IMF *Staff Papers*
Vol. 44, No. 2 (June 1997)
© 1997 International Monetary Fund

Internal Migration, Center-State Grants, and Economic Growth in the States of India

A Reply to Rao and Sen

PAUL CASHIN and RATNA SAHAY*

IN THEIR COMMENTS on our recent paper (Cashin and Sahay, 1996), Rao and Sen have concerns about several issues: our test of convergence; the sample of states included in our analysis; our measure of state disposable income; and our measure of center-state equalization payments. We respond below to each of these issues in turn.

First, Rao and Sen are incorrect in asserting that the neoclassical growth model predicts *absolute* convergence as it, in fact, predicts *conditional* convergence. What drives the speed of convergence is the level of initial income for each economy relative to its *own* steady state level of income and steady state income growth rate. Absolute and conditional convergence are likely to be similar for regions of a given country (such as the states of India) that are reasonably homogeneous with respect to their steady state income levels and growth rates (that is, for regions that share similar preferences and technology).

As to our examination of cross-state convergence, Rao and Sen seem to be unaware that the use of multiple sectoral variables to control for differential sectoral shocks (which may temporarily affect the growth performance of a state in a manner that is correlated with initial income) is common in the empirical growth literature (Barro and Sala-i-Martin, 1991, 1992, and 1995; and Sala-i-Martin, 1996a and 1996b). Notwithstanding this, Rao and Sen's comment that the share of manufacturing output may be regarded in the Indian context as a policy variable is an interesting one. If true, they are correct in asserting that this "may indicate conditional con-

* Paul Cashin is Assistant Professor at the University of Melbourne, Australia. Ratna Sahay is a Deputy Division Chief in the IMF's Research Department.

©International Monetary Fund. Not for Redistribution

vergence rather than absolute convergence. . . ." However, if this assertion were true, then the absence of *MAN* from our growth regression, implying a failure to control for differing steady states, should reveal itself in a rejection of the restriction of a common C in our equation (1) in favor of C_i. As pointed out below, we find that the restriction of a common C cannot be rejected, which implies that, as we argued in our original paper, *MAN*'s role in our regressions is to control for differential sectoral shocks, not to control for differential steady states. As by definition our cross-sectional regressions impose a common constant term (implying common technology and preferences) for all states, our finding of $\beta > 0$ implies absolute convergence.

Second, Rao and Sen are quite within their rights to argue on a priori grounds that the "special category" states of the north and northeast do not share a common steady state with other states and so should be excluded from any regional growth analysis. However, we tested this contention in our original paper (Cashin and Sahay, 1996, p.149) and could not reject the null hypothesis of a common steady state for all regions of India. Indeed, we have in all likelihood *underestimated* the extent of cross-state convergence in India by including the low-income, slow-growing special category states and high-income, fast-growing Delhi in our data set, as we wanted to avoid biases that might arise from arbitrarily excluding regions from the analysis.

Third, for most years of analysis, our state net domestic product figures are derived from the production side of the state accounts. As such, they refer to the value of production before intergovernmental transfers, which should be added to derive our measure of state disposable income (Government of India, 1986). The exclusion by Barro and Sala-i-Martin (1991) of personal transfers derived from the federal government (as cited by Rao and Sen) was appropriate, given that, unlike us, Barro and Sala-i-Martin were using state *personal* disposable income in their convergence analysis. Our measure of state disposable income is, as stated in our original paper (Cashin and Sahay, 1996, p. 141), analogous to the national accounts concept of national disposable income (which represents the total income available to residents of a given country for consumption and saving). This concept is quite different from personal disposable income.

Finally, the commentators fault us for not doing something that we explicitly stated we would not do, namely, include shared taxes in our definition of grants. We have excluded shared taxes, because, with the lack of meaningful data for the 1961–91 period for all states, we were unable to isolate the income-equalizing component of these transfers. Accordingly, our grants measure (which is based on data published in state budgets) could understate the contribution of transfers from the center, as acknowledged in our

©International Monetary Fund. Not for Redistribution

original paper (Cashin and Sahay, 1996, pp. 129 and 141). More important, we disagree with the commentators' view that all tax devolution from the center should be included in the concept of income-equalizing transfers. Since most taxes are raised by the center, the intended purpose of at least some transfers is merely to make available more resources to all states, independent of equity issues. However, we also readily accept (as we stated in the paper) that some component of these transfers could well be intended for equalizing incomes.

In summary, Rao and Sen have confused the concepts of conditional and absolute convergence, and of state and personal disposable income. They also recommend the arbitrary exclusion of certain states from our sample set and criticize us for failing to include taxation elements of center-state equalization (which we expressly stated in our original paper that we would not include). In short, there is little in the comments of Rao and Sen that persuades us to alter the methodology and conclusions contained in our original paper.

REFERENCES

Barro, Robert J., and Xavier Sala-i-Martin, 1991, "Convergence Across States and Regions," *Brookings Papers on Economic Activity: 1*, Brookings Institution, pp. 107–58.

———, 1992, "Convergence," *Journal of Political Economy*, Vol. 100 (April), pp. 223–51.

———, 1995, *Economic Growth* (New York: McGraw-Hill).

Cashin, Paul, and Ratna Sahay, 1996, "Internal Migration, Center-State Grants, and Economic Growth in the States of India," *Staff Papers*, International Monetary Fund, Vol. 43 (March), pp. 123–71.

Government of India, 1986, *Estimates of State Domestic Product, 1960–61 to 1983–84* (New Delhi, India: Government of India Press, Central Statistical Organisation, Department of Statistics, Ministry of Planning).

Sala-i-Martin, Xavier, 1996a, "Regional Cohesion: Evidence and Theories of Regional Growth and Convergence," *European Economic Review*, Vol. 40 (June), pp. 1325–52.

———, 1996b, "The Classical Approach to Convergence Analysis," *Economic Journal*, Vol. 106 (July), pp. 1019–36.

©International Monetary Fund. Not for Redistribution