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Abstract

Evidence shows that the allocation of talented people is not neutral for growth. Thus, a country with a large population of law concentrators tends to develop rent-seeking activities that reduce growth. A country with a large population of engineers tends to foster innovation and strengthen growth. But what determines the allocation of talents? This question has not yet been empirically examined. This paper contributes to fill this gap. Based on a sample of 69 developing countries the paper highlights that oil rents determine the allocation of talents but this effect is not linear. It largely depends on the quality of governance. While, oil rents in well governed countries tend to orient talents towards productive activities, oil rents in badly governed countries tend to orient talents towards rent-seeking activities. These results are robust to different specifications, datasets on governance quality and estimation methods.

Key words: Rent-seeking; occupational choice; oil rents.

JEL Classification: D72; J24; Q32

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"My desire to escape from trade, which I thought vicious and selfish, and to enter into the service of Science, which I imagined made its pursuers amiable and liberal, induced me at last to take the bold and simple step of writing to Sir H. Davv of the Royal Society"… Michael Faraday (1813), father of electronics.

1. Introduction

Education plays an important role in the debate over the curse of natural resources. The works conducted so far have focused on whether there is a negative correlation between investment in education and the presence of natural resources. Gylfason (2001) and Birdsall et al. (2001) argue that there is a negative correlation between dependence on natural resources and investment in education. Stijn (2006) disputes this result.

This paper proposes to go beyond this binary question (presence of negative correlation or not), and raises the incentive problem on the distribution of talents in human capital in countries with natural resources. Indeed, Murphy et al. (1991) propose a framework for analyzing the determination of talent and its importance for economic growth, the rationale being that when the most talented people of a nation become entrepreneurs, they enable innovation and improving technology, leading to increased productivity and to the fostering of economic growth. Conversely, when the most talented people become rent-seekers, this hurts growth because their orientation is not in favour of productive activities. Thus, the authors identify two types of activities which can attract talented people: entrepreneurship and rent-seeking activities. The first, entrepreneurs, are related to training in engineering sciences. The latter, rent-seekers, are related to training in law schools (Murphy et al., 1991). The authors suggest that a larger number of engineers will have a positive impact on growth, while a greater number of law concentrators, tends to reduce economic growth.

What will bring the agents to move towards the acquisition of one specific talent in preference to another are the incentives provided by the country. These incentives are mainly determined by the size of the market, the nature of the contract, and the returns to scale of the activity. The work of Murphy et al. (1991) is fundamental to understanding the allocation of talent in an economy. However, it is limited, not only because it does not test elements that may determine this allocation, but also because it does not include the importance of natural resources in the analysis or the rents that are associated with their presence, as the existence of such rents may condition the talent allocation.

Consequently, this paper contributes to extend this analysis. We empirically examine, for the first time, the impact of oil rents on the allocation of talent in a large sample of developing countries. The question which we address in this paper is whether the existence of natural resource rents conditions the students of the countries concerned to prefer more training in law (oriented to rent-seeking activities) rather than engineering courses (oriented to entrepreneurship activities).

In doing so, the paper is a contribution to the traditional studies of incentives in the presence of natural resources. More specifically, the paper is close to the fundamental contribution of Mehlum et al. (2006) on the impact of natural resources on entrepreneurship. However, it differs substantially from it on a number of points. Indeed, while Mehlum et al. (2006) consider only the population of entrepreneurs in their analysis, this paper focuses on the wide base that is the allocation of human capital as a whole, and shows that this allocation is determined by the presence of natural rent. More specifically, the purpose of this paper is not simply to see the effects of rent-seeking activities on growth, which have been widely reviewed by previous studies. Rather, this paper empirically highlights the elements that determine the choice of these activities in a student population. This, to the best of our knowledge, has not yet been studied.

The main objective of this paper is to measure the effect of oil rents on the allocation of talents in developing countries. We hypothesize that the effect of oil rents is non linear and depends upon the governance quality. The hypothesis that is tested is that resource rich and badly governed countries are more likely to exhibit talents in the rent seeking activities (sectors) while resource rich and well governed countries exhibit lower ratio of talented individuals associated with rent seeking activities. Therefore, this paper goes beyond the traditional analyses of the resource curse in oil rich countries that posit the governance and institutional quality as the main conditional variables of the effect of the dependency upon natural resources. This paper seeks to provide a granular origin of this institutional based resource curse problem. Oil rich and badly governed countries are more likely to fall into a bad governance quality trap because more talented individuals are associated with training correlated with rent seeking activities. The idea is that the bad governance quality environment is regenerated by the misallocation of talented individuals in the society (the vicious circle of the bad governance in oil rich countries).

Two main arguments can be evoked to explain the effect of oil rents on the allocation of talents which is conditional on the governance quality. First, the demand side hypothesis could suggest that individuals may endogenously choose training that are positively with rent seeking when the governance and institutional background of the countries is poor. In such a context, participating in rent seeking activities is less subject to sanctions and gives a high payoff to the rent seekers.[1] Second, the supply side hypothesis suggests that oil rich but badly governed countries may be those with a low provision of training that favor entrepreneurship.[2] From a political economy perspective, this can be a strategy for the government to better control the voters through the instruments of wages and employment. For the individuals, the public employment offer operates like an insurance mechanism in a context of bad governance and high uncertainty. Individuals therefore are incited to choose training that are economically associated with rent seeking activities for several reasons: those training are available, publicly granted, require few number of years of schooling, and allow capturing the natural resource rents owing to the bad governance quality context.

Our analysis, conducted on a sample of 69 developing countries under various econometric methods, shows that oil rents positively affect the proportion of law concentrators (oriented to rent-seeking activities) and negatively affect the proportion of engineers (oriented to productive activities). However, these effects remain non-linear, and in fact they are conditional on the governance quality. While oil rents in well governed countries tend to orient talents towards productive activities, oil rents in badly governed countries tend to orient talents towards rent-seeking activities.

The remainder of the paper is as follows. Section 2 proposes a brief literature review and highlights the theoretical mechanisms. Section 3 provides an empirical test of the hypothesis that talented individuals are mainly observed in rent seeking activities in developing oil rich countries that suffer from governance problems. Section 4 performs robustness checks while Section 5 concludes.

