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Journal of Development Economics 70 (2003) 119–132

JOURNAL OF
Development
ECONOMICS

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Retirement saving and development traps

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Abstract

This paper establishes the existence of multiple equilibria that help explain why some countries remain poor and diverge from the economic progress experienced by rich countries. Endogenous growth models cannot explain the negative correlation between work-lives and long-run growth rates. Extending growth models to explain this negative correlation leads to multiple equilibria; one with long work-lives and low rates of growth and another with short work-lives and high rates of growth. © 2002 Elsevier Science B.V. All rights reserved.

JEL classification: O1; O3; O4

Keywords: Development traps; Retirement saving; Work-life

1. Introduction

The neoclassical approach to explaining cross-country differences in productivity has met with some success. Cross-country differences in saving rates, education levels, and fertility rates do a remarkably good job of explaining the level of worker productivity for the upper portion of the world's income distribution. However, the neoclassical approach consistently over-predicts worker productivity at the bottom of the income distribution (see, e.g., Jones, 1998, Ch. 3). Based on neoclassical fundamentals alone, the economies of poor countries should be performing better than what we observe.

Moreover, the standard neoclassical model predicts common long-run growth rates across countries. Yet long-run growth rates of many poorer countries are significantly lower than in richer countries (Pritchett, 1997). Thus, even if one declares success in explaining productivity differences across developed countries, there remains reasonable doubt about

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the neoclassical assumption of a common technology across developed and undeveloped nations.

There is convincing evidence suggesting that technological ideas, while non-rival, are certainly not public goods (Romer, 1996). Technologies cannot be automatically transferred from rich to poor countries. Historical accounts document the difficulties of technological transfers in specific cases (Nelson and Wright, 1992; Diamond, 1997, Ch. 13; Landes, 1998, Ch. 18). The difficulties associated with technological transfers may be particularly severe for poor countries that are largely closed to international trade. Assuming a common technology or even just a common *rate* of technological progress is inconsistent with the evidence that the performance of many poor countries has diverged over very long periods of time.

The question is then why does technological progress occur at different rates in the long-run? One answer is to identify situations that give rise to multiple equilibria with different long-run growth rates (Azariadis and Drazen, 1990). In these situations historical conditions and traditions can perpetuate and create very different growth paths. Poorer countries, with economies that are not sufficiently open to trade, can get caught in low-growth “development traps.”

This paper attempts to contribute to the development-trap literature by identifying empirically plausible scenarios where multiple growth-rate equilibria can arise. Azariadis and Drazen (1990) focus on how non-convexities in human capital production generate multiple equilibria. Our approach complements their analysis. We abstract from human capital and instead highlight the interaction between retirement savings and technological change. A recent paper by Bernanke and Gurkaynak (2001) finds that *long-run* growth rates are significantly correlated with saving rates. Our model provides an explanation for the positive correlation and for why savings rates might differ across countries.

We first adapt the endogenous growth model of Aghion and Howitt (1998, Ch. 12) to fit an overlapping generations framework. An overlapping-generations version of their model is needed if the length of work-lives and retirement savings are to be examined.

We then show that, under standard assumptions, counterfactual predictions about work-lives and development are implied. Causal observation and cross-country data indicate that in low-saving–low-growth economies, individuals work for relatively large fractions of their lives (see Appendix A).¹ In contrast, the prediction under standard assumptions is either (i) all economies with positive growth rates arrive at a *common* corner solution for lifetime work effort or (ii) individuals in low-saving–low-growth economies work relatively *short* fractions of their lives.

Finally, we show how the counterfactual predictions about length of work-life can be removed by either assuming that older workers face costs to adapting to new technologies or preferences are influenced by habit formation. Furthermore, under either assumption, multiple equilibria are possible. The equilibria with relatively long work-lives are characterized by relatively low rates of saving and technological progress.

¹ For example, there is evidence that male family members over the age of 60 make important economic contributions to family farms in developing countries (Grimard and Hamilton, 1999; Rosenweig and Wolpin, 1985).

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