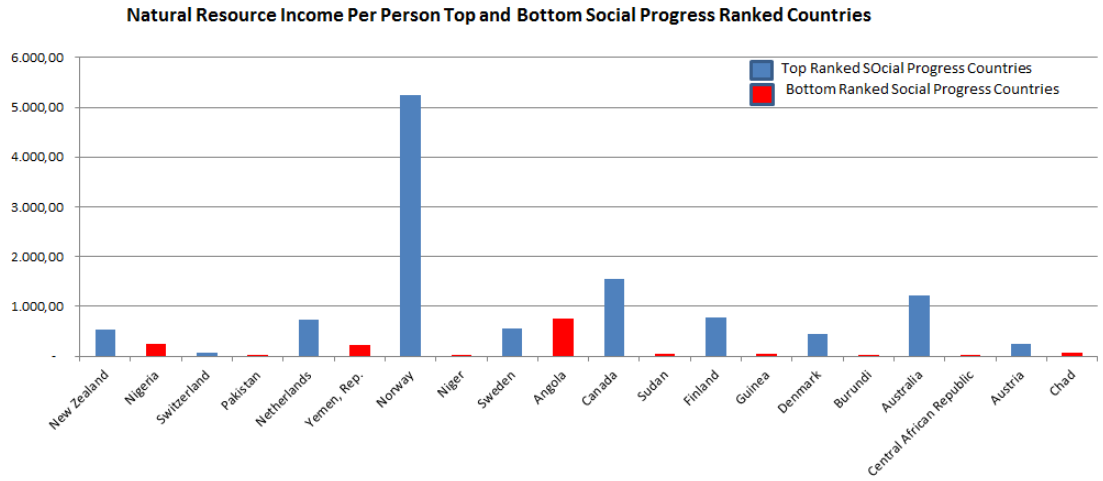
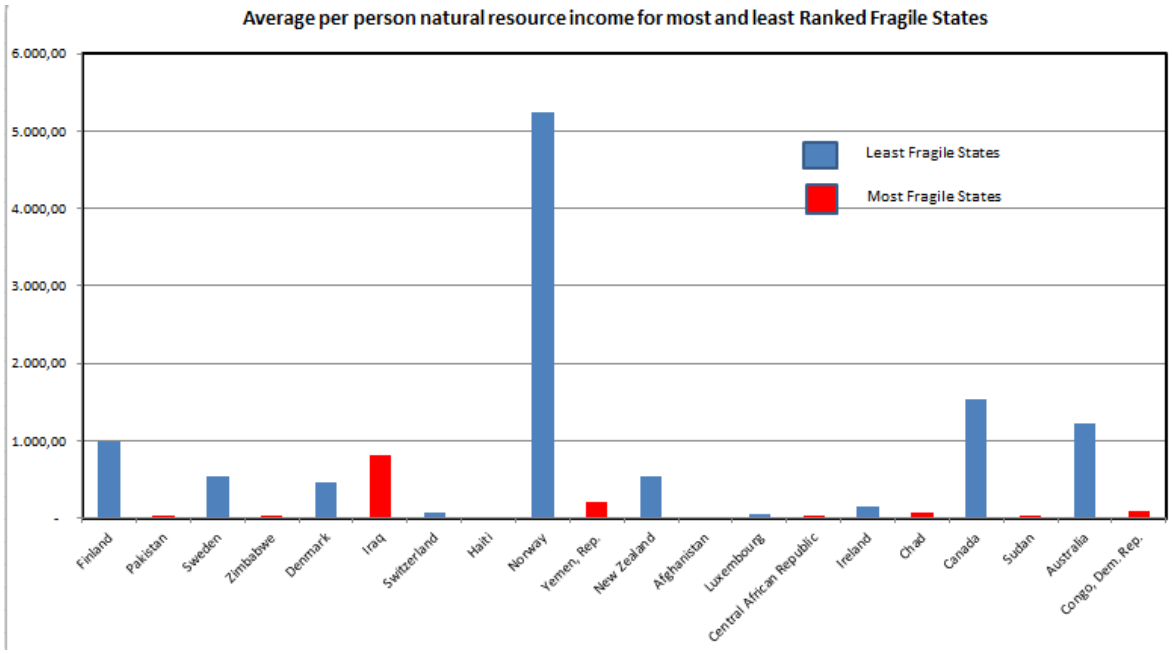
Again, we see in the graph that the most prosperously ranked countries have received much more income per person from natural resources than the least prosperously ranked countries. The most prosperously ranked countries received $1,125.43 on average per year per person, while the least prosperously ranked countries received $128.82. The most prosperous countries received 773% more income from natural resources per person than the least prosperously ranked countries.