[1] Another explanation comes from the fact that individuals living in oil badly governed countries may choose training that will provide them with a high probability to find a job due to the small private sector size. In such a context, individuals choose training that can increase their probability to be hired in the public sector, the main employer in the absence of a strong private sector.

[2] A companion argument that also supports this supply side hypothesis is that the lack of governance quality leads the government to deviate from the optimal education policy and the incumbent provides less structures allowing training less associated with rent seeking activities.

2. Literature review and theoretical discussion

The literature on the resource curse has been discussing the performance of resources-rich countries for nearly two decades. Since the seminal regression of Sachs and Warner (1995), which shows a negative correlation between dependence on natural resources and economic growth, several channels have been examined through which natural resources could undermine development.

Sachs and Warner (1995) explained their results by the Dutch disease phenomenon. Many authors who have followed Sachs and Warner (1995) extend the analysis through other mechanisms (than the Dutch disease) and other outcomes (than growth). Thus, Hausmann and Rigobon (2003) extend the analysis to volatility. Tornell and Lane (1999) and Mehlum et al. (2006) present the institutional deficit as an explanatory factor for the curse. Other authors extend the curse to different indicators, including democracy (Ross, 2001), armed conflict (Collier and Hoeffler, 2000) and education (Gylfason, 2001).

Gylfason (2001) is thus the first to empirically focus on the relationship between natural resources and education. The author shows that oil-producing countries tend to have low levels of education. His result appears robust to three indicators of education: public expenditure on education relative to national income, expected years of schooling for girls, and gross secondary-school enrolment. The author explains this result by the fact that the dependence on natural resources leads to the inadvertent or deliberate neglect of progress in human capital.

Oil-rich countries invest the least in education, which leads to poor performance in human capital. Gylfason (2001) concludes that the nations who believe that natural capital is their greatest asset develop a false sense of security and become negligent about the accumulation of human capital.

Birdsall et al. (2001) support Gylfason's results. The authors also suggest a hypothesis about the low investment in education in resources-rich countries. This is, according to these authors, the fact that the dependence on natural resources tends to break the virtuous circle of a relationship between education, growth and inequality. For the authors, higher private returns on human capital lead to higher rates of private investment, including among the poorest. This leads to an increase in productivity and less inequality in the future. Birdsall et

al. (2001) argue that in a country with natural resources, governments are tempted to deviate from the policies that create this virtuous circle. The Dutch disease effects of natural resources adversely affect areas of high labour intensity such as the agricultural sector in developing countries. This will tend to reduce returns in human capital in these sectors employing the poor. Ultimately, there will be less investment and therefore no increase in productivity or reduction of inequalities.[3]

The aforementioned papers have a common feature. They essentially discuss the negative relationship between natural resources and human capital. They do not account for the learners' qualifications as an element of the analysis. Indeed, as pointed out by Murphy et al. (1991), the fact that a country tends to have a greater population of students in law schools is not neutral for economic growth. The authors note that this allocation of talent could be the cause of stagnation of development in many countries in Africa and Latin America and could explain the development of East Asian countries. Thus if the proportion of entrepreneurs is crumbling, technological progress slows and growth weakens.

Consequently, this paper is interested in what might determine the allocation of talent in developing countries. Specifically, the paper looks at the incentives of students in the oil-rich economies. Indeed, among the natural resources, oil seems to be the resource with the highest probability of occurrence of the resource curse (Ross, 2004; Manzano and Rigobon, 2006). This singularity is primarily due to the importance of oil rents (Manzano and Rigobon, 2006). It makes sense therefore to ask whether the presence of such rents could lead students to choose courses that lead to rent-seeking activities.

This question of the allocation of talents in resources-rich countries is not novel. However, while one can note an extensive theoretical literature on the allocation of talent in resource-rich countries, little has been done in empirical literature. Among the theoretical literature, one notes the significant contributions of Baland and Francois (2000) and Mehlum et al. (2006). Baland and Francois (2000) are interested in the specialization of certain economies in rent-seeking rather than in productive activities in a context of a natural resource boom. The authors suggest that this orientation depends on the relative importance of the sector in productive activities before the boom. If productive activities were far more important than

[3] Stijns (2006) disputes these results. The author uses abundance in natural resources as a variable, and finds that natural resource abundance positively affects education levels.

the rent-seeking activities, then this sector will succeed in capturing this rent and there will be a dilution of rent-seeking activities. Otherwise, the activities of rent-seeking will be more important (Baland and Francois, 2000).

However, the authors examine only the boom period (positive external shock). Moreover, in Baland and Francois (2000), rents are derived from quantitative restrictions on imports developed by Krueger (1974), in which we are less interested in this paper, which is closer to Mehlum et al. (2006).

These authors focus on the entrepreneurs' allocation between productive and unproductive activities. However, compared to the model of Baland and Francois (2000), their model is specifically concerned with the study of rent generated by natural resources. Indeed, it is well known that the exploitation of natural resources causes two opposing effects. On the one hand it increases the income of the country, and on the other hand it causes the displacement of private agents (including entrepreneurs) from the most productive sectors of the economy towards the natural resource sector. It induces, for the occasion, rent-seeking behaviour. Agents will therefore make a tradeoff between using their resources for productive activities or using these resources to search for and capture rents. The decision to move from one category of activity to the other will depend on the profitability of each sector. Mehlum et al. (2006) suggest that profitability will depend on the quality of the institutions in place. For the authors, if institutions are of good quality, production activities are more profitable than rent-seeking activities. Indeed, in the absence of institutions of good quality, the opportunity cost of rent-seeking activities decreases. Consequently, entrepreneurs abandon the productive sectors to engage in rent-seeking activities. This diversion from the productive sector leads to a decline in productivity throughout the economy. This decrease in productivity leads to lower growth. Natural resources will therefore be a blessing or a curse depending on the quality of the home institutions (Mehlum et al., 2006).

These studies remain theoretical and predictions in terms of allocation of talent are not subject to empirical test. Our study aims to fill this gap.

3. Empirical Analysis

a) Econometric model of the non linear effect of oil rents on the allocation of talents

This paper tests the hypothesis that the effect of oil rents on the allocation of talents toward rent seeking activities is more positive at high levels of bad governance. We follow Murphy et al. (1991) in their theoretical discussion on the determinants of the allocation of talent for the selection of the control variables. In this case, we can specify the following equations:

$$T_i = X_i'\beta + \theta_1 OIL_i + \theta_2 INST_i + d_j + \varepsilon_i \qquad (1)$$

$$T_i = X_i'\beta + (\alpha + \delta\, INST_i)OIL_i + \gamma INST_i + d_j + \varepsilon_i \qquad (2)$$

with ε_i the residual term, d_j the regional dummies and i stands for the country.

