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Natural resources: Funds and economic performance of resource-rich countries

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ABSTRACT

Resource funds have been widely defended in the theoretical literature as a solution to the resource curse. In this work, empirical analyses of a sample of 28 resource-rich countries over the period 1985–2010 do not support this argument. Rather, the results indicate that resource funds have a negative and significant effect on growth and that this finding is robust under alternative estimation techniques. Moreover, the results do not validate the hypothesis of the resource curse due to the positive effect of resource dependence on growth. Finally, the study provides evidence that the negative component of the curse is captured by the resource funds. The implications in terms of natural resources funds management are discussed.

1. Introduction

Countries highly endowed in natural resources must find ways to effectively manage their rents to escape the resource curse. This economic phenomenon resulting from slow growth in natural resource economies sparked an important debate according to its determinants and the solutions developed to cope with it. Theoretical and empirical analyses have highlighted several factors that explain that the resource curse manifests itself differently in different countries. Thus, the resource curse is the result of the Dutch disease (Sachs and Warner, 1995), institutional factors (Mehlum et al., 2006), price volatility (Van der Ploeg, 2007), among others (see Van der Ploeg, 2011). In the same way, studies have identified the channels through which the abundance of natural resources could contribute to economic progress, such as (i) good governance (Mehlum et al., 2006), (ii) international trade openness (Arezki and van der Ploeg, 2011), and (iii) adoption of countercyclical fiscal rules to address revenue volatility (Frankel, 2012). Furthermore, the establishment of resource funds is increasingly being perceived as an effective strategy to combat the resource curse (Barnett and Ossowski, 2003; Davis et al., 2003). In the literature, these funds are of two types depending on the objective, specifically, (i) the stabilization funds, which aim to protect public finances and the national economy from fluctuations in commodity prices, and (ii) savings funds, which are dedicated to converting nonrenewable assets in a diversified portfolio.

Following the justification of funds as an effective instrument to counter the effects of the resource curse, many countries rich in natural resources have experienced the management of natural rents through stabilization and/or through savings funds. However, the efficiency[1] of these funds to prevent the curse is mixed. Indeed, the study of Davis et al. (2003) indicates that the establishment of funds does not have a significant impact on government spending in many countries. However, in Botswana, resource funds have contributed to minimizing the effects of the curse (Sarraf and Jiwanji, 2001). Thus, the analyses remain inconclusive regarding the efficiency of these funds to prevent the resource curse.

The aim of this paper is to analyze the effect of resource funds on economic growth and re-examine the curse hypothesis. In other words, after controlling for the traditional, political and institutional factors, this study seeks to understand how resource

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[1] This means the ability of resource funds to prevent the resource curse.

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funds affect economic growth and examine the relationship between economic growth and resource dependence. This research follows the pioneering work of Sachs and Warner with respect to the resource curse (Sachs and Warner, 1995). However, in their study, the heterogeneity of countries rich in natural resources with respect to rent management strategies was not taken into account. Nonetheless, the effect of resource dependence on growth could be determined by rent management mechanisms that are specific to each country. Using Sachs and Warner (1995) data and controlling for fixed effects, Manzano and Rigobon (2006) concluded the absence of the resource curse. Furthermore, most papers on the efficiency of resource funds are descriptive and do not empirically analyze the potential impact of resource funds on growth (Caner et al., 2011). Finally, recent studies have focused on the effect of resource funds on macroeconomic instability (inflation) (Mehrara et al., 2012) and institutional quality and governance (Tsani, 2013; 2015). In particular, Tsani's (2013; 2015) works focused on the relationship among resource funds, governance and institutional quality, whereas the present study is interested in addressing the effect of resource funds on economic growth and in re-examining the existence of the natural resource curse hypothesis for 28 countries rich in natural resources over the period 1985–2010.

This paper is organized as follows. The first section provides an overview of the theoretical and empirical results regarding the relationship between resource funds and the resource curse, the second describes the methodology and data used, and the last section presents and discusses the results of the study.

2. Natural resources funds and theory of the curse

Most resource-rich countries have been experiencing a paradoxical low growth relative to other countries (Sachs and Warner, 1995). This phenomenon is known as the resource curse and has been the object of an extensive literature on the factors that may be the cause. Many sources of the curse are generally discussed (Van der Ploeg, 2011; Fleming et al., 2015), such as the (i) appreciation of exchange rates, (ii) volatility of international commodity prices, (iii) poor institutions, (iv) authoritative political systems, (v) corruption, (vi) anticipation of better times and negative genuine savings, (vii) temporary loss of learning by doing, (viii) rent-seeking behaviors and (ix) unsustainable policies.

