

EconWorld2016@Barcelona

Optimal Extraction and External Saving of Exhaustible Resource Exporters

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ABSTRACT

This paper examines the optimal saving and extraction policy of an exhaustible resource exporting economy (ERE) under uncertainty. The recent surge in current account surpluses held by several EREs, and the even more recent downturn in commodity prices, begs the following questions: 1) What are the main determinants of the demand for foreign assets from EREs? 2) How does the precautionary motive to increase external savings interact with the rate of depleting the exhaustible resource? To answer these questions, this paper points to the key factors which govern the trade-off between keeping the resource underground and increasing external savings. We then quantify the extent to which savings and the extraction rate respond to changes in uncertainty, prudence, impatience, the cost of extraction, and demographic growth. The quantitative assessment yields three main findings: 1) While uncertainty speeds up the depletion of the exhaustible resource, this does not result in the accumulation of more net foreign assets for a sufficient degree of impatience. 2) Increased prudence does not affect the extraction rate as the ERE can use its net foreign assets to mitigate income fluctuations. 3) It does, however, increase the target buffer stock level.

KEYWORDS Precautionary Saving; Exhaustible Resources; NetForeign Assets

JEL E21, F32, Q30