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Productivity, tradability, and the long-run price puzzle ☆

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Abstract

Long-run cross-country price data exhibit a puzzle. Today, richer countries exhibit higher price levels than poorer countries, a stylized fact usually attributed to the Balassa–Samuelson (BS) effect. But looking back 50 years, this effect virtually disappears from the data. What is often assumed to be a universal property is actually quite specific to recent times, emerging a half century ago and growing steadily over time. What might potentially explain this historical pattern? We develop an updated BS model inspired by recent developments in trade theory, where a continuum of goods are differentiated by productivity, and where tradability is endogenously determined. Firms experiencing productivity gains are more likely to become tradable and crowd out firms not experiencing productivity gains. As a result the usual BS assumption—that productivity gains be concentrated in

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the traded goods sector—emerges endogenously, and the BS effect on relative price levels likewise evolves gradually over time.

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1. Introduction and conventional wisdom

It is conventional wisdom today that richer countries have higher price levels than poorer countries. Fig. 1a illustrates this idea, displaying the association of 1995 log price levels and log per capita incomes based on Penn World Table (PWT) data. That this is the consensus view is clear since similar charts appear in most textbook discussions of these phenomena (e.g., Krugman and Obstfeld, 2003, Fig. 15.4). While a number of potential explanations have been proposed, the standard story appeals to the Balassa–Samuelson (BS) theory, based on the divergence of productivity levels in a world of traded and nontraded goods. Having languished from time to time, these ideas are now enjoying a renaissance and are being incorporated into many new open-economy macroeconomic models.

Of course, the apparent robustness of this story has proved to be of considerable relevance for many derivative conclusions in the theoretical and empirical literature. From work on sophisticated mathematical models of real exchange rates to the serious applied problem of judging differences in international living standards, the presumed correlation has had important economic and political ramifications. Since many of our PPP-based real income estimates, past and present, often rely on extrapolations from the PWT based on this kind of relationship, and since such estimates are then used for such diverse tasks as evaluating long-run growth performance or allocating foreign aid, it is important that the patterns in the data be judged stable and predictable.

This paper raises some challenges to this comfortable consensus on the sources of covariance in international prices and incomes. The first challenge is empirical. Whilst

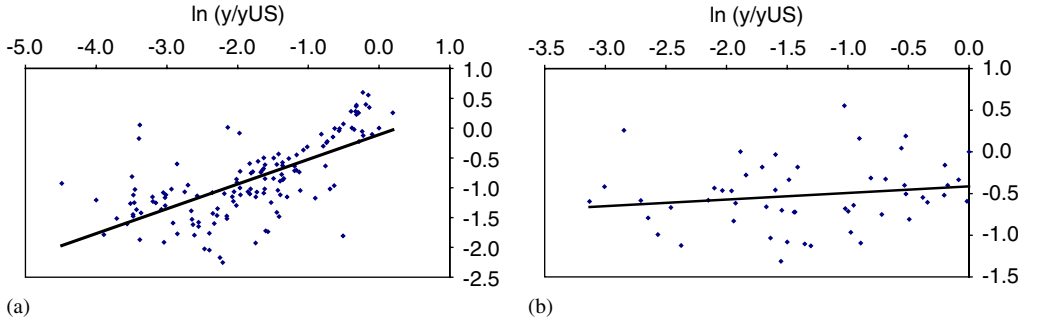

Fig. 1. (a) Log price level versus log per capita income, 1995. US = 0, PWT sample ($N = 142$). (b) Log price level versus log per capita income, 1950 US = 0, PWT sample ($N = 53$). *Notes and sources*: Scatter plots of log price level versus log per capita income. Various samples. See text.