Discussion of "Does Economic Growth Reduce Fertility? Rural India 1971-1999" by Foster and Rosenzweig

by

Mihir A. Desai

As Lazear (2000) notes, establishing the role of economic incentives in dictating demographic change and family structure has been one of the great achievements of "economic imperialism." Yet various accounts of the rapid changes in Indian fertility in the final two decades of the twentieth century have given short shrift to the role of economic incentives. These accounts have found little evidence for the role of a crass economic calculus in family decision-making and, instead, have emphasized loftier ideals - the diffusion of ideas on the role of women, female literacy and the spread of knowledge through public health systems. In India, economic imperialism, perhaps unsurprisingly, seems to have met a reluctant audience. Foster and Rosenzweig enter this contested area with a desire to reconcile the dramatic recent Indian experience with the considerable extant evidence on the significance of economic incentives. If imperialists were given to doubt, Foster and Rosenzweig provide them much comfort with their efforts.

Foster and Rosenzweig contribute to this debate by utilizing a novel data source and by innovating on traditional Beckerian logic. Various NCAER surveys have been knitted together to allow for a panel data set that permits for the removal of dynasty fixed effects. The theoretical framework emphasizes traditional value-of-time and quantity-quality tradeoffs but Foster and Rosenzweig innovate by providing a role for girls in family care that parallels the role of mothers. This innovation leads to novel, if somewhat strained, empirical predictions on the effects of girl wages. The empirical framework is fairly straightforward with predicted signs on wage rates and agricultural productivity that reverse between the regressions that explain the number of children and educational attainment.

The OLS findings help explain why others have disputed the role of economic incentives while the dynasty fixed effects results reveal why the OLS results should not be trusted. Taken together, the results provide a stark victory for the imperialists: changes in agricultural productivity and wages accounted for eighty percent of the documented decline in the rural fertility rate. Public health facilities, while associated with a statistically significant effect, explain little of the decline given their wide presence at the beginning of the sample. Female literacy does not materialize as

an important factor in changes in fertility rates. Dynasty fixed effects appear to have revived the imperial project in India.

This study provides a convincing refutation to the prevailing wisdom that economic growth has not driven the decline in rural fertility. While the general thrust of the results is very convincing, it is worth pausing to consider some qualifications. First, the dramatic changes to the OLS results when using state fixed effects and dynasty fixed effects raise questions on the appropriate fixed effects to employ. The use of year and dynasty fixed effects control for persistent unobservables that drive variation across families. As such, identification comes from comparing women within dynasties and women over time within families. Given that the windows between sample years are so long, dynasty fixed effects allow for comparisons between a mother with herself through time (which is presumably minimal), between daughters and mothers through time, and between daughters in a period. The final comparison would seem the most valuable and the use of dynasty/year effects would control for non-persistent unobservable variables as well. This is particularly important given that public health campaigns might have influenced those unobservables over the time period under analysis. More generally, the authors have used community fixed effects in other work and it would be nice to see how much power there is in controlling for communities rather than families. Finally, the centrality of the dynasty fixed effects to the results recommends greater discussion of what dynasties look like and how many women are in typical dynasties.

Second, the paper links the dramatic reduction in rural fertility to the dramatic increases in rural productivity from the Green Revolution. While this argument is generally convincing, it is worth dwelling on the fact that the rural fertility decline came well after the revolution in agricultural productivity (1982 to 1999 relative to 1971 to 1982, in the sample here). This fact would recommend estimating these equations by period rather than just allowing for period fixed effects. Moreover, the mapping of the coefficients to estimates of the contribution of agricultural productivity would more appropriately use period-specific coefficients given the asynchronous nature of the changes. Finally, the case for the role of agricultural productivity would be even more convincing if predicted wage changes based on a first-stage regression of wages on changes in productivity were employed rather than actual wages. It is entirely plausible that agricultural productivity changes have a lagged effect on family decision-making and these lags could usefully have been considered further in this analysis.

Finally, the authors begin their paper by contrasting the role of economic incentives with the view that a "new reproductive idea" has disseminated in rural India giving rise to changes in beliefs that have a "life of their own." This alternative hypothesis about the role of public health campaigns is not fully confronted in their analysis. While the number of health centers is controlled for, these centers are complemented with mass media campaigns, outreach campaigns, and changing technologies of reproductive health. Of course, the dynasty fixed effects allow for some comfort in this regard but there are alternative hypotheses. While migration is assumed to be minimal (and the authors cite evidence of minimal migration), it is conceivable that the effects of migration on wages are largest in areas close to urban areas and that these areas also feature access to mass media campaigns and the easiest access to changed reproductive health technologies. Such an alternative hypothesis would require something more than a dynasty fixed effect to force it to surrender. Subsequent efforts might usefully consider the "splitters" in families (considered in other work by the authors) to fully identify the relative effects of public health efforts and economic incentives in dictating reproductive and schooling decisions.

Until then, Foster and Rosenzweig have clearly demonstrated that economic incentives have mattered greatly for the decline in rural fertility in India. The relative importance of other factors, including public health campaigns and the dissemination of ideas, remains an open question. As Garrett (2007) has noted, a remarkable opportunity awaits as a flood of dollars dedicated to public health issues needs to be targeted effectively in the coming decades. Foster and Rosenzweig's effort should be required reading for decision-makers charged with disseminating those funds. Their efforts remind us that spending public health dollars, and measuring their impact, should be embedded in a deep understanding of how families respond to economic incentives.

Garrett, Laurie (2007), "The Challenge of Global Health" *Foreign Affairs*, Jan/Feb 2007.
Lazear, Edward (2000), "Economic Imperialism," *Quarterly Journal of Economics*, February, 2000, pp. 99-146.