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DOES BETA CONVERGENCE IMPLY STOCHASTIC CONVERGENCE OF GDP PER CAPITA LEVELS BETWEEN COUNTRIES? EMPIRICAL EVIDENCE

Abstract:

Ever since the Sala-i-Martin's and Barro's and Mankiw et al.'s well recognized studies, the issue of income-level convergence has gained huge popularity in the literature. The two most common concepts of convergence were proposed: beta convergence (when less developed countries grow faster) and sigma convergence (when income differences between economies decrease over time). However, parallel to the classical definitions and methods of analysis, the concept of stochastic convergence has been theoretically and empirically developed. With the gradual development of panel data based stationarity tests, the range of tools available for empirical analysis has rapidly increased and there currently exist numerous tools that allow to verify empirically the existence of stochastic convergence. Its idea, dating from the early nineties and described fully by e.g. Bernard & Durlauf (1995), is to define convergence on the basis of time series rather than cross section, though recently both concepts have been seriously developed due to popularity of panel data studies. Contrary to the beta-convergence-type thinking in which it is the current situation and the recent influence of the lagged GDP on current growth, in the case of stochastic convergence it is the expected value of future differences between the GDP levels in different countries that are taken into account. In the case when there is stochastic convergence, the basic concept is to expect the difference between the level of development to be zero in the infinite time horizon.
Empirics show, however, that the two approaches: the beta real GDP convergence and the stochastic convergence do not provide the same conclusions. For example in numerous cases the beta convergence is found to exist whereas there apparently is no stochastic convergence. Thus the two approaches considered parallelly are inconclusive as regards the existence of convergence understood as "the less developed catch up on the better developed" in any sense. The paper discusses the strengths and weaknesses of these two concepts of convergence and attempts to answer which should be treated as a closer-to-real-life measure of the existence of the catching-up process in view of the existing discrepancies. Empirical data from different countries are used and the modern techniques such as the Bayesian model averaging are applied when estimating the appropriate regressions. The analysis suggests superiority of the beta convergence approach, however its advantage over the stochastic convergence approach is revealed mostly when the considered time series are short.

Keywords:

economic growth; real economic convergence; catching up; stationarity; ADF test

JEL Classification: C22, O47, O52