

## Tin Scarcity in India: Evidence from a Structural Time Series Approach

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*The paper evaluates the Resource Scarcity Hypothesis in the case of tin, a strategic metal in the Indian economy, using data from 1958 till 2013. Estimation was carried out using the Structural Time Series Model. Results of model estimations identify a stochastic long term growth with significant cyclical movements. Compared to the large amplitude of the cycles, the growth rate of the long-term trend is small and punctuated by structural breaks. Our approach provides a flexible and reasonably accurate fitting procedure for quantifying the effects of separate structural components. On the whole, the model works well as a description of resource prices but does not support the resource scarcity hypothesis. Results of the present study can help in the formulation of an informed policy response to the problems associated with the growing demand for tin in India.*

### Introduction

Concerns over natural resource scarcity are both new and old in economics. They can be traced back to the classical economists, particularly Malthus and Ricardo. One of the often posed questions in debates over the availability of natural resources is: are we running short of resources? Answers to this question have defied consensus. Economists, from time to time, proposed methods for measuring natural resource scarcity. Important methods are: (i) life time of a resource, (ii) unit cost, (iii) unit cost measures, (iv) real prices, and (v) economic rent (Hanley, *et. al.* 1997). Many studies advocated that real prices serve as a reliable indicator of resource scarcity (Fisher 1979). Some of them have further examined real price trajectories over selected sample periods (Livernois 2009). Most of the tests rely on deterministic and autoregressive models to capture long term trends and indicate the direction of scarcity. In this framework, a major issue of interest is to check for the presence of a unit root and determine whether the data are modelled as random walk or mean reverting processes. It is popularly assumed that resource prices follow a Geometric Brownian Process with drift (Lund 1993). The justification for this assumption is rooted in

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