Graph 8



In this graph we can observe that the countries with the highest indexes of social progress have notably higher income from natural resource per person. The highest ranked countries received $1,137.06 per person from natural resources per year, while the countries with the least ranked social progress received $147.15, which is only 12.9% what the most developed countries received.

Graph 9



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Here again we can observe that the least fragile indexed states received significantly more income per person from natural resources, than the most fragile states. On average, the least fragile states received $1,076.77 per person per year, which is 707.85% more than the $133.29 of income per person per year in the most fragile states.

On none of the tested development variables is there confirmation of the resource thesis. The difference is stark, but in the opposite direction. To the contrary, developmentally blessed nations used by far much more natural resources.

3.2. Econometric results

Methodology
The zero values were eliminated in the observations of the dependent and independent variables. The values of the variables were transformed to logarithms to create the logarithmic models. They were tested in 17 models with the SPSS 22.0 software: 9 linear models and 8 logarithmic models.

Y=α+βX is the lineal equation.

Ln (X) = Logarithmic values of the variables

$$Y = e^{\alpha+\beta X} = LnY = \alpha + \beta LnX$$

is the linearized logarithmic equation

Models analysis
The table below shows the results of the tests performed.

Table 1

Matrix econometric results

Model Number	Model	Coefficient	Coefficient value	se	t	sig	R	R2	Corrected R2	F	sig F	DW	N	Expected signs
1	ANNI=α+βTNR	α	5.186,86	669,12	7,75	0,00	33,4%	11,2%	10,6%	21,00	0,00	1,62	169	+
		β	1,09	0,24	4,58	0,00								+
2	LnANNI=α+βLnTNR	α	6,41	0,27	23,86	0,00	36,6%	13,4%	12,9%	25,83	0,00	1,71	169	+
		β	0,28	0,06	5,08	0,00								+
3	FSI=α+βTNR	α	70,88	1,80	39,28	0,00	15,1%	2,3%	1,7%	3,86	0,05	1,80	167	+
		β	-1,26E-03	0,00	(1,96)	0,05								-
4	LnFSI=α+βLnTNR	α	4,41	0,08	55,66	0,00	24,0%	5,8%	5,2%	10,11	0,00	1,77	167	+
		β	(0,05)	0,02	(3,18)	0,00								-
5	HDI=α+βTNR	α	67,03	1,20	55,71	0,00	22,1%	4,9%	4,3%	8,91	0,00	0,07	176	+
		β	1,31E-03	0,00	2,99	0,00								+
6	LnHDI=α+βLnTNR	α	4,01	0,05	88,01	0,00	30,8%	9,5%	9,0%	18,29	0,00	0,19	176	+
		β	0,04	0,01	4,28	0,00								+
7	GINI=α-βTNR	α	40,89	0,86	47,73	0,00	12,3%	1,5%	0,8%	2,21	0,14	0,04	146	+
		β	-1,95E-03	0,00	(1,49)	0,14								-
8	LnGINI=α+βLnTNR	α	3,76	0,06	65,94	0,00	14,3%	2,0%	1,4%	3,01	0,08	0,05	146	+
		β	(0,02)	0,01	(1,74)	0,08								-
9	GDP=α+βTNR	α	6.675,46	886,80	7,53	0,00	43,6%	19,0%	18,6%	4186,8%	0,00	1,65	180	+
		β	2,11	0,33	6,47	0,00								+
10	LnGDP=α+βLnTNR	α	6,57	0,26	25,03	0,00	38,9%	15,1%	14,7%	31,75	0,00	1,60	180	+
		β	0,31	0,05	5,63	0,00								+
11	MaS=α+βTNR	α	5.347,89	727,17	7,35	0,00	23,4%	5,5%	4,9%	9,91	0,00	1,53	173	+
		β	0,83	0,26	3,15	0,00								+
12	LnMaS=α+βLnTNR	α	6,43	0,29	21,92	0,00	28,5%	8,1%	7,6%	15,08	0,00	1,63	173	+
		β	0,23	0,06	3,88	0,00								+
13	PI=α+βTNR	α	(0,24)	0,15	-168,8%	0,09	19,3%	3,7%	3,0%	5,21	0,02	1,82	137	+
		β	1,75E-04	0,00	2,28	0,02								+
14	Poverty=α+βTNR	α	36,01	2,70	13,33	0,00	19,1%	3,7%	3,0%	5,34	0,02	1,80	142	+
		β	-4,37E-03	0,00	(2,31)	0,02								-
15	nPoverty=α+βLnTNR	α	4,25	0,44	9,70	0,00	33,1%	11,0%	10,3%	17,39	0,00	1,84	143	+
		β	(0,39)	0,09	(4,17)	0,00								-
16	SPI=α+βTNR	α	62,90	1,27	49,52	0,00	14,7%	2,2%	1,4%	2,86	0,09	1,87	131	+
		β	1,11E-03	0,00	169,0%	0,09								+
17	LnSPI=α+βLnTNR	α	3,91	0,06	65,83	0,00	31,9%	10,2%	9,5%	14,65	0,00	2,05	131	+
		β	0,05	0,01	3,83	0,00								+
					6,47	**0,02**	**43,6%**	**19,0%**	**18,6%**	**41,87**	**0,02**	**2,05**	**180**	

