CH-10 INCOME, HEALTH, AND FERTILITY: CONVERGENCE PUZZLES

I. Introduction

- The analysis starts from the 1980s because it allows for a longer term perspective; but also because that is the time when the structural break from the previous era of the "Hindu Growth Rate" (to use the late Professor Raj Krishna's term) occurred
- **Life expectancy at birth (LE)** indicates the number of years a newborn would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
- **Infant mortality rate (IMR)** is defined as the number of infants dying before reaching one year of age, per 1,000 live births in a given year.
- **Total fertility rate (TFR)** is defined as the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates in a given year.
- Convergence means that a state that starts off at low performance levels on an outcome of importance; say the level of income or consumption, should see faster growth on that outcome over time, improving its performance so that it catches up with states which had better starting points.
- Convergence is thus an intuitive measure of absolute and relative performance, allowing national and international comparisons. It measures the rate of catch-up, in particular whether less developed states have caught up with richer ones and hence whether regional dispersion is increasing.
- Three major findings.

II. Finding 1: Income/Consumption Divergence within India

- Poorer countries are catching up with richer countries, the poorer Chinese provinces are catching up with the richer ones, but in India, the less developed states are not catching up; instead they are, on average, falling behind the richer states.
- Internationally, growth rates of per capita GDP widened at least since the 1820s with poorer countries growing slower than richer countries, leading to the basic divide between advanced and developing countries. However, since 1980 this long term trend was reversed and poorer countries started catching up with richer ones. In stark contrast, there continues to be divergence within India or an aggravation of regional inequality.
- A similar exercise for consumption was conducted. Using data from the four reliable "thick" rounds of the National Sample Survey (1983, 1993-94, 2004-05, and 2011-12), convergence for both the state level and the level of regions within states was tested (which the NSS data allows for). When State level consumption convergence regressions for the three decades are taken no sign of convergence in the 2000s was found.
- A final check was performed by lengthening the time period of examination. Since convergence is a long term process, there might be evidence for it over a several decade horizon rather than a shorter time frame. There was no evidence of convergence in per capita NSDP in India for the 1970-2014 periods.
- The opposing results in India versus those in China and internationally pose a deep puzzle.

production. If a state/country is poor, the returns to capital must be high and should be able to attract capital and labor, thereby raising its productivity and enabling catch up with richer states/countries.

- Trade, based on comparative advantage, is really a surrogate for the movement of underlying factors of production.

- A less developed country that has abundant labor and scarce capital will export labor-intensive goods (a surrogate for exporting unskilled labor) and imports capital-intensive goods (a surrogate for attracting capital).

- The main finding suggests that India stands out as an exception. Within India, where borders are porous, convergence has failed whereas in China, we observe successful convergence. Even across countries where borders are much thicker (because of restrictions on trade, capital and labor) the convergence dynamic has occurred. The driving force behind the Chinese convergence dynamic has been the migration of people from farms in the interior to factories on the coast, raising productivity and wages in the poorer regions faster than in richer regions.

- The Indian puzzle is deeper still because in Chapter 11 it can be seen that, contrary to perception, trade within India is quite high. And that chapter also documents that mobility of people has surged dramatically—almost doubled in the 2000s. These indicate that India has porous borders—reflected in actual flows of goods and people—convergence has not happened.

- One possible hypothesis is that convergence fails to occur due to governance or institutional traps. If that is the case, capital will not flow to regions of high productivity because this high productivity may be more notional than real. Poor governance could make the risk-adjusted returns on capital low even in capital scarce states. Moreover, greater labor mobility or exodus from these areas, especially of the higher skilled, could worsen governance.

- A second hypothesis relates to India's pattern of development. India, unlike most growth successes in Asia, has relied on growth of skill-intensive sectors rather than low-skill ones (reflected not just in the dominance of services over manufacturing but also in the patterns of specialization within manufacturing). Thus, if the binding constraint on growth is the availability of skills, there is no reason why labor productivity would necessarily be high in capital scarce states. Unless the less developed regions are able to generate skills, (in addition to providing good governance) convergence may not occur.

