# The Economic Convergence versus Divergence Debate

As an economy grows what happens to incomes across regions? Will poorer regions catch up to richer regions (i.e., converge) or will richer regions grow richer yet and poor regions lag behind (i.e., divergence)? This question is at the center of a long and heated debate within the economic growth literature with no clear definitive answer available. There are two competing theoretical frameworks with neoclassical growth theory predicting convergence and endogenous growth theory, particularly within the context of Paul Krugman's "New Economic Geography", predicts divergence. Specifically, once a region gains a comparative advantage, the growth process will be self-reinforcing resulting in divergence.

While the answer to this question might appear to be irrelevant to community economic development on face value, but this would be a mistake. One must understand these large economic patterns and underlying economic forces if one is to understand the context in which community economic growth and development occurs. What are the larger economic forces that are working with or against the community? What insights can we gain that will help the community better understand the options or strategies that are available to them?

There are two ways to think about the convergence-divergence debate. One is across regions or communities and one is within a region or community. The first one, often referred to as β-convergence within the economics literature, speaks to how income changes across communities: will poorer regions or communities catch-up to richer regions or will they fall further behind. The second one, often referred to as σ-convergence in the literature, looks at the income distribution within a community. In this fact-sheet we discuss β-convergence or comparison of income trends across regions.

Consider U.S. state per capita income from 1929 to 2011, after adjusting for inflation ("real" income adjusts for inflation while "nominal" income does not consider the effects of inflation). There are

US State Real Per Capita Income
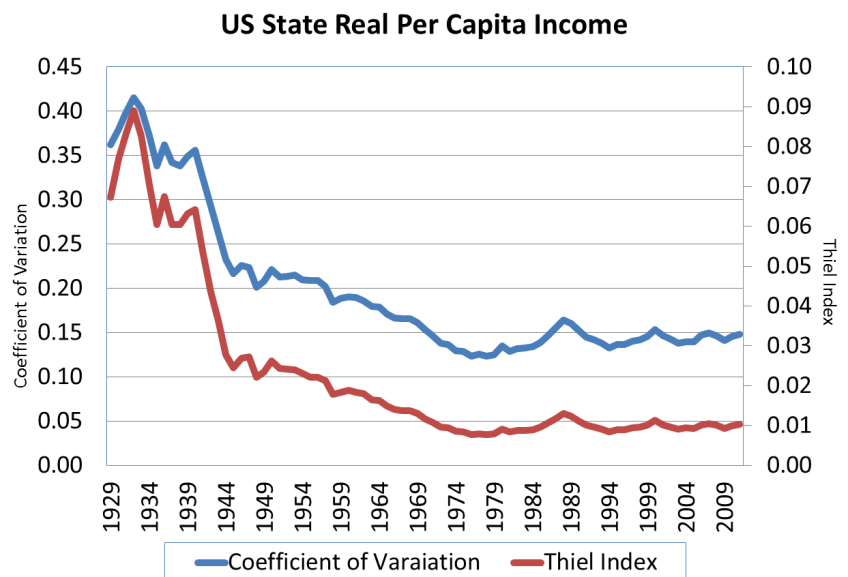
two commonly used measures of income variances: a coefficient of variation and the Thiel index which is derived from entropy theory. The coefficient of variation is simple the standard deviation of per capita income across the state for any given year divided by the mean per capita income where higher values are associated with larger dispersion of incomes. The Thiel index is computed by summing the natural log of the ratio of average per capita income to per capita income across all states for a given year. Again, higher values of the Thiel index are associated with higher levels of inequality or larger dispersion of incomes.

What we can see is a very clear pattern of convergence from the beginning of the Great Depression till the mid to late 1970s. The declining values of both the coefficient of variation and the Thiel index indicate that average "gap" between the higher and lower income states is getting smaller. This is consistent with neoclassical theory as developed in the 1950s and 1960s. Given the simple elegance of the neoclassical theory and the evidence of convergence, many economists believed that the economic growth question was answered and the study of economic growth fell out of favor.

The 1980s, however, saw a brief period of divergence, or a reversal of decades of convergence. This cause much consternation amongst economists. Economists who believed in the strength of competitive market forces dismissed it as a "blip in the data" while others said the time was right to revisit growth theory. The result of this latter work is called endogenous growth theory. Here economists noted that individuals and firms could make short-term monopoly rents (i.e., excessive profits from a purely competitive markets perspective) on innovations. Here patent law allows innovative firms to earn profits on their innovations thus have profit motivations to invest in research and development of innovations. These profit motivations then drive innovation which in turn drives economic growth.

Building on endogenous growth theory, Paul Kruman argued that regions (or cities) that gain a comparative advantage, or in the terms of Michael Porter a set of viable economic clusters, that growth advantage feeds on itself. In a convergence-divergence framework, the groundwork is set of divergence with larger regions/cities having a unique growth advantage. From a policy perspective, the theory tells us that smaller regions or communities are at a comparative disadvantage. It also tells us that innovation and early adoption of innovation is key to economic growth.

But for the last 20 years, it appears that there is no pattern of either divergence or convergence, at least using these simple measures. This has left the debate over economic growth more heated than ever. Those economists who argue divergence and the need for more aggressive policies are routinely attacked by those economists who argue in favor of free market forces and then counter-attacks are then launched.

$$Thiel\ Index = \frac{1}{N} \sum_{i=1}^{N} \left(ln \frac{\bar{x}}{x_i} \right) \text{ and the } c.v. = \frac{\sigma}{\bar{x}}$$

Author: Steven Deller, Department of Agricultural and Applied Economics, University of Wisconsin—Madison/Extension