



Oil, governance and the (mis)allocation of talent in developing countries



Christian Ebeke ^a, Luc Désiré Omgba ^{b,*}, Rachid Laajaj ^{c,d}

^a International Monetary Fund, Washington D.C., United States

^b EconomiX, University of Paris Ouest, France

^c Paris School of Economics, France

^d INRA, France

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ABSTRACT

This paper sheds light on the relationship between oil rent and the allocation of talent, toward rent-seeking versus more productive activities, conditional on the quality of institutions. Using a sample of 69 developing countries, we demonstrate that oil resources orient university students toward specializations that provide better future access to rents when institutions are weak. The results are robust to various specifications, datasets on governance quality and estimation methods. Oil affects the demand for each profession through a technological effect, indicating complementarity between oil and engineering, manufacturing and construction; however, it also increases the 'size of the cake'. Therefore, when institutions are weak, oil increases the incentive to opt for professions with better access to rents (law, business, and the social sciences), rather than careers in engineering, creating a deviation from the optimal allocation between the two types of specialization.

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1. Introduction

The seminal work of Sachs and Warner (1995) indicated a negative correlation between the dependency on natural resources and the level of economic growth, which the authors attributed to the Dutch disease phenomenon.¹ Since the publication of their work, several studies have examined the resource curse hypothesis with mixed results. Some findings support the resource curse hypothesis. It has been demonstrated that resource-rich countries are less democratic (Ross, 2001; Tsui, 2010), are more vulnerable to economic shocks (Hausmann and Rigobon, 2003), more prone to armed conflict (Collier and Hoeffler, 2000), and with low human capital (Gylfason, 2001). However, other studies have provided evidence against the existence of the resource curse. For example, it has been demonstrated that an abundance of oil can have a positive effect on growth (Alexseev and Conrad, 2009), that it does not necessarily affect the occurrence of armed conflict (Cotet and Tsui, 2013), and that it increases the accumulation of

human capital (Stijns, 2006). Torvik (2009) argues that while these diverse results contribute to the debate, the key factor is not the average performance of a group of countries per se but that certain countries producing the same natural resource succeed while others fail. Explaining this occurrence requires new insights into the mechanisms through which natural resources harm or foster social and economic outcomes.

Murphy et al. (1991) indicate that the composition of education is critical for long-term growth and economic development. The authors argue that growth is spurred when the most talented people become entrepreneurs rather than rent-seekers because they stimulate innovation and technological development. In their empirical analysis, the authors relate entrepreneurship to training in engineering science and rent-seeking activities to training in law schools. The authors find that a larger number of engineers positively affect growth, while a greater number of law majors tend to reduce economic growth. However, Murphy et al. (1991) do not empirically identify the determinants of the allocation of talent, and none of the aforementioned studies investigates the impact of natural resources on the composition of education.

Our work builds upon Mehlum et al. (2006), who argue that the impact of natural resources on growth depends on whether institutions are "grabber friendly" or "producer friendly". In their model, entrepreneurs are divided between producers and grabbers, and poor institutions allow a higher share of resource rent to go to grabbers. The authors empirically confirm that the impact of natural resources on the growth rate of a country depends on the quality of

* Corresponding author at: University of Paris Ouest, Bâtiment G 200, Avenue de la République, 92001 Nanterre cedex, France. Tel.: +33 140975894.

E-mail addresses: Cebeke@imf.org (C. Ebeke), lucdesire.omgba@u-paris10.fr (L.D. Omgba), rachid.laajaj@parisschoolofeconomics.eu (R. Laajaj).

¹ The Dutch disease explains that the exploitation of natural resources generates an increase in the real exchange rate of the country, causing a loss of competitiveness that harms the rest of the economy.

their institutions. Our paper takes the empirical evidence one step further by providing a more granular explanation that observes the fields of specialization of university students conditional on oil resources and institutions.

Publications on this topic typically separate talent into pure producers (or entrepreneurs) and pure grabbers (e.g., Baland and Francois, 2000; Mehlum et al., 2006; and Murphy et al., 1991). This simplification, motivated by analytical convenience, is problematic, first because the assumption that some professions are inherently less productive than others is highly debatable and second because it does not allow for the distinction between a technological effect and a rent-seeking effect. For this reason, we consider a framework similar to Mehlum et al. (2006) which also allows the grabbers to contribute to production. The two types of talent are complementary in the production process, but grabbers have better access to rent than producers. As a result, the combination of natural resources and poor institutions generates an excessive supply of grabbers, which reduces their marginal productivity.

