Regional economic convergence: Do policy instruments make a difference?

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Abstract. The relationship between public capital, regional output and private sector productivity has been an issue of considerable interest in the regional development literature. There have however been few studies that develop linkages between these issues and the broader literature on economic convergence. This paper presents an innovative methodology to examine the process of regional economic convergence across U.S. states. We examine the effects of economic variables such as human and public capital in the convergence process, and control for business cycle and region specific effects in the analysis. Further, specification problems arising from spatial dependence are also addressed. Results from the empirical analysis show that the speed of convergence is influenced by region specific characteristics and the availability of trained labor in neighboring regions.

1. Introduction

Variations in the economic performance of nations and regions have fueled debates about the role of the public policies in economic growth. While the relationship between public capital, regional output, and private sector productivity has been an issue of considerable interest in the regional development literature, there have however been few studies that developed linkages with the broader literature on economic convergence. In the neoclassical framework, built on assumptions of decreasing returns to reproducible factors, disparities arising from differences in regional capital/labor ratios diminish over time and both trade and factor flows tend to equalize factor prices. However, proponents of regional policies argue that increasing returns, often seen as arising from technological or pecuniary agglomeration externalities, generate a process of circular, cumulative causation leading to decreasing costs of production. This rationalization is consistent with some of the endogenous growth theorizing where both capital and labor flow to richer regions, which have the advantages of lower unit costs, higher wages and larger market sizes. Altering factor mobility remains critical for the prospects of poorer regions in this type of analysis.
The stocks of public and human capital appear to be important determinants of regional economic growth. In general, public capital and human capital can be considered to be categories of infrastructure that influence factors of production. Appropriate and efficiently supplied infrastructure has an inherent role in improving access to markets, reducing unit cost of production and generating consumer surplus by reducing cost of consumption, improving the general quality of life, as well as in attracting private investment. The spatial distribution of infrastructure, both physical and human capital, has important implications for changing regional disparities and by extension, for the convergence process. Recent literature has pointed to the existence of spatial externalities (or spillovers) of infrastructure investments. The stock of infrastructure in a particular region may contribute to output gains in adjoining regions. Further, it is possible that infrastructure investment may influence regional disparities by the changing the competitive and comparative advantages of neighboring states. When factors of production are mobile, public infrastructure investments in one location can draw production away from other locations or provide access to adjacent locations not previously accessible. Boarnet (1998) shows that highway projects in California counties provide benefits to the investing counties at the expense of other counties within the state. Kelejian and Robinson (1997) make similar arguments concerning externalities at the state level. From this perspective, policy interventions in the form of public capital (including various infrastructure categories) influence regional economic performance and the convergence process. Thus, the stocks of public and human capital have important effects on the structure of the local economy, and analysis of convergence without considering these factors may not be useful for guiding policy decisions.

This paper employs a pooled data set for the US states (except Alaska and Hawaii) over the period 1969–1995 to address two fundamental questions. First, to what extent is the economic performance of these states converging or diverging? Second, to what extent can this regional growth performance be explained by stocks of physical and human capital within each state? The paper contributes to the conceptual and empirical debate on the role of public policies in stimulating regional economic performance. In a methodological context, a spatial econometric approach is used to examine the extent to which spatial externalities influence the speed of convergence. The paper is organized as follows: Sect. 2 presents and discusses various measures of con-

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1 From the early references to the term infrastructure by Nurske (1952) and Hirschman (1958), the definition of infrastructure has undergone many changes. The early definitions list features like ‘provide services basic to any production capacity, ‘cannot be imported from abroad,’ and ‘large and costly installations,’ to define infrastructure. In general, infrastructure includes the supply of services through a networked delivery system designed to serve a multitude of users, particularly for public utilities such as piped water, electric power, gas, telecommunications, sewerage, and rail services (Gramlich 1994; World Bank 1994). These infrastructure categories have often been called hard or economic infrastructure. In addition to economic infrastructure, human capital indicators like education and health are considered as social infrastructure that increase labor productivity and help in attracting private capital.

2 It is difficult to predict, a priori, the exact effect of public capital on regional growth. It is possible that some types of public investments (for example, roads and education) are complementary to private investment and therefore likely to crowd-in private investment, while others (for example, investments in industry and state owned enterprises) are substitutes and likely to crowd-out private investment.