The main hypotheses tested are: $\theta_1 = 0$, $\alpha < 0$, and $\delta > 0$.[4] In other terms, the effect of oil rents on the allocation of talents (T_i) is statistically null $(\theta_1 = 0)$, but becomes statistically significant once this effect is conditioned upon the governance quality. Therefore, the marginal effect of oil rents $\left(\frac{\partial T_i}{\partial OIL_i} = \alpha + \delta \times INST_i\right)$ on the allocation of talents towards rent seeking activities (T_i) is more positive in badly governed countries $(INST_i)$.

The dependent variable T_i indicates the talent allocation. It is measured as the difference between the share of students enrolled in training correlated with rent seeking activities (social sciences, business and law) and those enrolled in training correlated with productive activities (engineering, manufacturing and construction). More formally, we have:

$\boldsymbol{T_i}$ is defined as the enrolment in social sciences, business and law minus the enrolment in engineering, manufacturing and construction, and expressed as percentage of the total enrolment in tertiary education.

The definition adopted is similar to that used by Mariani (2007) and is broader than that adopted by Murphy et al. (1991). These authors retain Enrolment in law as a proxy for the choice of careers in rent-seeking activities, and Enrolment in engineering as a proxy for career

[4] α identifies the effect of oil rents on the allocation of talents toward rent seeking activities in countries exhibiting an index of governance equal to 0 (this corresponds to the highest governance quality score) and it is therefore expected to be negative. This suggests that more talented people choose entrepreneurship activities in oil rich and well governed countries.

choices in productive activities. Mariani (2007) extends this definition. Thus, like him, we consider enrolment in engineering and science as a proxy for productive activities, enrolment in the social sciences, business and law as a proxy for rent-seeking activities. In addition to this first cross-section analysis on the allocation of talent, we are more interested in the differences between countries. Indeed, after all, students in different countries might be more focused on studies in social sciences, business and law studies than studies in engineering and hard sciences, simply because the latter requires more effort and probably earns less. In this context, it appears more interesting to examine whether these differences are greater in countries with oil revenues.

All the dependent variables are drawn from the database of the Statistical Yearbook of UNESCO.

$\boldsymbol{OIL_i}$ represents the oil rents as percentage of country GDP. In the literature, various variables are used to measure the dependence on natural resources. The most common are the percentage of exports of natural resources in total exports, and the percentage of exports in GDP. Papers using either of these variables tend to confirm the hypothesis of the resource curse (Sachs and Warner, 1995; Leite and Weidmann, 1999). However, some studies using other measures, such as level of production (Stijn, 2006) or the percentage of resource revenues in government revenues (Herb, 2005), often lead to conclusions against the curse of natural resources. But, as pointed out by Rosser (2006), these studies on the natural resource curse address the specific behaviours associated with agents in the presence of rents generated by the exploitation of natural resources. Therefore, it appears that a measure in terms of rents from the exploitation of natural resources is the most appropriate (Rosser, 2006). This paper highlights the incentives in the student choices in the presence of oil revenue, and therefore the Oil rents variable is relevant to this purpose. The variable Oil rents is derived from the World Bank Development Indicator online dataset.

$\boldsymbol{INST_i}$ is an indicator of governance vulnerability. This variable appears as a key element of the analysis. This is because not only is it established that institutional quality is an important element in the management of revenues from exploitation of natural resources in the resource curse literature (see, e.g., Sala-i-Martin and Subramanian; 2003; Melhum et al., 2006), but also, from the work of Murphy et al. (1991), it is an important element in the allocation of talents. In this paper we integrate, in the first analysis, the governance vulnerability index as a whole. Thus, in the first approach, we follow the implementation of institutional quality in the

growth model (Melhum et al., 2006). In the second approach, we break up the governance vulnerability index into its components. The rationale is that different institutional variables may show different effects on the allocation of talent. The governance variables are drawn from the Worldwide Governance Indicators (WGI) database of the World Bank. This dataset is used given that it provides measures of governance for a large number of countries since 1996.[5]

The Worldwide Governance Indicators (WGI) project has reported aggregate and individual governance indicators for 212 countries and territories since 1996. Six dimensions of governance are reported: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, control of corruption.[6] More recently, the six indicators were defined as:

- *Voice and Accountability* – measuring the extent to which a country's citizens are able to participate in selecting their government; as well as freedom of expression, freedom of association, and a free media.

- *Political stability and Absence of Violence* – measuring perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including political violence or terrorism.

[5] Kaufmann, Kraay, and Mastruzzi (2009) construct a meta-indicator that aggregates a host of different measures, from firm, investor, and population surveys to expert and international organization assessments to come to their overall measurements of the quality of governance. Data are available at the Worldwide Governance Indicators (WGI) project website under the following address:
http://info.worldbank.org/governance/wgi/index.asp
For more details on the construction of the indices, refer to Kaufmann, Kraay and Mastruzzi (2009). "Governance Matters VIII: Aggregate and Individual Governance Indicators, 1996-2008". World Bank Policy Research Working Paper Series, 4978.

[6] It should be noted that these governance indicators are all based on data from expert assessments, polls of experts and surveys of government officials and businesses, and therefore capture perceptions of the government process rather than any formal aspects of the actual government structure in any given country. This creates the important problem that perceptions are shaped not just by the government environment, but also by many other aspects of the socio-economic environment, thereby creating its own set of endogeneity and reverse causality issues. There is a large literature critical of the World Governance Dataset (Arndt and Oman, 2006; Kurtz and Shrank, 2006; Kurtz and Shrank, 2007). Kaufmann, Kraay and Mastruzzi have categorized some of these critiques as concerns about the comparability of the indicators across countries and across time; concerns about bias in expert polls or in particular sources; and concerns about the independence of the different data sources and the consequences for the aggregate indicators. (Kaufmann, Kraay and Mastruzzi, 2006). More recently, Thomas (2010) dismisses the Worldwide Governance Indicators (WGI) as an 'elaborate and unsupported hypothesis' because of the failure to demonstrate the 'construct validity' of these indicators. A short answer to Thomas (2010) is provided by Kaufmann et al. (2010). The authors cast doubts on the practical consequences of failure to meet the criteria of construct validity and therefore minimize this critique.

