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Natural resources, democracy and corruption

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ABSTRACT

We study how natural resources can feed corruption and how this effect depends on the quality of the democratic institutions. Our game-theoretic model predicts that resource rents lead to an increase in corruption if the quality of the democratic institutions is relatively poor, but not otherwise. We use panel data covering the period 1980–2004 and 124 countries to test this theoretical prediction. Our estimates confirm that the relationship between resource rents and corruption depends on the quality of the democratic institutions. Our main results hold when we control for the effects of income, time varying common shocks, regional fixed effects and various additional covariates. They are also robust across different samples, and to the use of various alternative measures of natural resources, democracy and corruption.

1. Introduction

The finding that natural resources are a curse rather than a blessing may seem paradoxical at first and has led to an extensive literature.[1] One of the main hypotheses put forward is that natural resource riches breed corruption, which, in turn, lowers economic performance (e.g., Leite and Weidmann, 2002; Sala-i-Martin and Subramanian, 2003; Isham et al., 2005).[2] In this paper, we take a closer look at the relationship between natural resources and corruption. In particular, we investigate both theoretically and empirically whether and how the quality of the democratic institutions affects this relationship.

In the theoretical part, we present a game between politicians and the people. There are some "good" politicians who act in the people's best interest and possibly many more "bad" politicians who primarily care about the revenues they can generate by corrupt activities. The people prefer to have a good politician as their president. This provides an incentive for a bad incumbent president to mimic a good president and not to engage in corruption in order to improve the chances that he can remain in power. In equilibrium, a bad incumbent mimics a good incumbent if and only if the democratic institutions are sufficiently sound, i.e., if and only if there is a sufficiently large difference between the probability that he can stay in office when supported by the people and the probability that he can stay in office without the people's support. If this difference is small, a bad incumbent engages in corrupt activities. The level of corruption that he chooses in this case

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[1] This finding goes back to Corden and Neary (1982) and has been popularized by Sachs and Warner (1995). For an overview of this literature, see, e.g., Gylfason (2001) and Sachs and Warner (2001), or van der Ploeg (2008).

[2] As discussed below, there is a closely related hypothesis that natural resources lead to various forms of rent-seeking, which then lower economic performance.

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increases in the abundance of natural resources because resource rents are less sensitive to corruption than domestic production. Our model thus predicts that resource abundance increases corruption in countries with poor democratic institutions, but not in countries with comparatively better democratic institutions.

In the empirical part, we test this prediction using a reduced form model and panel data covering the period 1980–2004 and 124 countries. Our estimates confirm that the relationship between resource rents and corruption depends on the quality of the democratic institutions. We find that resource rents are positively associated with corruption in countries for which the net democracy score POLITY2 is 8.5 or less.[3] Our basic results hold when we control for the effects of log income, time varying common shocks, regional fixed effects and various additional covariates. It is also robust to various alternative measures of corruption, resource abundance and the quality of democratic institutions, as well as to the instrumental variable method of estimation and across different samples.

Our contribution in this paper is twofold. First, we present a theoretical model that clearly demonstrates why we should expect the effect of resource rents on corruption to depend on the quality of the democratic institutions. We thereby also introduce a novel way of modeling the quality of democratic institutions. Second, using a reduced form econometric model we show that the effect of resource rents on corruption indeed depends on the level of democracy.

The literature that studies the effect of natural resources on corruption is rather small. Ades and Di Tella (1999) present a theoretical model which predicts that resource rents and rents induced by a lack of product market competition foster bureaucratic corruption, as well as evidence that corruption increases in the proportion of total exports accounted by fuel, minerals and metals. In his broad cross-country study, Treisman (2000) shows that this proportion is a robust determinant of corruption. Leite and Weidmann (2002) find that natural resource exports (as shares of GNP) tend to increase corruption, and that this in turn lowers growth. Isham et al. (2005) show that this effect is most pronounced for "point source" natural resources such as oil, minerals, and plantation crops. Aslaksen (2007) also finds that oil and minerals increase corruption. She further divides her sample into countries with low, medium and high POLITY2 scores in the year 1982. Using this cardinal approach, she finds that minerals increase corruption only in the first sub-sample whereas oil increases corruption in the first two of these sub-samples. In our empirical part, we choose a different approach to investigate how the level of democracy influences the effect of natural resources on corruption. Consistent with our theoretical model, we use an ordinal measure of democracy.[4] We introduce an interaction term between natural resources and democracy and also control for the direct effect of democracy on corruption. Finally, Vicente (2009) presents evidence that the oil discoveries in the late 1990s increased perceived corruption in Sao Tome and Principe.[5]

Corruption can be seen as one of many forms of rent-seeking. Our paper therefore is related to the literature which argues that natural resources may lower the economic performance because they foster rent-seeking activities (e.g., Lane and Tornell, 1996; Tornell and Lane, 1999; Baland and Francois, 2000; Torvik, 2002). In particular, our paper is related to the recent contributions to this literature which emphasize that whether natural resources are a curse or a blessing depends on country-specific circumstances. Mehlum et al. (2006) show that natural resources boost economic performance if institutions are producer-friendly, but dampen economic performance if institutions are grabber-friendly. Hodler (2006) shows that natural resources lead to intensive rent-seeking, poor institutions and lower incomes in ethnically fractionalized societies, but to little or no rent-seeking and higher incomes in homogeneous societies. Robinson et al. (2006) argue that natural resources can lead to inefficiently high public sector employment unless strong political institutions prevent such patronage. Bulte and Damania (2008) present a model in which entrepreneurs from the natural resource sector lobby for sector-specific public goods when there is no political competition. Collier and Hoeffler (2009) investigate whether the effect of democracy on growth is distinctive in resource-rich societies. They find that strong checks and balances, which are often missing in newly established democracies, would be of particular importance in these societies.

The remainder of the paper is structured as follows: Section 2 presents the theoretical model, and Section 3 derives the equilibrium and some comparative static results. Section 4 discusses our empirical strategy and the data. Section 5 presents the empirical evidence and various robustness tests. Section 6 concludes.

2. The model

There is an economy inhabited by an incumbent president, who is in office for exogenous reasons, a challenger and the people. The incumbent and the challenger are each a good type $\overline{\theta}$ with probability $\alpha \in (0,1)$ and a bad type $\underline{\theta}$ with probability $1-\alpha$. Each politician's type is his private information, but α is common knowledge.[6]

[3] See Section 4 for information on the POLITY2 score and its source, the Polity IV database.

[4] Collier and Hoeffler (2009, pp. 298–299) argue that "[s]ince the democracy score is ordinal, all uses that treat it as cardinal are at best approximations."

[5] Sao Tome and Principe is not covered in the Polity IV database. The coup d'etat in 2003, however, suggests that its democratic institutions are relatively poor. The increase in corruption is therefore consistent with the predictions of our model.

[6] None of our results depends on the value of α as long as $\alpha \in (0,1)$. Hence, they hold even if good politicians are very rare.