



Can backward subnational regions catch up with advanced ones?

There are big differences between the per capita incomes of backward and advanced regions in developing countries—and little reason to believe that these differences will disappear very quickly. Addressing poverty may require direct policy interventions that encourage the faster development of poorer regions.

The World Bank faces increasing demand for advice on how economic development can be accelerated in the poorer regions of developing countries. Although traditionally a lender to national governments, the Bank is ready to support subnational governments with project and adjustment loans.

One central question is, do backward areas really need special treatment? Or will factor mobility and trade within countries quickly equalize per capita incomes across regions? If such tendencies toward equalization—or, as it is more commonly called in the literature, convergence—are strong, then policy should ensure only that barriers to internal factor mobility and trade are removed. But if convergence is slow or nonexistent, direct interventions may be needed to ensure that poorer regions share in the benefits of faster national growth.

Subnational disparities in per capita incomes

Despite a widespread absence of internal barriers to trade or factor mobility, average per capita incomes vary considerably across subnational regions—especially in developing countries (figure 1). The lowest coefficient of variation calculated for any developing country is higher than that

observed for any industrial country. (It should be noted, however, that the sample used is rather small.) The largest disparities are usually in large developing countries where transport costs are important, such as Argentina, Brazil, Indonesia, and South Africa. But this is not always the case, as disparities are relatively low in India and high in Thailand (where large income differentials persist between Bangkok and the rest of the country).

Size seems to be less of a factor among industrial countries. Regional disparities are low in Australia and Canada and higher in smaller countries such as France, Germany, Italy, and Japan.

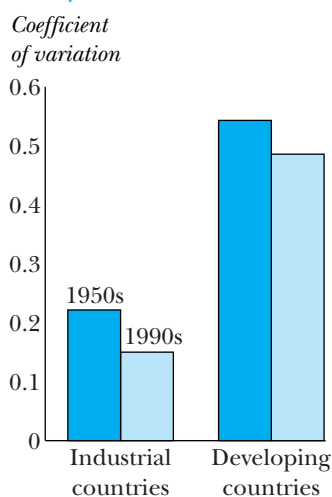
Evidence on convergence

Traditional growth theory predicts that in a country with low barriers to goods and factor mobility, there should be a trend toward convergence in per capita income across regions. In addition, many countries and economic unions of countries have adopted regional development policies aimed at effecting such convergence.

Since the mid-1950s disparities in regional per capita incomes have fallen in nearly every industrial country. The only exceptions are Australia (where regional disparities were initially relatively low) and Germany (where disparities increased sub-

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Figure 1. Disparities in subnational income have become less pronounced



Note: Calculations are for 10 industrial countries and 15 developing countries.
Source: Williamson 1965; World Bank staff.

stantially after reunification in 1991). The evidence suggests a definite trend toward convergence in industrial countries, though it is rather slow.

Changes over time are less clear for developing countries. For example, only Brazil, China, and Indonesia showed continuous reductions in interregional inequality from the 1970s to the early 1990s. In Colombia and Mexico disparities narrowed in the first half of that period, then widened in the second half. And over the same period India saw an increase in interregional inequality.

Some studies test for convergence by seeing whether regions with initially lower than average per capita incomes tend to grow more quickly—the β convergence criterion (box 1). These studies consistently find evidence of subnational convergence within industrial countries. But the average rate of convergence is surprisingly slow, at about 1.8 percent a year, with a half-life of about 38 years.

Beta convergence estimates for developing countries vary more than those for industrial countries. In China they range from no change during the central planning period to divergence during the Cultural Revolution. By contrast, during 1960–89 Colombia saw a high rate of convergence—3.2 percent a year. Empirical exercises find that convergence rates fluctuate

with national growth rates or macroeconomic regimes, but again the experience varies. The sharp drop in inequality in Brazil during the late 1970s may be linked to the country’s Second National Development Plan and its massive wave of government-directed import substitution. Center-state grants in India may have reduced subnational income inequality, but they did not seem to spur faster growth in backward regions. In Mexico periods of fast convergence coincided with periods of strong national growth. During periods of low or negative growth, however, there was divergence in regional per capita incomes.

Does internal migration facilitate convergence?

Internal geographic labor mobility is one of the main processes that economists expect to iron out per capita income differences between subnational regions. Strictly speaking, migration should tend to equalize welfare levels between regions, which means that factors other than real wages—such as physical security and the innate attractiveness of regions as places to live—are also likely to influence the pattern of interregional migration flows. But it is usually assumed that subnational real wage differences are sufficiently large to ensure that migration flows will predominantly occur from lower- to higher-wage

Box 1 Measuring convergence

There are two types of convergence: σ convergence and β convergence. Sigma convergence means declining cross-sectional dispersion of per capita income across units, as measured by the coefficient of variation or other measures of dispersion.

Beta convergence relates to the relationship between initial income levels and subsequent growth rates. This relationship is usually inferred from regressions of growth rates on initial income levels. A negative relationship implies that poorer regions grow at faster rates and catch up to initially richer areas. Beta convergence is a necessary but insufficient condition for the inference that dispersion in income across regions is col-

lapsing. Tests of β convergence are usually obtained from estimation of the following equation:

$$\frac{1}{T} \log \left[\frac{y_{i,t}}{y_{i,t-T}} \right] = a + \beta \log(y_{i,t-T}) + u_i$$

where y is the per capita income of region i at time t , and u is a random error term. If we interpret this as the transition toward a uniform steady state or steady state growth rate, then β measures the speed of convergence—the fraction of the gap between current per capita income and the long-run value that is reduced each period.

areas. A consequent decrease in labor supply in backward areas relative to more prosperous areas will then encourage a narrowing of wage differences and per capita incomes.

