



# The micro-level dynamics of regional productivity growth: The source of divergence in Finland

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Accepted 28 August 2006

Available online 24 October 2006

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## Abstract

Despite a rapidly expanding theoretical and empirical literature emphasising the role of incessant intra-industry restructuring in productivity growth, few studies have gone beyond the framework of the representative firm in examining convergence or divergence in regional productivity. We use unique longitudinal plant-level data over a long period of time and apply a useful variant of productivity decomposition methods to study differences in productivity-enhancing restructuring within manufacturing industries among Finnish regions. Long-lasting differences in industry productivity growth between Southern and Eastern Finland can be attributed to the “creative destruction” components of productivity growth, mainly to the between and entry components.

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*JEL classification:* O12; R11

*Keywords:* Productivity; Efficiency; Micro-level restructuring; Convergence; Divergence

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## 1. Introduction

Regional convergence and divergence have gained more notice in Europe in recent years, because deepening economic integration has emphasised the role of regions. These issues have almost exclusively been analysed by means of focusing on overall productivity growth through the use of aggregate data on regions and industries (e.g., Ezcurra et al., 2005; Martin, 2005), and, as a consequence, the studies have been silent about what happens between firms or plants within

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industries. Only recently has the literature started to point to the role of firm heterogeneity, firm selection and resource reallocation between firms for economic development (e.g., [Bartelsmans and Doms, 2000](#); [Foster et al., 2001](#); [Klette and Kortum, 2004](#)). In this paper, we investigate the role that these factors may play for regional productivity convergence/divergence. The novelty of this study is the use of unique longitudinal plant-level data over a long period of time and an application of a useful variant of productivity decomposition methods to analyse differences in intra-industry restructuring between Finnish regions.<sup>2</sup>

The analysis of micro-level dynamics of productivity growth requires longitudinal data on firms, or more preferably plants. Such data, together with a suitable decomposition method, allow one to examine mechanisms of productivity growth beyond the so-called “representative firm model” which has dominated research of regional economic growth. We use a decomposition formula which decomposes industry productivity growth into several distinct sources. The within component indicates the productivity growth rate of the average incumbent plant. The between component gauges the productivity-enhancing effect of intra-industry reallocation of inputs between heterogeneous plants. Other components, closely related to the between component, include the entry and exit components that capture the effect of the turnover of plants on productivity growth. The between, entry and exit components together indicate the role of “creative destruction” in industry productivity growth. In this paper we provide robust empirical evidence that the differences in the intensity of creative destruction within industries explain long-lasting differences in industry productivity growth among regions.

Finland is an interesting case, because there has been large and increasing variation in regional performance. As the European Union average is standardised as 100, the level of GDP per inhabitant is 141 in the province of Uusimaa, which is located in the southern, more urbanised part of the country (Appendix: Table A1). Hence, the region of Uusimaa is among the richest regions in the whole of the European Union. In contrast, the same measure reveals that the level of GDP per inhabitant is 75 in Eastern Finland. It belongs to the club of the poorest regions in the EU 15 ([Behrens, 2003](#)).<sup>3</sup>

By using plant-level data we discover that there have been general and sustained differences in productivity growth among regions in 13 Finnish manufacturing industries over the period of 1975–1999. The richest region, Uusimaa, has had the fastest productivity growth. The growth rate of labour productivity (and, as happens to be the case, total factor productivity) for all plants has been 0.9 percentage points higher per year in Uusimaa than in Eastern Finland over the period. This gap does not derive from differences in the industry structures. We show that it has emerged from differences in micro-level dynamics within industries among regions, instead. Perhaps surprisingly, productivity growth of the average staying plant shows no advantage for Uusimaa, since the within component for annual labour productivity (TFP) growth has been even slightly larger in Eastern Finland than in

<sup>2</sup> To our knowledge, [Rigby and Essletzbichler \(2000\)](#) provide the only paper that has decomposed the productivity growth rates by using regional plant-level data. They study the labour productivity growth rate of US states and apply a decomposition method that differs from ours to some extent.

<sup>3</sup> To get a more intuitive flavour of the regions that we are using in the following analysis, two more details are worth mentioning. First, in terms of industry structure, the main difference is that the share of the private service sector is larger in Uusimaa compared with Eastern and Northern Finland. In contrast, the share of public services is higher in Eastern and Northern Finland. Importantly, the share of manufacturing of total employment does not differ much between Uusimaa and Eastern and Northern Finland. Second, in terms of natural barriers, Uusimaa, Western Finland and a part of Northern Finland are bordered by sea. In contrast, Eastern Finland is bordered by Russia, which constitutes a political barrier. [Ottaviano and Pinelle \(2004\)](#) use distance from the Russian border as one explanatory variable for the regional performance in their aggregate analysis. They report that closeness to the Russian border is associated with poor economic performance.

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