- *Government effectiveness* – measuring the quality of public services; the quality of the civil service and the degree of its independence from political pressures; the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

- *Regulatory quality* – measuring the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

- *Rule of law* – measuring the extent to which Law Enforcement agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police and courts, as well as the likelihood of crime and violence.

- *Control of corruption* – measuring the extent to which public power is exercised for private gain (including both petty and grand forms of corruption), as well as "capture" of the state by elites and private interests.

To build the indicators of governance used in the econometric estimations, we reverse all the original indicators of governance quality by the following formula:

$$Inst_i = \frac{Inst_i - min(Inst)}{max(Inst) - min(Inst)}$$

where $min(Inst)$ and $max(Inst)$ represent the minimum and the maximum of each indicator of governance quality, respectively. This transformation ensures that $INST_i$ will have a range between 0 and 1. On this basis, $INST_i$ increases with the deterioration of the quality of governance. Moreover, this ensures the standardization of these variables into new indices which are therefore reasonably comparable. Given the fact that the indices are distributed over the same interval [0, 1], the coefficients of the interactive terms (oil rents crossed with the governance variable) will allow direct comparison across the different equations.

The paper begins by using an indicator of the overall quality of governance which combines all the six separate dimensions into a single index. The principal component analysis method is used to achieve this. The aggregate index of governance is the first principal component of the vector of the six indicators of governance already constructed. Table A1 in Appendix A shows that the first principal component accounts for almost 81% of the overall variance. The table also presents the eigenvectors and the correlation between the synthetic indicator and

each variable. Meanwhile, the resulting aggregated indicator of governance has been rescaled to be ranged between 0 and 1. Next, the paper uses separately each indicator of governance quality to assess the impact of the oil rents on the allocation of talents conditional on the level of governance quality.

The other variables in the analysis are included in the vector **X**. They mainly consist in proxies of the determinants of talent allocation as suggested by Murphy et al. (1991). This includes the size of government, the degree of openness, the cost of registering property, and the access to credit by the private sector. The size of government, the degree of openness and the access to credit are from the World Development Indicators (2009). The cost of registering property is drawn from the World Bank's 'Doing Business'. To these variables, we added regional dummies (d_j) identifying the regional variability in the allocation of talents.

b) Preliminary evidence

Equations 1 and 2 are estimated by the OLS method with a full set of regional dummies. A cross-section of 69 countries is used with data averaged over the period 2000-2008. This period is retained so that we have the most data on our dependent variable (allocation of talents) and on governance quality. It is therefore deemed to constitute the largest possible sample of developing countries.

The results of the estimations of the model 1 do not reject the hypothesis that the linear effect of oil rents on the allocation of talents is, statistically null. This holds whatever the control variables which are included and whatever the dimension of the governance quality which is additively controlled for.[7]

Table 1 presents the results of the estimations of model 2, which now allows a nonlinear effect of the oil rents on the allocation of talents. In the first two columns (1 and 2) the dependent variable is T_i . The Governance vulnerability variable is the overall institutional quality variable obtained from the method of principal component analysis of the different variables of the WGI database. These components are Corruption, Rule of law, Regulatory quality, Government effectiveness, Political stability, and Voice & Accountability.

[7] Results are not shown but available from the authors upon request.

The negative sign and the significance of the coefficient associated with the variable Oil-rent-to-GDP in column 1, reflect a negative impact of oil rents on students' incentives towards orientation to rent-seeking activities when the country has good governance (Governance vulnerability equal to 0). This effect of oil rents on the allocation of talent is not linear. In this case, the significance of the positive coefficient of the multiplicative variable (Oil rent*Governance vulnerability) reflects the fact that the poorer the country's governance quality is (high Governance vulnerability), the more students will be encouraged to choose courses leading to law concentrators (training oriented to rent-seeking activities).

This result is not rejected in column 2, even when we use the Governance quality variable in the initial period (2000) instead of taking an average as in the previous case. Using the governance quality observed at the beginning of the period analysis would allow the reduction the potential endogeneity bias associated with the coefficient of the variable oil rents. This is particularly relevant when the endogeneity issue arises from the reverse causality problem between the oil rents and the allocation of talents. The coefficient associated with the Oil rent-to-GDP variable is still negative and significant while the coefficient associated with the multiplicative variable (Oil rent * Initial governance vulnerability) is still positive and significant.

To summarize, these first results suggest that, in the presence of oil revenues, most students choose law training (oriented to rent-seeking) if - and only if - the governance quality of the country is poor. Otherwise (if the governance quality is good), they will be tempted by engineering studies (oriented to productive activities).

4. Robustness checks

a) Testing an alternative dependent variable

Thus far, the results showed that the allocation of talent depends on the presence of oil revenues and the governance quality of the countries. However, it can be argued that having a dependent variable, taken as the difference between the enrolment in social sciences, business and law and the enrolment in engineering, manufacturing and construction, would result in forcing the regressors to symmetrically impact both sectors. After all, Murphy et al. (1991) note that certain items that affect the number of lawyers may act disproportionately on the

Table 1.Conditional effect of oil rents on the allocation of talents according to the level of an aggregated governance quality index: OLS with regional dummies.

