



# Employment concentration across U.S. counties

Klaus Desmet<sup>a,b,\*</sup>, Marcel Fafchamps<sup>c</sup>

<sup>a</sup> *Department of Economics, Universidad Carlos III de Madrid, 28903 Getafe (Madrid), Spain*

<sup>b</sup> *CEPR, United Kingdom*

<sup>c</sup> *CSAE, Department of Economics, University of Oxford, Manor Road, Oxford OX1 3UQ, United Kingdom*

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## Abstract

This paper examines the spatial distribution of jobs across U.S. counties between 1970 and 2000, and investigates whether sectoral employment is becoming more or less concentrated. The existing literature has found deconcentration (convergence) of employment across urban areas. Cities only cover a small part of the U.S. though. Using county data, our results indicate that deconcentration is limited to the upper tail of the distribution. The overall picture is one of increasing concentration (divergence). While this seemingly contradicts the well documented deconcentration in manufacturing, we show that these aggregate employment dynamics are driven by services. Non-service sectors – such as manufacturing and farming – are indeed becoming more equally spread across space, but services are becoming increasingly concentrated.

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## 1. Introduction

Economic activity is unevenly distributed across space. The interaction of positive and negative externalities creates intricate geographical patterns of city clusters and rural hinterland (Henderson, 1988; Fujita et al., 1999). Over time, these patterns evolve because of changes in preferences, production technologies and transport costs. As a result, the spatial distribution of employment adjusts as jobs are created in certain locations, and destroyed elsewhere. Understanding how economic activity is likely to be distributed through space in the future is important for policy makers at the national and local level.

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\* Corresponding author. Department of Economics, Universidad Carlos III de Madrid, 28903 Getafe (Madrid), Spain.  
*E-mail addresses:* [desmet@eco.uc3m.es](mailto:desmet@eco.uc3m.es) (K. Desmet), [marcel.fafchamps@economics.oxford.ac.uk](mailto:marcel.fafchamps@economics.oxford.ac.uk) (M. Fafchamps).

This paper describes the geographical evolution of jobs in the U.S. between 1970 and 2000, with the goal of understanding what the future spatial distribution of employment would look like if current tendencies were to continue. We use county-level employment in 13 different sectors – ranging from farming to manufacturing and services – and focus on the ergodic distribution of jobs.

Our work differs from the existing literature in a number of respects. First, rather than looking at income per capita or population, we are interested in employment. Many authors have studied whether standards of living in the U.S. are becoming more similar over time. For instance, [Higgins et al. \(2003\)](#) find a strong evidence of income convergence across counties. This is not entirely surprising, given the high degree of labor mobility in the U.S. ([Blanchard and Katz, 1991](#)). However, income convergence does not tell us anything about *where* economic activity is locating. Is the U.S. moving towards a situation with more or with less large- and medium-sized metropolitan counties? Are rural counties losing or gaining jobs? These are the kinds of questions we address in our paper.<sup>1</sup> This is similar to studying whether population is becoming more or less concentrated in space. In this respect, [Beeson and DeJong \(2002\)](#) are of particular interest. They find population divergence across counties, especially in the post-WWII period. Our work is complementary to theirs. By looking at employment, rather than population, we get additional insights from sectoral disaggregation.

Second, we examine the country as a whole, not just metropolitan areas. Most of the literature on the spatial organization of economic activity in the U.S. has focused on cities. One central finding of that line of research is that city growth is independent of city size, a phenomenon known as Gibrat's Law ([Sutton, 1997](#)). However, as pointed out by [Beeson et al. \(2001\)](#), limiting the analysis to urban areas introduces a selection bias, since cities are those areas which experienced high growth in the past. A recent paper by [Eeckhout \(2004\)](#) addresses this issue by revisiting Gibrat's Law using Census 'places'. In contrast to metropolitan areas, these data cover the entire size distribution, including small towns and villages. He confirms that growth is independent of size. However, 'places' still do not cover the entire U.S. In the 2000 Census they accounted for 74% of the population.

Our third point of departure with the existing literature is our methodology. Instead of relying on a single method – whether  $\beta$ -convergence,  $\sigma$ -convergence, or ergodic distributions – we develop a methodology that encompasses them all. Much of the existing work comparing geographical units is couched in terms of Barro's  $\beta$ -convergence: the underlying model is deterministic in nature ([Barro, 1991](#); [Mankiw et al., 1992](#)). As first emphasized by [Quah](#), evidence of  $\beta$ -convergence can yield a misleading picture, because it can arise even when countries or regions are getting further apart, and vice versa ([Quah, 1993, 1996a](#); [Durlauf and Quah, 1999](#)). As a solution, [Sala-i-Martin \(1996\)](#) suggests studying distributions by looking at the evolution of the variance over time, a concept known as  $\sigma$ -convergence. [Quah \(1996b, 1997\)](#) goes one step further by focusing on the ergodic distribution. This refers to the long-term spatial distribution of economic activity that would arise if current transition probabilities would remain constant. The ergodic distribution is the distributional equivalent of the  $\beta$  coefficient in a standard Barro model: it predicts in which direction the process goes, should current structural factors remain unchanged. Of course, structural parameters may

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<sup>1</sup> If labor and capital are not quite mobile, the distribution of GDP per capita can be regarded as capturing the distribution of economic activity across space. However, in a country like the U.S., where capital and workers are highly mobile, the dispersion of GDP per worker across geographical units is more a measure of dispersion in productivity than in economic activity per se.

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