III. Finding 2: Health Convergence within India with Room for Improvement against International Standard

- India's low level of expenditures on health (and education) have been the subject of criticism. It is worth understanding states health and demographic outcomes since the 1980s. Two such key indicators are life expectancy at birth and infant mortality rate.

- There are two primary reasons to expect convergence in these key health indicators. Intuitively, the worse the initial situation, the faster progress will occur not least because many medical "technologies" such as antibiotics and other medical practices are commonly available across the world and India.

- Once a country has reduced its infant mortality to near zero, it is fundamentally impossible for it to experience a drastic reduction while countries with high mortality rates have much more room for improvement. This type of natural limit found in LE and IMR does not exist for income or consumption.

- On both indicators of health, there is strong evidence of convergence within India. Kerala, which started off with a life expectancy of 73.5 years in 2002, posted an increase of about

1.27 years over 11 years; UP, which started off with an LE of 60.8 years in 2002, saw a gain that was twice as large of about 3 years. Similarly, even more than a decade later, Kerala experienced little change in its IMR of 11 while Odisha registered a 49 point decrease, moving from an IMR of 87 to 38 points.

- In LE, there is strong evidence of international convergence; however, the Indian states all lie below the line of best fit, indicating that the Indian states are making slower progress than the average country. For example, Kerala's LE increases by 1.7% in 11 years, whereas the representative country that started off at the same position as Kerala, posted greater gains in LE. This is true for all the Indian states.

- The interpretation is the opposite for IMR. Nearly all the Indian states lie below the line, indicating that they posted larger declines in the IMR than the average country. For example, Odisha registered a 38 point decline in IMR over the 2000s whereas the average country with similar IMRs in 2002 posted only a 28 point decline (Bihar, the median state in 2002, reports a drop from an IMR of 61 in 2002 to 42 in 2014.)

- So, there is convergence within India on the two health outcomes and India does not fare too badly in the 2000s compared to other countries. Another key comparison—which gives a sense of long run performance—is simply to compare the level of these two outcomes today against a country's level of per capita GDP.

- In LE, the Indian states are doing about the same or better on average than their international counterparts (they are mostly above the line of best fit); but for IMR, most states look worse in this international comparison (they are above the line of best fit). This is consistent with last year's Survey finding that children and women perhaps bear the burden of deficient systems of health delivery.

IV. Finding 3: Fertility: Exceptional Performance

- Perhaps one of the most striking developments over the past decade has been in fertility.
  - o First, 12 Indian states out of the reporting 23 states have reached levels of fertility that are below the replacement rate (2.1).
  - o Second, like in the case of LE and IMR but unlike income, there is evidence of strong convergence across the states.

- Again, all the Indian states (with the exception of Kerala) lie below the line of best fit, suggesting that they are performing much "better" (in the sense of more rapid fertility declines) than countries on average. The extent to which they are doing better is striking especially for the high TFR states such as Bihar, UP, MP and Rajasthan. These states are in fact posting much stronger fertility declines than is true of the average country.

V. Conclusions

- Despite growing rapidly on average, there is sign of growing regional inequality among the Indian states. This is puzzling because the underlying forces in favor of equalization within India—namely strong and rising movements of goods and people — are strongly evident. One possible hypothesis that there might be **governance traps** that impede the catch-up process. And **if there are such traps, labor and capital mobility might even aggravate underlying inequalities.** But why such traps persist if competitive federalism is forcing change upon the lagging states remains an open question.

- 10.38. In contrast, on health and demography, there is strong evidence of convergence amongst the states in the 2000s. This was not true in the previous decades for IMR and fertility. Here it is the international contrast is striking.

- With regards to life expectancy, the Indian states are close to where they should be given

child" (discussed also in last year's Survey) bear the brunt of weaker delivery of health services.

- What really stands out in the international comparison is fertility and how much better the Indian states are performing than their international counterparts on that metric. These unusually large declines in fertility have strong—and positive—implications for India's demographic dividend going forward.