Dependent variable:	**Difference between law & engineering**		**Proportion of the enrolment in law**	
	(1)	(2)	(3)	(4)
Oil rent-to-GDP	**-5.308****	**-2.711***	**-4.485*****	**-2.830****
	(-2.655)	**(-1.851)**	**(-2.842)**	**(-2.084)**
Oil rents * Governance quality	**9.311*****		**7.635*****	
	(2.795)		**(2.967)**	
Oil rents * Initial governance quality		**4.968****		**4.866****
		(2.057)		**(2.223)**
Governance quality	-23.62		-4.842	
	(-1.297)		(-0.332)	
Initial governance quality		-30.29**		-10.65
		(-2.044)		(-0.845)
Real GDP per capita growth	-1.277	-0.973	0.212	0.261
	(-1.011)	(-0.937)	(0.294)	(0.369)
Initial real GDP per capita	-1.822	-2.164	0.127	-0.689
	(-0.751)	(-1.049)	(0.0651)	(-0.379)
Trade openness	0.0505	0.0384	0.0447	0.0357
	(0.956)	(0.791)	(0.997)	(0.808)
Foreign direct investment-to-GDP	-0.480	-0.204	0.0415	0.138
	(-1.661)	(-0.759)	(0.164)	(0.554)
Government consumption-to-GDP	-0.386	-0.296	0.0430	0.0406
	(-1.341)	(-1.119)	(0.175)	(0.167)
Private credit-to-GDP	-0.0647	-0.1000	-0.0561	-0.0647
	(-0.654)	(-1.201)	(-0.734)	(-0.775)
Registering property cost	0.101*	0.0999***	0.110***	0.113***
	(1.969)	(2.677)	(2.878)	(2.994)
Protection of investors index	0.0749	-0.00353	0.0767	0.0350
	(0.555)	(-0.0306)	(0.864)	(0.392)
Constant	53.24*	59.63**	64.17***	73.69***
	(1.708)	(2.166)	(2.764)	(3.638)
Observations	69	69	69	69
R-squared	0.309	0.293	0.445	0.436

Notes: Robust *t*-statistics in parentheses. All the models include the full set of regional dummies. All the original series of governance drawn from the WGI dataset have been reverted so that high values refer to bad governance quality. The governance vulnerability used here is the aggregation of the WGI indices using the principal component analysis. The composite index is ranged between 0 and 1. *** p<0.01, ** p<0.05, * p<0.1

population of engineers. We take this observation into account by changing the dependent variable in regressions 3 and 4 of Table 1. The dependent variable retained is the proportion of Enrolment in law defined as the enrolment in social sciences, business and law as percentage of the sum of the enrolment in social sciences, business and law and the enrolment in engineering, manufacturing and construction.

The expected econometric results are confirmed. In columns 3 and 4 of Table 1, the coefficient associated with the Oil rent variable is still negative and significant while the coefficient associated with the multiplicative variable remains positive and significant. This suggests that talented individuals are more allocated toward rent seeking activities in oil rich countries exhibiting a bad governance quality, while the opposite holds for those exhibiting a better governance quality score. In addition, we also note that the coefficient of the Cost of registering property variable is also positive and significant, showing that the higher the cost for property rights is, the more rent-seeking activities are present.

b) Breaking-down the aggregate index of governance quality

Previous results indicated that the effect of oil rents on the allocation of talents is conditional to the level of the overall governance quality. This result is confirmed by various measures of the dependent variable (allocation of talents). However, it does not give us any indication of the specific component of governance which acts on the allocation of talent. One of them could well dominate the composite indicator, making it worthwhile therefore to break up this composite indicator and return to specific measures of quality of governance. The goal is to be as specific as possible in order to achieve the most appropriate recommendations.

We consider this point in Table 2. This table shows the estimation results of various governance variables on talent allocation.[8] These variables include Corruption, Rule of law, Regulatory quality, Government ineffectiveness, Political instability and Unaccountability. The coefficients associated with oil rents remain negative. The coefficients associated with multiplicative variables (Oil rents * Governance indicators) are also positive as in the previous case. These coefficients are highly significant on four of these variables: Corruption, Rule of law, Regulatory quality and Government ineffectiveness. The significance of

[8] The six indicators of governance quality are tested separately. Ideally, the six indicators would be used simultaneously in the models. We tried this but got unreliable results with no statistically significant coefficients. We interpreted this result by the high colinearity between each of the six dimensions of governance.

Table 2. Conditional effect of oil rents on the allocation of talents according to the levels of several dimensions of governance quality: OLS with regional dummies.

Dependent variable:	**Difference between law & engineering**					
	(1)	(2)	(3)	(4)	(5)	(6)
Oil rent-to-GDP	**-6.412*** **	**-6.836*** **	**-4.880*** **	**-4.908*** **	**-2.073**	**0.437**
	(-3.232)	**(-3.174)**	**(-3.032)**	**(-3.617)**	**(-1.425)**	**(0.457)**
Oil rents * Corruption	**8.867*** **					
	(3.290)					
Oil rents * Rule of law		**12.07*** **				
		(3.310)				
Oil rents * Regulatory quality			**9.716*** **			
			(3.215)			
Oil rents * Government effectiveness				**9.012*** **		
				(3.848)		
Oil rents * Political stability					**4.171**	
					(1.578)	
Oil rents * Accountability						**-0.195**
						(-0.124)
Corruption	-6.404					
	(-0.411)					
Rule of law		-22.80				
		(-1.243)				
Regulatory quality			-27.52			
			(-1.619)			
Government effectiveness				-19.34		
				(-0.907)		
Political stability					-24.70**	
					(-2.075)	
Accountability						-30.32***
						(-2.919)
Real GDP per capita growth	-1.382	-1.318	-0.790	-1.036	-1.254	-0.879
	(-1.024)	(-1.073)	(-0.639)	(-0.810)	(-0.962)	(-0.693)
Initial real GDP per capita	-0.202	-1.793	-1.251	-0.954	-2.516	-2.762
	(-0.0913)	(-0.787)	(-0.623)	(-0.370)	(-1.097)	(-1.403)
Trade openness	0.0623	0.0672	0.0481	0.0617	0.00244	0.0583
	(1.153)	(1.205)	(0.923)	(1.161)	(0.0418)	(1.060)
Foreign direct investment-to-GDP	-0.655**	-0.524*	-0.313	-0.466	-0.247	-0.419
	(-2.227)	(-1.892)	(-1.138)	(-1.651)	(-0.818)	(-1.577)
Government consumption-to-GDP	-0.373	-0.432	-0.266	-0.367	-0.354	-0.451
	(-1.193)	(-1.432)	(-0.998)	(-1.240)	(-1.304)	(-1.649)
Private credit-to-GDP	-0.0674	-0.0466	-0.0842	-0.0627	-0.0130	-0.0791
	(-0.721)	(-0.477)	(-0.871)	(-0.684)	(-0.124)	(-0.786)
Registering property cost	0.0912	0.102**	0.112**	0.109**	0.0874	0.0850
	(1.614)	(2.039)	(2.117)	(2.099)	(1.650)	(1.614)
Protection of investors index	0.154	0.0853	0.0656	0.116	0.00859	-0.0635
	(1.168)	(0.682)	(0.452)	(0.809)	(0.0610)	(-0.463)
Constant	31.64	51.80*	45.70*	40.56	60.57**	64.79**
	(1.113)	(1.744)	(1.720)	(1.173)	(2.143)	(2.581)
Observations	69	69	69	69	69	69
R-squared	0.299	0.327	0.301	0.317	0.283	0.308