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The first model $ANNI = 5.186{,}86 + 1{,}09TNR$ shows positives coefficients, indicating a direct relationship between the total income of natural resources and the annual adjusted per capita net income. This shows that the tendency is opposite of what the resource curse thesis implies. The coefficients are significant because the values of student t test and the Fisher test are above the significance threshold. However, the corrected R^2 of 10.6%, means that the sample does not fit to a linear model, though this does not imply the negation of the relation between the tested variables.

In the second model $LnANNI = 6{,}41 + 0{,}28LnTNR$, the linearized logarithmic function, has a higher significance level. Its t and F values are high, and just as the previous finding, shows a direct relationship between the independent and dependent variable, which means that higher total natural resource income per capita, tends to result in higher net per capita income. Its corrected R^2 of 12.9%, although higher than that in the previous model, is not enough to say that the data corresponds to a logarithmic function.

The third model $FSI = 70{,}88 - 1{,}26E - 03TNR$, whose coefficient β range is so small that it has to be expressed in scientific notation to distinguish it from zero, shows that states become more fragile the less natural resource income people have. However, the low value obtained in its t test of the coefficient β (-1.96) implies that it must be disregarded since its level of significance does not rise above the critical threshold (2.10 in absolute terms with a confidence level of 95%).

The logarithmic form of the fourth model $LnFSI = 4{,}41 - 0{,}05\mathrm{Ln}TNR$, confirms the relation shown in the previous model that if a country has little natural resources, it becomes more fragile, which confirms the hypothesis of this research. Its test t and F are acceptable. Plus, R^2 corrected of 5.2%, does not indicate a good fit.

The fifth model $HDI = 67{,}03 + 1{,}31E - 03TNR$, indicates a direct relationship between the Human Development Index and total natural resource rents per capita. Its R indicates a positive relationship between these variables. Its t and F are significant. However, it's corrected R^2 of 4.3%, does not indicate a good linear fit.

The logarithmic form $LnHDI = 4{,}01 + 0{,}04\mathrm{Ln}TNR$, of the sixth model, confirms the expected results, that is, the higher natural resource rents, the higher its human development. Its corrected R^2 of 9.0%, although is not optimal, indicates that it is its most fitting form. Its test t and F are significant.

The models 7, 8, 13 y 16, should be discarded, since their coefficients do not pass the t student tests (2.10 in absolute terms with a confidence level of 95%).

The model 9 $GDP = 6.675{,}46 + 2{,}11TNR$, is the one that shows the best results, since its t test for the independent variable and its F obtain the highest values. Equally, a R of 43,6% indicates a strong positive correlation between total natural resource rents and GDP per capita, which verifies the thesis of this research. It also has the maximum corrected R^2 (18.6%).

Its logarithmic form $LnGDP = 6{,}57 + 0{,}31\mathrm{Ln}TNR$, confirms the expectation that higher natural resource rents per capita leads to higher GDP per capita. Its t and F tests are significant. It

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has an R of 38.9%, which implies a high positive correlation and a corrected R^2 of 14.7%, which indicates less of a fit than with the linear model.

The eleventh model $MaS = 5.347{,}89 + 0{,}81TNR$, is complex for interpretation, since even given that its test t for the explicative variable and its test F reach high values, and it has an R of 23.4% which indicates a high positive correlation between total natural resource rents per capita and the dependent variable of more value added nature, which confirms the thesis of this investigation, its R^2 (4.9%), indicates that it should not be taken as an explicative model.

