DETECTING TECHNOLOGICAL CATCH-UP IN ECONOMIC CONVERGENCE

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Our aim is to address the problem of measuring how much of the convergence that we observe is due to convergence in technology versus convergence in capital-labour ratios, in the absence of data on the level of technology. To this aim, we first develop a growth model where technology accumulation in lagging economies depends on their propensity to innovate and on technological spillovers, and convergence is due *both* to capital deepening and to catch-up. We study the transitional dynamics of the model to show how to discriminate empirically among the following three hypotheses: (i) convergence due to capital deepening with technology levels uniform across economies, as in Mankiw, Romer and Weil (1992); (ii) convergence due to capital deepening with stationary differences in individual technologies, as in Islam (1995); (iii) convergence due to both catch-up and capital deepening (non-stationary differences in individual technologies. We show that, in the absence of TFP data, hypotheses (ii) and (iii) may be difficult to distinguish in cross-section or panel data. We suggest that discrimination can be nevertheless obtained by exploiting the fact that if heterogeneity is the source of catch-up, technology growth is not uniform across countries and the initial differences in technology levels may tend to decrease over time. Given this implication, one way to discriminate between (ii) and (iii) would be to test whether estimates of fixed-effects in sub-periods show the pattern implied by either hypothesis.