Notes: Robust *t*-statistics in parentheses. All the models include the full set of regional dummies. All the original series of governance drawn from the WGI dataset have been reverted so that high values refer to bad governance quality. Governance measures are ranged between 0 and 1. *** p<0.01, ** p<0.05, * p<0.1

corruption and the regulatory quality appears to correspond to a theoretical prediction by Murphy et al. (1991). Indeed, in their theoretical analysis, the authors insisted on the definition of property rights and the possibility of easy access to rents as the main determinants of the allocation of talent. In this context, the significance of the multiplicative Oil rent * Corruption reflects the fact that the more corrupt a country is, the easier it is to dispose of the rents. Consequently, more students will be able to choose law training (oriented to rent-seeking). The significance of the multiplicative (Oil rents* Regulatory quality) suggests that when most property rights are poorly defined and defended in an oil country, most agents do not dare to start productive activities.

These results are not rejected when we retain as the dependent variable the ratio of enrolment in law as percentage of the sum of the enrolment in law and the enrolment in engineering (Table 3). They are also robust to the use of initial values of the governance variables (Table Table 4).

c) Testing other indicators of corruption

Because subjective, institutional variables are often (more than other variables) subject to errors of measure (Acemoglu et al., 2001), although the use in this paper of various governance variables may lead to the conclusion that these measurement errors do not explain our results, we undertake to evaluate these results with alternative databases.

Indeed, until now, we have used indicators from the WGI database. For this evaluation, we use data from Transparency International and ICRG on corruption. We want to know if taking other sources of data corruption will amend our results.[9]

Table 5 presents results using the new measures of corruption. Whatever the corruption variable that is used, the results do not reject those obtained previously. The coefficient associated with the oil rents is significant and negative while the variable Oil rents* Corruption exhibits a significant and positive coefficient. So, the more corrupt a country is, the easier it is to gain access to rents and therefore more students will choose law training (oriented to rent-seeking).

[9] Again, the governance variables are rescaled to be between 0 and 1, with higher values indicating a bad level of governance quality.

Table 3. Conditional effect of oil rents on the allocation of talents according to the levels of several dimensions of governance quality: Testing an alternative dependent variable. OLS with regional dummies.

Dependent variable:	**Proportion of the enrolment in law**					
	(1)	(2)	(3)	(4)	(5)	(6)
Oil rent-to-GDP	**-4.674*** **	**-4.633*** **	**-3.836** **	**-3.407*** **	**-1.645**	**-0.358**
	(-2.689)	**(-2.679)**	**(-2.508)**	**(-3.032)**	**(-1.491)**	**(-0.398)**
Oil rents * Corruption	**6.368*** **					
	(2.774)					
Oil rents * Rule of law		**8.054*** **				
		(2.796)				
Oil rents * Regulatory quality			**7.431** **			
			(2.653)			
Oil rents * Government effectiveness				**6.081*** **		
				(3.172)		
Oil rent * Political stability					**3.088**	
					(1.618)	
Oil rents * Accountability						**0.782**
						(0.559)
Corruption	0.556					
	(0.0442)					
Rule of law		-8.262				
		(-0.561)				
Regulatory quality			-6.700			
			(-0.407)			
Government effectiveness				0.834		
				(0.0466)		
Political stability					-10.03	
					(-1.102)	
Accountability						-14.87
						(-1.673)
Real GDP per capita growth	0.0703	0.213	0.483	0.438	0.324	0.371
	(0.0945)	(0.302)	(0.658)	(0.584)	(0.439)	(0.504)
Initial real GDP per capita	0.581	-0.358	0.230	0.935	-0.734	-1.124
	(0.341)	(-0.201)	(0.124)	(0.420)	(-0.414)	(-0.672)
Trade openness	0.0515	0.0530	0.0372	0.0490	0.0219	0.0422
	(1.165)	(1.141)	(0.851)	(1.101)	(0.458)	(0.880)
Foreign direct investment-to-GDP	-0.0481	0.0491	0.172	0.0453	0.218	0.134
	(-0.184)	(0.197)	(0.675)	(0.167)	(0.890)	(0.525)
Government consumption-to-GDP	0.0435	0.0108	0.0941	0.0625	0.0405	0.00871
	(0.174)	(0.0433)	(0.408)	(0.257)	(0.168)	(0.0359)
Private credit-to-GDP	-0.0731	-0.0503	-0.0682	-0.0500	-0.0384	-0.0863
	(-0.972)	(-0.628)	(-0.879)	(-0.678)	(-0.458)	(-1.052)
Registering property cost	0.105**	0.111***	0.115***	0.111***	0.107***	0.105***
	(2.647)	(2.857)	(2.936)	(2.702)	(2.876)	(2.729)
Protection of investors index	0.113	0.0615	0.0797	0.104	-0.00353	-0.0155
	(1.328)	(0.719)	(0.842)	(1.170)	(-0.0378)	(-0.155)
Constant	57.53***	69.18***	61.45**	52.75*	74.61***	79.83***
	(2.767)	(3.251)	(2.648)	(1.997)	(3.894)	(4.325)
Observations	69	69	69	69	69	69
R-squared	0.446	0.444	0.435	0.451	0.417	0.422

Notes: Robust *t*-statistics in parentheses. All the models include the full set of regional dummies. All the original series of governance drawn from the WGI dataset have been reverted so that high values refer to bad governance quality. The governance indices are ranged between 0 and 1. *** p<0.01, ** p<0.05, * p<0.1

Table 4. Conditional effect of oil rents on the allocation of talents according to the initial levels of several dimensions of governance quality: Testing an alternative dependent variable. OLS with regional dummies.