Recent research suggests that internal migration has only a minor effect on convergence (figure 2). These results must be treated with caution, however, as the data used are highly aggregated. The basic method used to evaluate the role of migration is to estimate the convergence equation both with and without a net migration term. Adding the migration term should reduce the convergence coefficient (β) if migration plays a significant role in the convergence process. Since there is a danger of simultaneity bias in this equation, as one might expect higher per capita growth to induce more net migration, simultaneous equation estimating techniques are used.

Most studies have found evidence that migration affects convergence, but this evidence is unimpressive. In the United States, for example, without standardizing for migration the estimated convergence coefficient for 1920–90 is 0.0196. That is, a 1 percent increase in a U.S. state's initial per capita income will take about 0.0196 of a percentage point from its subsequent growth rate. But when the effect of migration is excluded, the convergence coefficient only falls to 0.0174, implying that migration makes a trivial contribution. Average convergence coefficients for the eight countries in which similar studies have been carried out are 0.0219 (with migration) and 0.0214 (without)—again, a trivial difference. In some countries, such as the United Kingdom, studies suggest that migration actually seems to create slight divergence.

There are a number of reasons migration seems to play a limited role in promoting convergence between subnational regions. First, despite the fact that mobility may be large in the sense that significant portions of populations move annually, net migration between sizable areas (such as states and provinces) is quite small. In India, for example, about 30 percent of the

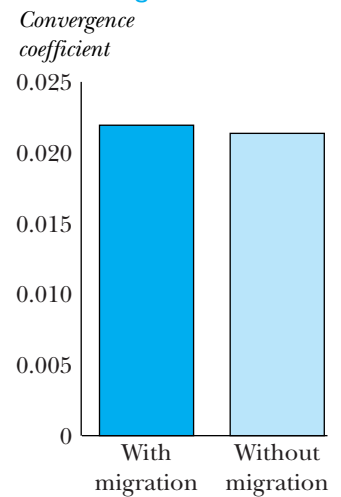
population report having moved within the past 10 years—about 3 percent a year. But most migration is within states, and even between poor and rich states there are invariably flows in both directions, which means that net flows are often much smaller than gross flows. As a result net annual migration in India in 1981–90 ranged from –0.30 to 0.43 percent of the 1981 population across states.

Second, in some countries migration is impeded by institutional obstacles. In China and the former Soviet Union, for example, the absence of housing markets acts as a major brake on geographic mobility, while Chinese migration into urban areas is still subject to legal restrictions. A recent study on migration in Russia finds that oblasts with higher rates of apartment privatization are more likely to be chosen by immigrants but are also more likely to experience significant emigration. It has also been suggested that differences in housing opportunities may partly explain why internal mobility is higher in Australia, Canada, New Zealand, and the United States than in Western Europe and Japan. Countries with a long history of immigration may also have a culture that facilitates internal mobility.

Third, the effect of migration may be concealed by the aggregate nature of the data used in convergence studies. Apart from the fact that populations rather than labor movements are being measured, there is also the concern that the effect of migration flows of skilled and unskilled labor could be very different. Suppose that backward regions have high relative endowments of unskilled labor but low relative endowments of skilled labor. Equilibrating flows would then take the form of migration of unskilled labor from backward to more developed regions and of skilled labor in the opposite direction. Using net migration flows without distinguishing unskilled from skilled labor would generate a very misleading analysis of migration's effect on convergence.

Finally, if labor markets are insufficiently flexible, migration may do little more than move open or disguised unem-

Figure 2. Migration does not contribute much to convergence



Note: Calculations are for a sample of eight countries.

Source: Subnational Regional Economics Knowledge Management System.

There is no easy way to iron out subnational differences

ployment from one state to another. This is possible in developing countries because unskilled labor is often in surplus in both backward and more developed regions.

Policy conclusions

The results so far suggest that income disparities across subnational regions in developing countries are likely to remain substantial for some time. Relying on market forces alone to remove subnational inequality is not enough, yet long experience with regional policy in industrial countries suggests that there is no easy way to iron out subnational differences. Nevertheless, some lessons have emerged.

First, countries that have displayed significant subnational convergence (France, the United Kingdom, the United States) encouraged private sector development in backward regions, although the relative merits of the various instruments used—investment and employment incentives, industrial estates, local development corporations—remain a matter of debate. The currently popular approach, of bringing together the private sector and other actors to develop an informal marketplace to encourage appropriate clusters, seems to offer considerable promise.

Second, there is little evidence that large public infrastructure investments in subnational regions can be used to create growth poles. Countries that have tried this (Brazil, Italy) have had little success and experienced slow subnational convergence. Cross-regional investments in major highways run the risk of making it easier for firms to relocate in developed centers and supply more backward areas from there. Public investment seems most appropriate when it is led and justified by

private demand. The marketplace approach encouraged by advocates of clustering may help guide public investment decisions if public agencies participate.

Third, there is also not much evidence that strategic investments in a leading sector or industry will do the trick. Such investments are often capital-intensive and prove costly mistakes (as in Brazil and India).

Fourth, equalizing fiscal transfers between the national government and subnational regions, while possibly justified on equity grounds, do not seem to generate economic growth in backward regions. Fiscal equalization has had a strong appeal in a number of countries and federal systems (India, Italy, the European Union), and has doubtless raised per capita incomes in poorer regions on a one-off basis. There is no evidence, however, that such transfers generate economic dynamism, and poorer regions may become permanently dependent on the central government.

Further reading

- Barro, R.J., and X. Sala-I-Martin. 1995. *Economic Growth*. New York: McGraw-Hill.
- Williamson, J.G. 1965. "Regional Inequality and the Process of National Development: A Description of the Patterns." *Economic Development and Cultural Change* 13.

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