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Dynamic resource management under weak property rights: A tale of thieves and trespassers[☆]

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ABSTRACT

We study non-renewable resource extraction when institutions weakly protect the resource owner's property rights. First, weak wealth protection exposes the stock in the ground to trespassing. Second, weak income protection exposes revenues from extraction to theft. In our dynamic framework with strategic interactions, the strength of wealth and income protection evolves over time. The weak protection of wealth results in excessive depletion due to the common pool externality. Anticipated changes in institutional strength further distort depletion. A resource user (i.e., owner or trespasser) is less rapacious when she anticipates favorable institutional changes. However, a given change in institutional strength may be favorable for some but detrimental for another resource user. Under these conflicting interests, the anticipation of better wealth protection might result in less efficient extraction. More generally, our results indicate that unstable institutions limit the benefits derived from resource ownership and thus constitute a challenge to the efficient management of non-renewable resource riches in weakly institutionalized economies.

1. Introduction

The problem of weak property rights is pervasive across economic settings. Such is the case of the management of non-renewable resources, where property rights have been for long central in the discussion of how to secure the optimal use of these resources. In this context, a weak protection of property rights is typically associated with a problem of common access to the stock of the resource, and 'weak property rights' are taken as synonymous with resource over-use.

However, the management of non-renewable resources can also be affected by insecure rights over the revenues from exploiting the resource. This second manifestation of weak property rights reduces the effective revenues that can be obtained from exploiting resource, and thus may end up distorting the trade-offs that govern the resource management decisions.

Weakly institutionalized economies struggle to obtain the most out of their resource riches. Imperfect protection of both resource wealth and income play a role in this resource curse. Take the case of gold mining in Latin America (Banchirigah, 2008; Hilson, 2002; Hilson and Potter, 2003). The weak protection of rights over the resource wealth in the ground (i.e., mining rights) has resulted in widespread illegal mining across the region: "about 28% of gold mined in Peru, 30% of gold mined in Bolivia, 77% of

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