Dependent variable:	**Proportion of the enrolment in law**					
	(1)	(2)	(3)	(4)	(5)	(6)
Oil rent-to-GDP	**-4.631****	**-3.067***	**-2.391**	**-3.203*****	**-1.023**	**-0.669**
	(-2.661)	**(-1.784)**	**(-1.641)**	**(-3.131)**	**(-1.302)**	**(-0.611)**
Oil rents * Corruption	**6.448*****					
	(2.750)					
Oil rents * Rule of law		**4.788***				
		(1.910)				
Oil rents * Regulatory quality			**4.814***			
			(1.751)			
Oil rents * Government effectiveness				**5.700*****		
				(3.260)		
Oil rent * Political stability					**2.124**	
					(1.475)	
Oil rents * Accountability						**1.206**
						(0.760)
Corruption (initial values)	-2.288					
	(-0.173)					
Rule of law (initial values)		-15.75				
		(-1.122)				
Regulatory quality (initial values)			-12.03			
			(-0.908)			
Government effectiveness (initial values)				0.702		
				(0.0467)		
Political stability (initial values)					-8.709	
					(-1.204)	
Accountability (initial values)						-15.28*
						(-1.951)
Real GDP per capita growth	0.105	0.107	0.249	0.470	0.577	0.411
	(0.143)	(0.153)	(0.332)	(0.649)	(0.775)	(0.582)
Initial real GDP per capita	0.288	-1.303	-0.497	0.821	-0.476	-1.126
	(0.164)	(-0.718)	(-0.299)	(0.412)	(-0.295)	(-0.705)
Trade openness	0.0500	0.0417	0.0337	0.0422	0.0218	0.0375
	(1.124)	(0.927)	(0.780)	(0.962)	(0.461)	(0.784)
Foreign direct investment-to-GDP	-0.0341	0.146	0.164	0.0704	0.256	0.146
	(-0.116)	(0.600)	(0.640)	(0.268)	(0.999)	(0.587)
Government consumption-to-GDP	0.0386	-0.0132	0.0785	0.0749	0.0737	0.0540
	(0.150)	(-0.0520)	(0.339)	(0.300)	(0.317)	(0.224)
Private credit-to-GDP	-0.0678	-0.0734	-0.0815	-0.0401	-0.0508	-0.0935
	(-0.890)	(-0.870)	(-1.003)	(-0.522)	(-0.611)	(-1.142)
Registering property cost	0.108***	0.116***	0.114***	0.113***	0.110***	0.104***
	(2.750)	(3.027)	(2.961)	(2.742)	(2.939)	(2.831)
Protection of investors index	0.0953	0.0226	0.0407	0.0799	0.00136	0.00580
	(1.080)	(0.262)	(0.443)	(0.902)	(0.0146)	(0.0621)
Constant	61.78***	82.74***	71.92***	54.46**	69.64***	79.16***
	(2.830)	(3.868)	(3.804)	(2.412)	(4.296)	(4.933)
Observations	69	69	69	69	69	69
R-squared	0.445	0.437	0.428	0.450	0.412	0.431

Notes: Robust *t*-statistics in parentheses. All the models include the full set of regional dummies. All the original series of governance drawn from the WGI dataset have been reverted so that high values refer to bad governance quality. The governance indices are ranged between 0 and 1. *** p<0.01, ** p<0.05, * p<0.1

Table 5. Testing alternative variables of corruption.OLS with regional dummies.

Dependent variable:	**Difference between law & engineering**		**Proportion of the enrolment in law**	
	(1)	(2)	(3)	(4)
Oil rent-to-GDP	**-5.760*** **	**-0.902*** **	**-4.958*** **	**-0.496** **
	(-3.715)	**(-4.004)**	**(-3.421)**	**(-2.605)**
Oil rents * Corruption (*a*)	**6.879*** **		**5.826*** **	
	(3.641)		(3.512)	
Oil rents * Corruption (*b*)		**0.477*** **		**0.221** **
		(3.276)		**(2.023)**
Corruption (*a*)	-2.781		4.354	
	(-0.209)		(0.451)	
Corruption (*b*)		-3.092		-1.230
		(-1.160)		(-0.690)
Real GDP per capita growth	-1.066	-1.720	-0.108	0.234
	(-0.880)	(-1.640)	(-0.156)	(0.287)
Initial real GDP per capita	0.401	-0.500	0.113	-0.307
	(0.191)	(-0.239)	(0.0677)	(-0.193)
Trade openness	0.0557	-0.0298	0.0257	-0.0536
	(1.148)	(-0.661)	(0.628)	(-1.047)
Foreign direct investment-to-GDP	-0.461*	-0.130	-0.0283	0.110
	(-1.869)	(-0.581)	(-0.124)	(0.521)
Government consumption-to-GDP	-0.220	0.451	0.105	0.230
	(-0.783)	(1.660)	(0.451)	(1.027)
Private credit-to-GDP	-0.0539	-0.0204	-0.0269	-0.0168
	(-0.741)	(-0.221)	(-0.439)	(-0.207)
Registering property cost	0.104**	0.0901**	0.128***	0.112***
	(2.475)	(2.201)	(4.629)	(3.963)
Protection of investors index	0.102	-0.0233	0.116	0.0295
	(0.960)	(-0.166)	(1.540)	(0.288)
Constant	23.54	37.73*	60.04***	73.12***
	(0.819)	(1.779)	(3.167)	(4.349)
Observations	69	57	69	57
R-squared	0.272	0.371	0.425	0.482

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (*a*) Transparency International corruption measure; (*b*) ICRG corruption measure.

d) Results from simultaneous regressions

It may happen that the two sectors (law and engineering) could be simultaneously. The models describing the dynamic of these two sectors can be linked via the correlation between the two error terms of the equations. In this context, the SURE method allows us to take this feature into account and provides estimates of the system of the two equations.[10] The two dependent variables are respectively: enrolment in law (column 1) and enrolment in engineering (column 2) in Table 6. The proportion of enrolment in engineering is defined as the enrolment in engineering, manufacturing and construction as percentage of the total enrolment in tertiary education. The enrolment ratio in law is defined as the enrolment in social sciences, business and law as percentage of the total enrolment in tertiary education.

Results of Table 6 highlight a positive effect of oil rents on the number of lawyers conditional on the extent of corruption: resource rich countries that suffer from governance problems exhibit more lawyers than the others. In contrast, there is a negative effect of oil rents on the proportion of engineers conditional on poor performance in terms of control of corruption. Put differently, resource rich countries that suffer from governance problems exhibit less engineers than the others.

To sum up, all the robustness checks do not invalidate the main finding of the present study, notably that oil rents affect the incentives of individuals in favour rent-seeking activities. The effect, however, remains non-linear, and is in fact conditional on the governance quality. While oil rents in less corrupt countries tend to orient talents towards productive activities, oil rents in highly corrupt countries tend to orient talents towards rent-seeking activities.

