Global Divergence in Growth Regressions

by Battisti, di Vaio, and Zeira

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June 2014, Sapir Forum Conference

Growth Regressions

- The Solow-Swan model suggests a two-parameter family of growth paths, which can be thought of as a rate-of-convergence $b(j)$, and a steady-state growth path $y(j,\infty)$.
- The empirical facts of economic growth cannot be explained by only allowing heterogeneity of convergence rates, thus one must allow variability of the unobservable $y(j,\infty)$.
- In previous work, many variables were used to "control" for $y(j,\infty)$.
- Zeira *et al* are describing the eventual destination of convergence by a single parameter $d(j)$ that is that eventual distance from the frontier a countries technology is.
- They then use the more comprehensive date available today to estimate $d(j)$ for difference countries.

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Results

- Describing each economy by a pair of variables $b(j)$ and $d(j)$ is a useful way of summarizing the heterogeneity allowed by models such as the Solow-Swan or the neoclassical model.
- The real world interpretation of $d(j)$ is, of course, the main debate of growth theory.
- The convergence rate$b(j)$ turns out to be small (order of $10^{-2} - 10^{-1}$), so not much variance is explained by convergence rates or starting points.
- Conversely, $d(j)$ varies greatly between countries and regions, implying that most of the "action" is in that variable.

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Results - cont.

- .The direct identification of b and d is used to estimate the effect of a number of explanatory variables.
- The idea is to distil the effect on the long-run paths.
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Questions - nonlinearity

- The model assumes that $b(j)$ and $d(j)$ are constant over time.
- This seems to generate problems with South East Asia and with some oil producing countries.
- In of itself, this is a standard problem, but the results for South East Asia, raise the fear that the estimation method makes $d(j)$ vulnerable to misspecification.
- In particular, one must worry about paths that are not simply geometric (as implied by the neoclassical model).

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- Exercise:

1. Generate paths from the neoclassical growth model.
2. Estimate a linear model based on different periods.
3. Find the implied $d(j)$.

- Conclusion: Economies that are caught during periods of high growth (away from the steady-state) will appear to have the wrong $d(j)$, typically higher than the actual value.

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