Macroconomic Modeling
Lecture 3: Convergence and MRW Replication

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Outline

1. Convergence types
2. Replication of MRW (1992)
3. Growth Accounting
4. Homework Discussion

Income convergence

σ and β convergence

- β convergence occurs when the poor countries, i.e., basically low income per capita, grow faster than the rich countries, i.e., basically high income per capita.
- σ convergence occurs when measure of dispersion across the countries, declines systematically over time.

Convergence

- The world is not deterministic but stochastic. There are always extreme countries, which are initially far away from the mean and hence create a negative correlation btw initial level and growth.
- β convergence is only a necessary condition, not a sufficient condition for σ convergence.
- β convergence may be observed while no σ convergence

MRW

- MRW (1992) argues that the predictions of the Solow model are consistent with the evidence. Examining recently available data for a large set of countries, they find that saving and population growth affect income in the directions that Solow predicted. Moreover, more than half of the cross-country variation in income per capita can be explained by these two variables alone.
- Yet they argue that all is not right for the Solow model. Although the model correctly predicts the directions of the effects of saving and the data the effects of saving and population growth on income are too large. To understand the relation between saving, population growth, and income, one must go beyond the textbook Solow model. They therefore augment the Solow model by including accumulation of human as well as physical capital.
- An finally they examine the failure of countries to converge in per capita income. They argue that one should not expect convergence. Rather, the Solow model predicts that countries generally reach different steady states. They find that once differences in saving and population growth rates are accounted for, there is convergence at roughly the rate that the model predicts.

Criticism on MRW

- MRW states that 80% of the international variation in per capita incomes can be explained using just 3 variables: population growth, and investment rates for physical and human capital. This means that technical efficiency can have only a small role in explaining cross-country income variation???
- Economic miracles, such as Japan's post-WW2 growth, are hard to explain by capital accumulation alone.
- International wage gaps and patterns of migration don't seem to fit the neoclassical framework.

Homework

- Replication of MRW (1992) using newer time dimension
  - All 6 Tables will be constructed.
  - Selected time dimension and country group is up to you.
- Deadline: Midterm Week

References

Barro, R. J., and Sala-i-Martin, X. (1992). Convergence. Journal of political Economy, 100(2), 223-251.
Mankiw, N. G., Romer, D., and Weil, D. N. (1992). A contribution to the empirics of economic growth. The quarterly journal of economics, 107(2), 407-437.