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The institutional basis of efficiency in resource-rich countries

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ABSTRACT

The “resource curse” is a familiar and recurring theme in development economics. But does resource abundance also lead to resource inefficiency? And if so, what can contribute to better usage of a country’s resources for development? This paper examines 130 countries from 1970 to 2011, both resource-abundant and resource-scarce, and concludes that, on average, resource-abundant countries utilize resources less efficiently. Examining the institutional factors that may explain this disparity in usage, we find that several key institutions are necessary for increasing resource use efficiency, with private property showing the largest economic and statistical significance. By improving basic institutions, resource-rich countries can thus see more environmentally sustainable growth.

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1. Introduction

Research has demonstrated that resource-abundant countries tend to have lower growth rates, on average, than countries that are resource-scarce (Sachs and Warner, 1995, 2001 and Arezki and van der Ploeg, 2007; among many others). A large literature on this phenomenon has sketched the channels in which resource abundance would cause economic stagnation, including: reducing human capital (Gylfason, 2001); retarding the development of economic institutions (Mehlum et al., 2006); altering the development of political institutions and in particular fostering rent-seeking (Alkhater, 2012); fostering conflict (Collier and Hoeffler, 2005); skewing incentives for prudent policies via an increased sense of security (Gylfason, 2001); and increasing economic fragility (Rodrik, 1999).

But while resource abundance may lead to economic stagnation via these several different intermediate effects, a less explored theme in the literature is the direct effect of the abundance of resources on resource usage. As shown in Fig. 1, the linkages between natural resource abundance and growth are second-order, in that they affect human capital, institutional development, and other components of the economy. Moreover, prior scholarship has already established linkages between growth and resource abundance and between resource efficiency (Coursey and Hartwell, 2000) and growth. However, there should be a *direct* linkage between the abundance of resources and their usage. The question then becomes: how does resource abundance affect resource efficiency? And are there institutions that can contribute to better usage of a country’s resources for development?

To examine this question, this paper looks at 130 countries over various time frames from 1970 to 2011, both resource-abundant and resource-scarce, to ascertain if resource-abundant countries utilize resources less efficiently than countries

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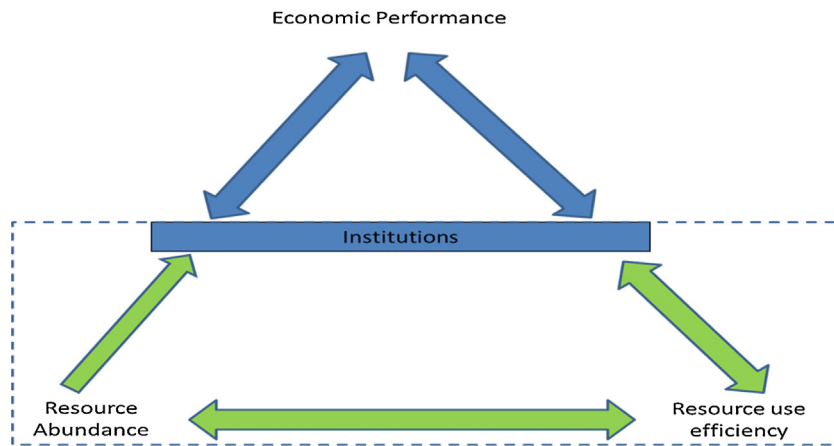


Fig. 1. Resources, Abundance, and Growth.

with a scarcity of resources. More importantly, this paper will break new ground in the literature through examining the institutional factors that may explain this disparity in usage, and ascertaining how key institutions may increase resource use efficiency.

2. Theory: does abundance lead to waste?

Economics is simply the science (or art) of scarcity, and how individuals, firms, and economies deal with the absence of infinity. But what happens in an environment when it appears that the laws of scarcity do not hold (at least in the short or medium term)? Luckily, these effects have been observed for decades in reference to the “soft budget constraint” (Kornai, 1986), a situation where laws of scarcity are superseded by a greater force (normally a paternalistic government). The consequence of this, as noted by Robinson and Torvik (2009, p.787), is such that “enterprises or agencies have incentives to act in inefficient or profligate ways knowing that they will be bailed out if things go wrong.” These “inefficient ways” pervade the firm at every level, including in production methods and use of inputs: “if the budget constraint is hard, the firm has no other option but to adjust . . . by improving quality, cutting costs, introducing new products or new processes . . . if, however, the budget constraint is soft such productive efforts are no longer imperative” (Kornai, 1986; p.10). The results of this were all too apparent in the Soviet Union and its associated satellite states, where not only did firms survive long beyond their sell-by date (Kornai et al., 2003), but incentives for quality and cost minimization were absent due to social ownership, leading to inefficiently produced and unwanted products.¹

Relevant for this paper, and as noted by Kornai et al. (2003), soft budget constraints do not only pertain to government or financial institution bailouts, but can occur in a variety of situations. Indeed, natural resource abundance could provide a similar soft budget constraint in the short and medium term. Generally, resource abundance (and in particular sudden resource abundance or discoveries) alters the effect of prices on the decision-making of a firm in regards to its inputs, shifting the firm’s demand curve closer to vertical (as Kornai, 1986; notes). Indeed, given rapid advances in technology or resource discoveries, the soft budget constraint could occur overnight: until the advent of internal combustion, oil was fairly underutilized. This transformative effect of technology coupled with resource abundance (Smulders, 2005) could lead to the constraints on an economy quickly becoming relaxed, and perhaps to natural resource waste and inefficiency *vis à vis* countries that have fewer natural resources.

This hypothesis follows on from the effects of natural resource abundance that have already been observed empirically. The biggest effect, as Auty and Gelb (2001, p.2) note, is that “natural resource-abundance tends to undermine investment efficiency whereas a resource-poor endowment places a premium on efficiency.” Given that investment is but a second-order effect of a resource boom, it would make sense that the actual *first-order* effect of a resource boom, i.e. the usage of resources, would also have its efficiency undermined. This effect has also been observed in relationship to the effect that resources have on prudent macroeconomic management; in the words of Gylfason (2001, p.848), “incentives to create wealth tend to become too blunted by the ability to extract wealth from the soil or the sea.” Thus, we would expect to see the same effect that relaxes constraints on prudent policies to also lead to a relaxation of efficiency: if everything is available at all times, and scarcity is no longer a very real threat, there is less of an incentive to economize.

¹ In the words of American humorist P.J. O'Rourke, “A huge totalitarian system has been brought to its knees because nobody wants to wear Bulgarian shoes.”

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