Its logarithmic form in the twelfth model, even though it confirms the expected results of higher manufacturing and services per person, given higher natural resource income, and its t test and F are significant, its corrected R^2 of 7.6%, implies a low fit.

The model $Poverty = 36{,}01 - 4{,}37E - 03TNR$, which indicates a reverse relationship between poverty and total natural resource income per capita, which indicates that the higher a nation's natural resource income, the lower its levels of poverty. Its R (19.1%) indicates a low correlation between these variables. Its t test and F are barely significant, and its R^2 of 3%, does not indicate a good linear fit.

Its logarithmic form $LnPoverty = 4{,}25 - 0{,}39\mathrm{Ln}TNR$, confirms the opposite of the resource curse, that is, that higher resource rents received by the people of a nation, the lower the poverty rate. Its R (33.1%) indicates a correlation between the variables. Its corrected R^2 of 10.0%, indicates a good fit. Its t and F tests show significant results.

The model 17 $LnSPI = 3{,}91 + 0{,}05\,\mathrm{Ln}TNR$ has significant results in its t test and F, that is, the higher natural resource income per capita of a nation, the higher its social progress. Its R (31.9%) indicates a correlation between the variables. Its corrected R^2 of 9.5%, indicates that it has a good fit.

It is worth noting that the high level of difference between the α y β coefficients in the model, as well as the low values of the corrected R^2, indicate that we should not be tempted to overestimate the importance of TNR as the only explicative variable in a the complex process of development. However, given that the objectives of the present research, it can be stated that the data does not support the resource curse hypothesis, and to the contrary, natural resources are an important factor in development.

4. Natural resources, empire and the new situation

The global data on natural resources and development shown here seriously question the credibility of the resource curse hypothesis. There is nothing inevitable, natural or generally causally detected on a global scale that identifies natural resources as a general curse for development. In fact, the data compiled and analysed here rather suggests that natural resource abundance is a developmental advantage. Countries with larger natural resource income are robustly more likely to have a higher development status than countries with little natural resource income. Nevertheless, there are surely countries with large natural resource wealth whose people live in misery and where resources seem to have been turned from assets to liabilities. And equally, there are countries with very little natural resources, whose people live in abundance.

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Let's look at some poignant examples of the first type. From 1970 to 2000 the Nigerian government received 300 billion US dollars from oil sales, but people living in extreme poverty increased from 36% to almost 70%, and inequality skyrocketed as a few enriched themselves (Sala-i-Martin and Subramanian, 2003; Wenar, 2008, pp. 5-6). Another clear case is Equatorial Guinea, where strongman Theodoro Obiang has ruled by force since 1979, torturing political dissidents, promoting extrajudicial killings and has concentrated power without credible elections. In the 1990s large oil deposits were found in the Bay of Guinea and the country quickly became Africa's third largest exporter of oil. While the GDP per capita increased by 2007 even above that of the United States, two thirds of the population were malnourished and a majority live under $1 US dollar a day (Wenar, 2008, p. 6). Clearly, the small repressive elite are using the national oil revenue to enrich itself while repressing the people.

Chile is another example. Augusto Pinochet came to power in a bloody military US backed *coup d'etat* against the democratically elected government of Salvador Allende and ruled from 1973 to 1990, crushing political dissent with the murder and torture of thousands, while prioritizing military expenditures, obtained from the country's huge copper wealth (Kornbluh, 2004). Meanwhile, it took almost two decades of imposed military rule to regain Allende years per capita GDP, according to figures from the World Bank.

The case of Ecuador is one in which the CIA installed a repressive military dictatorship in 1963, a matter which the CIA's own in-house journal does not deny but rather affirms (Agee, 1975; Undisclosed, 1975). Under this umbrella, Texaco was given one third of the national territory to exploit oil in 1964. Texaco was allowed to employ sexual violence on indigenous people in the Amazon while it dumped billions of barrels of oil and waste, in substandard practices, which has caused widespread death, cancer and other diseases among the population. Some 30,000 affected people brought the court case against Texaco, now Chevron, but they are still waiting for justice (Zeitchik, 2014). Meanwhile, elites got rich and heavily indebted the country (Comisión de Auditoría Integral del Crédito Público, 2008).