5. Conclusion

This paper has provided the econometric evidence on the interaction between oil rents and the allocation of talents in developing countries. It proposed to go beyond the simple binary relationship linking the level of human capital and petroleum resources.

We investigated the determinants of occupational choices in a population of students in law school and students of engineering. We found that the presence of oil revenues determines the

[10] Regional dummies are included in each equation of the SURE model to control for the unobserved regional characteristics which can determine the allocation of talents.

Table 6. Results from simultaneous equations.

Estimation method :	**SURE**	
Dependent variable:	**Enrolement in Law**	**Enrolment in Engineering**
	(1)	(2)
Oil rent-to-GDP	**-3.170****	**1.875***
	(-2.014)	**(1.705)**
Oil rents * Corruption	**4.363****	**-2.489***
	(2.021)	(-1.662)
Corruption	14.52	9.404
	(1.546)	(1.511)
Real GDP per capita growth	-2.049**	-1.248**
	(-2.349)	(-2.195)
Initial real GDP per capita	1.984	-0.242
	(0.985)	(-0.186)
Trade openness		0.00240
		(0.103)
Foreign direct investment-to-GDP		0.552*
		(1.840)
Government consumption-to-GDP	-0.597*	
	(-1.660)	
Private credit-to-GDP		0.0256
		(0.619)
Registering property cost		-0.0522**
		(-2.147)
Protection of investors index		-0.00228
		(-0.0333)
Electricity distribution losses		-0.309***
		(-2.653)
Constant	37.72*	18.69
	(1.831)	(1.503)
Observations	50	50
R-squared	0.305	0.529

Robust t-statistics in parentheses. Regional dummies are included in each equation. *** p<0.01, ** p<0.05, * p<0.1.

allocation of talent but the result is not linear. This nonlinearity is determined by the governance quality. In other words, while oil rents in less corrupt countries tend to orient talents towards productive activities, oil rents in highly corrupt countries tend to orient talents towards rent-seeking activities.

These results provide another vision of the resource curse. Indeed, a student population that has the possibility of easy access to rents owing to a favorable environment characterized by a high corruption, will move more easily to the training that are correlated with rent seeking activities. This crowds out engineering education, which is capable of bringing innovation, the basis of higher productivity and economic growth in the long term.

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APPENDICES

Appendix A. Results of the principal component analysis.

Table A1: Aggregating governance variables: principal components analysis (first eigenvector, correlation)

Variables	Governance quality, Composite index
Control of corruption	0.425
	(0.937)
Rule of law	0.434
	(0.956)
Regulatory quality	0.406
	(0.893)
Government effectiveness	0.425
	(0.935)
Political stability	0.374
	(0.823)
Voice and Accountability	0.381
	(0.840)
Eigenvalue	4.85
Variance proportion	81%

Note: We report the first eigenvector resulting from the first principal component analysis of governance quality. The aggregate index of governance is obtained using the following formula: Inst = 0.425*K1 + 0.434*K2 + 0.406*K3 + 0.425*K4 + 0.374*K5 + 0.381*K6, where K1, K2, K3, K4, K5, and K6 represent *standardized* measures of Control of corruption, Rule of law, Regulatory quality, Government effectiveness, Political stability, and Political stability, respectively. In addition, the numbers in parentheses (below the different eigenvectors) represent the correlation of the first principal component with the corresponding governance variable. The governance quality variables have been rescaled so that high values indicate high level of bad governance.

Appendix B. Descriptive statistics and list of countries

Table B1 : Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Difference between enrolments in law and engineering as percentage of total enrolment in the tertiary education	82	25.532	12.867	-2.259	55.991
Enrolment in law as percentage of enrolments in law and engineering	82	77.723	12.541	47.094	99.531
Enrolment in law as percentage of total enrolment in the tertiary education	86	35.876	11.099	5.149	58.148
Enrolment in engineering as percentage of total enrolment in the tertiary education	82	10.719	6.931	0.139	30.175
Oil rent-to-GDP ratio	132	5.891	14.321	0	90.784
Aggregated governance index	134	0.497	0.186	0	1
Corruption	134	0.605	0.189	0	1
Rule of law	134	0.502	0.188	0	1
Regulatory quality	134	0.489	0.179	0	1
Government effectiveness	134	0.503	0.181	0	1
Political stability	134	0.434	0.221	0	1
Voice and Accountability	134	0.473	0.245	0	1
Corruption (Transparency International)	132	0.714	0.188	0	1
Corruption (ICRG measure)	95	0.498	0.162	0	1
GDP growth	135	4.606	2.804	-5.643	15.905
log GDP per capita	132	6.888	1.121	4.439	8.948
Trade openness	130	84.183	37.058	0.670	200.456
FDI-to-GDP ratio	129	5.037	4.822	-6.599	25.736
Government sonsumption-to-GDP ratio	126	15.116	6.008	5.210	40.227
Private credit-to-GDP ratio	130	30.330	25.861	1.956	138.021
Registering property cost as percentage of property value	115	7.068	5.778	0.067	28.933
Strength of investor protection index (0-10)	118	4.707	1.337	0.7	8.7
Electric power transmission and distribution losses (% of output)	89	19.238	15.765	3.492	114.423

Table B2 : List of countries (69)

Albania	Kyrgyz Rep.
Algeria	Lao PDR
Argentina	Latvia
Armenia	Lebanon
Azerbaijan	Lesotho
Bangladesh	Liberia
Belarus	Lithuania
Belize	Madagascar
Bolivia	Malaysia
Brazil	Mali
Bulgaria	Mexico
Burkina Faso	Mongolia
Burundi	Morocco
Cambodia	Mozambique
Cameroon	Namibia
Cape Verde	Nepal
Central African Rep.	Niger
Chile	Pakistan
Colombia	Panama
Costa Rica	Philippines
Croatia	Poland
Djibouti	Romania
Ecuador	Sierra Leone
El Salvador	Suriname
Ethiopia	Swaziland
Georgia	Tajikistan
Ghana	Tanzania
Grenada	Thailand
Guatemala	Tunisia
Guinea	Turkey
Guyana	Uganda
Honduras	Ukraine
Indonesia	Uruguay
Jordan	Vietnam
Kenya	