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Natural resources, decentralization, and risk sharing: Can resource booms unify nations?☆

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ABSTRACT

Previous studies imply that a positive regional fiscal shock, such as a resource boom, strengthens the desire for separation. In this paper we present a new and opposite perspective. We construct a model of endogenous fiscal decentralization that builds on two key notions: a trade-off between risk sharing and heterogeneity, and a positive association between resource booms and risk. The model shows that a resource windfall causes the nation to centralize as a mechanism to either share risk and/or prevent local capture, depending on the relative bargaining power of the central and regional governments. We provide cross country empirical evidence for the main hypotheses, finding that resource booms: (i) decrease the level of fiscal decentralization with no U-shaped patterns, (ii) cause the former due to risk sharing incentives primarily when regional governments are relatively strong, and (iii) have no effect on political decentralization.

1. Introduction

The reasons behind why nations centralize or why regions demand higher levels of independence are of first order importance. One contributing factor might be the discovery of natural resources. A windfall of natural riches often provides an enormous source of income that leads to conflict over its distribution, and can even threaten the nation's unity. This paper tries to unfold this resources-unity nexus by addressing the following question: do resource booms affect the level of fiscal decentralization (henceforth, FD)? Contrary to conventional wisdom, we argue that resource booms may in fact contribute to the unification of nations, by leading to higher levels of government centralization.

Previous studies on the determinants of FD such as Arzaghi and Henderson (2005), Oates (1972), Panizza (1999) and Treisman (2006) identify several key determinants, ranging from historical and geographical to cultural and institutional. However, very little attention has been devoted to the role that natural resources may have in this.[1] This paper contributes to this strand of the literature by filling this gap and presenting new insights on the association between natural resources and decentralization.

The potential association between natural resources and FD has been observed in several occasions. "It's Scotland's Oil" was the widely publicized slogan used in the 1970s by the Scottish National Party to promote Scottish independence; as the slogan implies, the discovery of oil in the North Sea (within the territory of Scotland)

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[1] An exception is Freinkman and Plekhanov (2009), who find that resource rich Russian regions tend to have more centralized governments. Unlike these authors, we provide national-level, cross country empirical evidence that addresses potential endogeneity issues and is linked to a formal theory that emphasizes different mechanisms.

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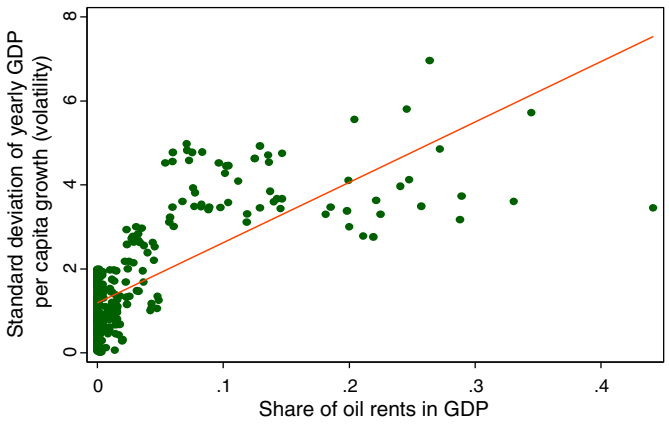

Fig. 1. Resource dependence and risk. Notes: Figure presents the correlation between the GDP share of oil rents and the standard deviation in the growth of real GDP per capita (Volatility) over 5-year intervals in 1965–2000 ($\rho = 0.74$).

created a struggle, between Scotland and the United Kingdom, on the fiscal control over the oil rents. A more extreme case is Sudan, which eventually split into two nations mainly due to the large oil reserves located in the south. Boadway (2006) discusses the influential role of resource booms in Canadian fiscal federalism; indeed, various agreements made between the provincial and federal governments of Canada regarding regional fiscal control over natural wealth provide an indication for that. Similarly, drawing on the related literature on natural resources and conflicts, various studies indirectly document the effects of resource booms on levels of fiscal control in developing nations such as Angola, Colombia, Iraq, Nigeria, and Sierra Leone, among others (see Blattman and Miguel, 2010; Ross, 2004, 2006, for surveys).

Albeit not explicitly formalized, a similar correlation is suggested by previous models of endogenous FD. Arzaghi and Henderson (2005) and Panizza (1999), for instance, imply that a regional fiscal shock is expected to increase the level of FD, and strengthen the desire for separation. Observed patterns may, however, hide other factors whose influence on decentralization demands is simply exacerbated by natural resources. For example, ethnic fractionalization is often the trigger for many secessionist conflicts. To illustrate this point notice that in the Scottish case we have the historical tension between the Scots and the Anglo-Saxons; and in Sudan, the Arabs in the north versus the Africans in the south.