Iran is another example. From 1953 to 1979, Iran was ruled by the Shah Pahlevi. The Shah came to power in a bloody US and UK backed military coup against the democratically elected government of Mohammed Mossadegh. Mossadegh's key electoral proposal was to use Iran's natural wealth for the domestic needs of development. Instead, the Sha doled out lucrative oil contracts to Anglo-Iranian Oil (40%) which was renamed British Petroleum in 1954; Royal Dutch Shell (14%); and US multinationals (40%) like Exxon, Mobil, Gulf, SoCal, and Texaco, after the coup to support corporations from the coup plotting nations. The Sha sustained himself by violent force and human rights violations, while filling the pockets of a small elite (Johnson, 2004; Bejesky, 2011; Dorman and Farhang, 1988; Epstein, 1975).

Saudi Arabia, a close US ally, is at the top of repressive governments around the world, sustained by immense oil wealth, which in turn is used to generate the violence upon which the regime is kept afloat. Lest someone mistake it, Saudi Arabia's name expresses the view that the country, which incidentally holds the second largest oil reserves in the world (US IEA, 2015), is the possession of the royal family (Kamrava, 2011, p. 67). Saudi Arabia has the world's fourth highest military expenditures (Perlo-Freeman and Solmirano, 2014) and is the second largest importer of arms (Wezeman and Wezeman, 2015). By any account, the Saudi regime is at the top of the heap in terms of repression, human rights violations, freedoms

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restrictions and suppression of women, an order enthusiastically colored by frequent public beheadings of "infidels" (Amnesty International, 2015).

Of the second type, though it is unnecessary that all wealthy countries that have little natural resource income be accounted for since they are not statistically significant, it is interesting to note the possibility that natural resources may have had a more important role in their development than would appear. Consider Switzerland: "the rise of Swiss living standards to take a top position internationally was clearly a phenomenon of the short 20th century" (Studer, 2015). In the short 20th century, particularly during the world wars, Switzerland acquired a privileged position to which gold is not alien, in this case also involving theft. Because of property claims on Swiss banks by victims of the Nazi state, the Swiss government formed the Independent Commission of Experts to investigate. About this issue of natural resources, particularly gold, which concern us, the commission concluded:

> "Precisely where the gold deliveries from the German Reichsbank are concerned, it is apparent that the stolen bullion came into the country with the knowledge of individuals at the highest level, even though it came in via a secret route…As a neutral country which had been spared the ravages of war, it certainly had a competitive advantage, even if it did not experience any significant growth during the war itself…The investment of tax money in the European reconstruction process was uncommonly profitable in that it allowed the economy to exploit its privileged position. From the end of the 1940s, as the markets of Europe began to expand again, Swiss companies were able to benefit from considerable growth opportunities aided, to some extent, by government export credits" (Independent Commission of Experts, 2002, pp. 520-1).

The developing world is the usual target of policy suggestions based on the resource curse thesis. In that context, one has to remember three further crucial things. One, most developing countries experience a colonial past, characterized by resource wealth extraction that transferred natural wealth from colonies to Europe and North America. Two, in their cradle of development, Europe and North America were highly natural resource intensive, frequently extracted from their colonies. And three, there exists the expectation that as nations get more developed, they are less natural resource intensive, as a percentage of total production. If that is so, ceteris paribus, one can expect developing nations to need to be more natural resource intensive today than their developed counterparts, even though it should be highlighted that developed nations today possess much more natural resources than their developing counterparts in absolute per capita terms.

Leif Wenar (2008) argues that in cases where there is a putative resource curse we are more likely to find the real source of the problem by looking at how correctable human practices in the global economy, particularly theft, drive unwanted development outcomes. Wenar argues that we don't need some new and novel abstract rules of fair trade that would prevent such a curse from occurring. Rather, the central problem lies in the fact that repressive regimes and international governments and corporations systematically violate the property rights of the people who own those resources. Such property rights are at the heart of trade, where instead now there is theft.

It is at the heart of international law that the people of each country own their natural resources, compatible with state and private control of resources through valid laws (Wenar,

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2008). People's ownership of natural resources is enshrined in the first articles of both the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights, which read:

1. All peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.
2. All peoples may, for their own ends, freely dispose of their natural wealth and resources...

So the resources of a country belong to the people of that country. Conceptually, this is why it would be impermissible, for instance, for Cuba to drill horizontally and extract oil from Texas. The analogous thing happens when a violent dictatorship takes and sustains power by force, preventing a people's government from power, and sells off the natural resources of the country to dominate it. It is stealing from the country and the international buyers are trafficking in stolen goods. Here is Wenar's case for the analogy, but where property rights violations are "legalized" in international exchange.