In this paper, an empirical analysis based on a sample of 69 developing countries indicates that in countries with good governance, oil rents shift the orientation of the talent from law, management, and social sciences degrees to degrees in engineering, manufacturing and construction, while the effect is reversed in countries with poor governance. These results are interpreted through a theoretical framework adapted from Mehlum et al. (2006) in a setup whereby the presence of oil rents and vulnerable institutions drives talent from producer to grabber careers, which harms the economy in the long run.

For simplification, Mehlum et al. (2006) assumed that the grabbers do not contribute at all to production. However, if some professions were exclusively dedicated to rent-seeking, tackling corruption would be an easy task. Our empirical test of whether the allocation of talent is driven by rent-seeking considers that both types of profession are productive (and complementary among them) but that one type of profession (which we will call lawyers) has greater access to resource rents than the other one (called engineers). Hence, the analysis allows for a technological effect of the resource rent: because the oil rent affects the marginal productivity of the two types of professions differently and thus its optimal allocation. Countries with good institutions provide a benchmark, indicating that in the absence of corruption, oil rents increase the proportion of engineers, but when institutions are vulnerable, the resource rent increases the proportion of lawyers, which confirms that the (mis)allocation of talent is driven by rent-seeking. The empirical analysis also indicates that an increase in natural resources results in an increase in the wages of grabbers compared to the wages of producers, indicating that part of the appropriation of the resource rent is accomplished through public administration sector wages.

The remainder of the paper is as follows. Section 2 briefly reviews the literature on the Dutch disease, rent-seeking and the allocation of talent. The cross-section econometric results are presented in Section 3 in cross-section regressions and together with an extensive set of robustness checks, including panel regression analysis and the consideration of endogeneity issues. Section 4 investigates the possibility of alternative interpretations of our baseline results. It demonstrates the short-term impact of oil discoveries on wages as additional evidence of the rent-seeking mechanism. Finally, Section 5 presents conclusions and draws policy implications.

2. Literature review

Few studies have investigated the effect of natural resources on human capital accumulation. Gylfason (2001) finds that oil-producing countries tend to have low levels of human capital

investment, expressed as public expenditure on education relative to national income, expected years of schooling for girls, or gross secondary-school enrolment. The author argues that reliance on natural resources leads to the inadvertent or deliberate neglect of progress in human capital. These results are corroborated by Birdsall et al. (2001), who suggest that dependence on natural resources tends to break the virtuous circle between education, growth, and equality. By contrast, Stijns (2006) disputes these results and finds that natural resource abundance positively affects education levels.

While the aforementioned papers discuss the relationship between natural resources and the level of human capital, they do not account for the learner type of qualification or more broadly for the composition of the attained level of human capital. Murphy et al. (1991) demonstrated that the allocation of talent matters, with engineering college majors contributing to growth significantly more than law graduates. They argue that the misallocation of talent explains the slow economic development in many African and Latin American countries and the rapid development of East Asian countries.

Baland and Francois (2000) examined the role of natural resources in rent-seeking activities, analyzing rents derived from quantitative restrictions on imports, as developed by Krueger (1974). They find it to be path dependent; if rent-seeking were to be initially low, a resource boom would further reduce it, but if it were initially high, the boom would increase it further.

Mehlum et al. (2006) examine the allocation of entrepreneurs between productive and unproductive activities, focusing on rents generated by natural resources. On the one hand, the exploitation of natural resources increases the income of the country, but on the other hand, it causes a displacement of private agents (including entrepreneurs) from the productive sector of the economy to the rent-seeking sector. The talent will therefore make a tradeoff between using their resources for productive activities and using these resources to capture the available rent. The decision to move from one category of activity to the other depends on the profitability of each sector, which ultimately depends on the quality of the institutions in place. If institutions are of good (poor) quality, production activities are more (less) profitable than rent-seeking activities. This diversion from the productive sector leads to a decline in productivity throughout the economy, and 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).

Our paper investigates the determinants of the allocation of talent in developing countries, with a focus on how oil resources affect the incentives faced by university students. Among all natural resources, oil seems to be the resource with the highest occurrence of the resource curse (Manzano and Rigobon, 2006; Ross, 2001), primarily due to the importance of oil rents (Manzano and Rigobon, 2006). Therefore, it is necessary to investigate whether the presence of such rents encourage students in tertiary education to choose specializations that lead to rent-seeking activities.

3. Empirical analysis

In this part, we describe the sample and variables used in the study. Then, we carry out an econometric analysis using cross-section and panel approaches. After this, the section presents several robustness checks that include panel data estimates, and investigates alternative explanations to our main results.

3.1. Econometric model and data description

This paper tests the hypothesis that the effect of oil resources on the allocation of talent toward rent-seeking activities increases with bad

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