The first source is the manifestation of the Dutch disease. Indeed, the exploitation of resources increases the inflow of foreign currency in the country, which follows an appreciation of exchange rates that adversely affect the competitiveness of the manufacturing sector and other export sectors (Sachs and Warner, 2001). The second source is the instability of prices (Van der Ploeg, 2007). Resource dependent countries are usually exposed to substantial commodity price volatility and suffer from a high degree of macroeconomic instability, which in turn may have negative implications for their GDP growth. The third source is related to institutional failures as natural resource dependency also affects the political basis either by increasing the probability of the occurrence of armed conflicts (Collier and Hoeffler, 2000) or by increasing the failures of the democracy (Ross, 2001). Indeed, though the abundance of resources hinders economic growth in the presence of weak institutions, this abundance may well be perceived as a blessing if the institutions are strong (Mehlum et al., 2006). See Van der Ploeg (2011) for a more complete review of existing theoretical explanations of the resource curse and Fleming et al. (2015) for the scale of effects regarding the curse analysis.

One way to cope with the resource curse is to establish resource funds (Barnett and Ossowski, 2003), as these funds have several advantages (Davis et al., 2003). First, they contribute to the transparency of revenue streams, thus preventing an appreciation of the exchange and providing some fiscal discipline. However, two schools of thought coexist on the efficiency of resource funds (Baena et al., 2012). The first school argues that success in the establishment of funds depends on the existence of strong institutions (Rodrik, 2004). Thus, the funds must be set up in countries where there are already strong institutions and an effective tax system. The second school of thought believes that the first ignores the effect of resource funds on the quality of institutions. This school argues that resource funds enhance the institutional conditions where such funds do not exist and improve the conditions where such funds already exist (Baena et al., 2012). In this context, there are many countries around the world that have established resource funds based on revenues derived from natural resources. Some countries have a savings or stabilization objective while the aim of other countries is exclusively investment (*see* Table 1). Moreover, the objectives of funds change over time due to the challenges faced by the government.

According to funds efficiency, the results vary depending on the strategy implemented in the management of the funds. Empirical analyses of the efficiency of these funds are first interested in the relationship between the wealth accumulated in the funds and government spending, and second, they have focused on the comparative effect of strategies in natural resource funds.

Studies in countries such as Chile (Fasano, 2000) and regions such as the Middle East and Central Asia have found that the establishment of funds has improved fiscal discipline and reduced the correlation between government spending and resources revenues. Furthermore, the reduction in domestic inflation, price and currency volatility are other benefits associated with the established funds of 15 oil exporters (Shabsigh and Ilahi, 2007). However, these findings differ from those of Barnett and Ossowski (2003), who show that in countries with funds, government spending is correlated with earnings from natural resource exports, whereas in cases where the expenses are not related to income, independence is preserved before and after the establishment of the funds.

Other empirical studies have focused on the efficiency of the oil windfall management strategies, such as the bird in hand (BIH), permanent income hypothesis (PIH), and lump-sum transfer. Omgba and Djiofack (2010) found that the permanent income hypothesis has reduced the vulnerability of Cameroon's public finances during the post-oil phase. However, this model is not associated with improved macroeconomic indicators. Moreover, Landon and Smith (2012) found that in the case of Alberta, for the stabilization funds to be useful in terms of welfare, the BIH model, which corresponds to the 50% deposit of oil revenues in the funds each year and uses 25% (yield), would be recommended. Thus, he finds a reduction of spending volatility of at least 30% and an increase in the welfare of 2.52 points.

To compare the two strategies, Iacono (2012) valued the welfare obtained using the PIH or BIH model. He finds that the welfare associated with the BIH rule is relatively larger than that of the PIH. As for the lump-sum transfer to households, which is expected to have a direct impact on poverty, Hjort (2006) found limits associated with this strategy for developing countries. Indeed, he demonstrated that these countries do not have good institutions for implementing this strategy of funds management. In addition, he found that these funds have no substantial effect on governance and that their macroeconomic effects are uncertain. Finally, on the basis of three countries, namely, Botswana, Indonesia and Norway, he found that the lump sum transfer has an