> "A group that overpowers the guards and takes control of a warehouse may be able to give some of the merchandise to others, accepting money in exchange. But the fence who pays them becomes merely the possessor, not the owner, of the loot. Contrast this with a group that overpowers an elected government and takes control of a country. Such a group, too, can give away some of the country's natural resources, accepting money in exchange. In this case, however, the purchaser acquires not merely possession, but all the rights and liberties of ownership, which are supposed to be—and actually are—protected and enforced by all other states' courts and police forces" (Wenar, 2008, p. 13).

That such a substitution of right by might frequently takes place in key cases where there appears to be a resource curse provides an alternative explanation to such cases. Frequently, the resource endowed country's ills are provoked by the agents of international commerce that recognize stolen natural resources as those of dictators, violating a law for which there is not another that is more basic in property laws: the Convention on Contracts for the International Sales of Goods, for instance, which follows the intuitive claim that to make a valid sale the vendor must either own the good or have the authorization of the owner. Frequently, dictators are put there by force precisely by those international agents, as some of the above examples show. By no account can Obiang be said to be authorized with consent by the owners of the resources to sell them off nor can Pinochet be said to have been authorized by the owners to sell Chile's copper nor can the Sha be said to have been authorized by the owners to sell off Iran's resources.

On the view put forward here, first, evidence shows that there has to be a sharp reduction on the putative scope of the negative causality of the resource curse. And second, it is worth asking whether what evidential residue remains to support the theory, cannot instead be largely explained, not by novel theoretical postulates of a paradoxical quality, but by the much more familiar mechanism of theft by the powerful. Scientifically, we would not suggest to put the remaining "old wine into a new bottle" and call the already known phenomenon of theft something that was supposed to be new, namely, "the resource curse". Politically, it would

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also be unadvisable in our view, since if societies need science based policy to develop it is best to use straightforward language that does not mask or distort attribution of sources of obstacles to development. If natural resources are causally positively related to development, it seems advisable to not "kick away the ladder" (analogous to Chang's, 2002, view) by making broad theoretical statements that they are curse, instead of understanding the ways in which natural resources can be used for development, and the agents that threaten such use.

In the eighteenth century Montesquieu (1748, p. 250) explained and justified slavery thus: "The peoples of Europe, having exterminated those of America, had to make slaves of those of Africa in order to use them to clear so much land." Montesquieu's focus was to solve a problem of natural resources: so much land that needed clearing. The outcome was a curse for Native Americans and Africans. However, in Montesquieu's case it is clear that the problem is not with natural resources, but rather with those who exterminated peoples and made slaves of others. This study lends empirical support to the need to re-focus problems attributed to natural resources and pay attention to the problems of domination and empire which make the most decisive contribution to the developmental curse experienced by peoples of poor nations.

Though it is beyond the scope of this paper to develop it, the even deeper backdrop of this analysis which we think is necessary to mention and expand on in further research, is that natural resource extraction in the modern way of human life portends ecological disaster and the sixth mass extinction on the planet, by way of the abrupt climate change, which includes severe threats to the human species (Ceballos, Ehrlich, Barnosky, García, Pringle and Palmer, 2015). Two main causes of this are central parts of the way we acquire our energy from natural resources: animal meat and fossil fuel (Mann, 2009; Mann, 2014; World Resources Center, 2012; Pimental and Pimental, 2003; Goodland and Anhang, 2009; IPCC, 2007). Consequently, one of the urgently necessary actions the world needs to take is to substitute these two energy sources. However, it should be noted that the central developed nations, which have been the primary cause of the CO_2 emissions and which have reaped the most benefits, cannot morally demand peripheral nations to abstain from using their natural resources, so vital for their development, without compensation. The myth of the curse of natural resources cannot be pointed at as a cause for poor nations to not develop. Rather, if poor nations are to not exercise their right to develop using their natural resources, rich nations will have to step up and compensate them in a framework of differentiated corresponsibility for a survival worth living. By looking at the relevant roles of different actors in the international system as well as the importance of natural resources for development, our hope is that this analysis contributes to the identification of the new international division of production and responsibilities required by the imperatives of development for all, in the context of dangerous climate change.

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Author contact: ricardo.restrepo28@yahoo.co.nz

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