We offer a theory and empirical evidence that point at the opposite direction; namely, that resource booms can lower the level of FD. The theory treats FD as an endogenous variable, and investigates how it might be affected by a windfall of natural resources, building on two main features: (i) a trade-off between risk sharing and heterogeneity, and (ii) a positive association between resources and risk. The heterogeneity assumption follows Panizza (1999), and is a consequence of spatial decay of public goods' efficiency. In turn, the positive association between resource wealth and volatility has been widely discussed in previous studies (e.g. Poelhekke and Van der Ploeg, 2009). Furthermore, as Fig. 1 illustrates, this relationship is also a feature of our sample, showing a positive correlation between the share of oil rents in GDP and the standard deviation in the growth of real GDP per capita ($\rho = 0.74$).[2]

Focusing on cases where regional demands matter, risk sharing is the main mechanism put forward by our theory.[3] In the model, we consider two sources of risk: *revenue volatility*, and *local inefficiency*. The first is based on several studies documenting excessive volatility in oil prices (Blattman et al.,2007; Davis et al., 2001), and the incentive this provides for governments to share the risk involved (Stroebel and van Benthem, 2013). The second is motivated by the notion that resource dependence may create adverse effects such as corruption and other development-inhibiting risks that fall under the so-called *natural resource curse* hypothesis.[4] Importantly, these effects can also provide resource rich regional governments an incentive to mitigate them through sharing. Indeed, recent studies indicate that resource-booming local governments are able to mitigate the adverse effects of resources, and even grow on the account of their neighboring resource poor regions, in fiscally decentralized and federalized economies (Beine et al., 2015; Cai and Treisman, 2005; Papyrakis and Raveh, 2014; Raveh, 2013).

In the model, the central and regional governments (henceforth, CG and RG, respectively) have different incentives regarding FD. In particular, if the former does not care about the latter's welfare, it would prefer full centralization regardless of the amount of natural riches — being the standard result in the literature. The FD trade-off is at work only if RG has some bargaining power and, as a consequence, CG decides to account for RG's preferences when determining the equilibrium level of FD. Under these circumstances, in which regional demands are taken seriously, the model shows that a resource boom can lead to more centralization due to either the incentive that CG has to reduce the impact of regional officials' rent-extraction behavior and/or the RG's desire to share the risks involved across the nation. The risk sharing mechanism becomes relatively more important as RG's bargaining power rises.

In the empirical exercise, we motivate our focus on FD (as opposed to political decentralization), and test the model's main predictions, including the hypothesized association between resource booms and FD. For that, we employ a large panel of countries, spanning over several decades, and use the *Kearney Decentralization Index*(Arzaghi and Henderson, 2005), and the World Bank's *Vertical Imbalance* measure, to approach the endogenous variable. Since the Kearney index is discrete in nature, probit estimation techniques are used, along with linear methods. As a measure of resource abundance, we employ several proxies. The first is GDP share of oil rents, which is suggested by the model. The other measures are chosen so as to address possible endogeneity issues; these include stock measures of giant oil fields, and price-based measures that exploit exogenous variations in the price of crude oil. The main analyses, as well as several robustness checks that test different controls and time periods, indicate that resource booms negatively affect FD (with no apparent U-shaped effects), and have no impact on political decentralization.

In addition, we also test the risk sharing mechanism proposed by the model, and compare it against other potential channels. For this, we use a standard volatility proxy: the standard deviation in the growth of real GDP per capita. While each of the additional potential channels that we test does not affect the impact of resources, the risk proxy does. When added to the regressions, the effect of resources on FD vanishes, that is, their impact – net of risk – becomes statistically insignificant and with substantially lower magnitude; moreover, consistent with the predictions of the model, we find this result is primarily driven by cases where RGs have some relatively significant bargaining power, as opposed to when CG is relatively stronger where resource booms decrease FD irrespective of risk. Importantly,

[2] In the empirical part we describe these variables and discuss the sample in detail.

[3] Previous secession models such as Bolton and Roland (1997), and Buchanan and Faith (1987) focus as well on regional demands. We substantiate this point further in the empirical part.

[4] The *naturalresource curse*hypothesis describes an inverse relationship between natural resource abundance and long-term economic growth; see Van der Ploeg (2011) for a review of the literature. Within this literature, Perez-Sebastian and Raveh (2016) show that FD can help explain the resource curse finding, but do not study the effect of natural resources on FD.