



# Product and labor market imperfections and scale economies: Micro-evidence on France, Japan and the Netherlands



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## ABSTRACT

**Dobbelaere, Sabien, Kiyota, Kozo, and Mairesse, Jacques**—Product and labor market imperfections and scale economies: Micro-evidence on France, Japan and the Netherlands

Allowing for three labor market settings (perfect competition or right-to-manage bargaining, efficient bargaining and monopsony), this paper relies on two extensions of Hall's econometric framework for estimating simultaneously price–cost margins and scale economies. Using an unbalanced panel of 17653 firms over the period 1986–2001 in France, 8728 firms over the period 1994–2006 in Japan and 7828 firms over the period 1993–2008 in the Netherlands, we first apply two procedures to classify 30 comparable manufacturing industries in 6 distinct regimes that differ in terms of the type of competition prevailing in product and labor markets. For each of the predominant regimes in each country, we then investigate industry differences in the estimated product and labor market imperfections and scale economies. Consistent with differences in institutions and in the industrial relations system in the three countries, we find important regime differences across the three countries and also observe differences in the levels of product market imperfections and scale economies within regimes. *Journal of Comparative Economics* 43 (2) (2015) 290–322. VU University Amsterdam, De Boelelaan 1105, 1081 HV Amsterdam, The Netherlands; Tinbergen Institute (TIA), Gustav Mahlerplein 117, 1082 MS Amsterdam, The Netherlands; IZA, Schaumburg-Lippe-Strasse 5-9, 53113 Bonn, Germany; Keio Economic Observatory, Keio University, 2-15-45 Mita, Minato-ku 108-8345, Tokyo, Japan; RIETI, 1-3-1, Kasumigaseki, Chiyoda-ku, 100-8901 Tokyo, Japan; CREST (ParisTech-ENSAE), 15 Boulevard Gabriel Péri, 92245 Malakoff Cedex, France; UNU-MERIT (Maastricht University), Keizer Karelplein 19, 6211 TC Maastricht, The Netherlands; NBER, 1050 Massachusetts Ave., Cambridge, MA, USA.

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## 1. Introduction

A well-established result from welfare economic theory is that absent market failures, the unfettered market outcome is economically efficient. In reality, few if any markets are perfect in the sense that they satisfy the assumptions underlying textbook models of perfect competition or yield the performance of hypothetical perfectly competitive markets. The pervasiveness of deviations from economically efficient choices is often used as a rationale for public policy. The decision to (de)regulate or change regulatory policies must –among other things– be based on a careful identification of market failures. Indeed, identifying market failures and choosing appropriate policy instruments to mitigate them have been at the core of policy analysis for decades (Weimer and Vining, 2005; Kleiman and Teles, 2008; Koske et al., forthcoming). This paper focuses on the identification and quantification of one potential type of market failure, namely market power in product and labor markets. This allows us to evaluate how actual product and labor markets deviate from their perfectly competitive or economically efficient counterparts.

More specifically, combining firm, industry and country-level perspectives for three countries, our analysis serves the purpose of quantifying industry differences in product and labor market imperfections and scale economies using firm-level data in France, Japan and the Netherlands. The cross-country (cross-industry) comparison is motivated by the fact that resource allocative efficiency differs across countries. The selection of countries is driven by the following two reasons. First, there exist inherent institutional, organizational and cultural differences between France, Japan and the Netherlands, making our comparative study particularly relevant. Second, highly comparable microdata sets are available in these countries, allowing us to conduct a reliable international comparative study.<sup>1</sup> Do manufacturing industries in the three countries under consideration belong to different *regimes* characterizing the type of competition prevailing in product and labor markets? To what extent do manufacturing industries within a particular regime differ in the *degree of imperfections* in the product and labor markets in which they operate? These are the main questions that we address.

In this paper, we rely on two extensions of Hall's (1988) econometric framework for estimating simultaneously price–cost margins and scale economies using firm panel data that take into account imperfections in the labor market. Instead of imposing a particular labor market setting on the data –a common practice in empirical studies estimating labor market imperfections– we follow Dobbelaere and Mairesse (2013) and use econometric production functions as a tool for testing the competitiveness of product and labor markets and evaluating their degree of imperfection. We consider two product market settings (perfect competition (*PC*) and imperfect competition (*IC*)) and three labor market settings (perfect competition or right-to-manage bargaining (*PR*), efficient bargaining (*EB*) and monopsony (*MO*)). We thus distinguish six regimes. This tractable econometric method only requires data on production values, factor inputs and factor costs to classify economic entities in the six different regimes. Therefore, it proves particularly useful in our comparative setting.

Our empirical analysis is based on three large unbalanced panels of manufacturing firms: 17653 firms over the period 1986–2001 in France, 8728 firms over the period 1994–2006 in Japan and 7828 firms over the period 1993–2008 in the Netherlands. It consists of two parts. In the first part, we apply two procedures to classify 30 comparable manufacturing industries in distinct regimes that differ in terms of the type of competition prevailing in product and labor markets in each country. The first classification procedure is based on point estimates of our parameters of interest and enables a complete classification whilst the second is based on confidence intervals around estimated parameters which entails a more statistically correct –but incomplete– characterization of industries. Consistent with differences in the industrial relations system in the three countries, we observe important differences in the prevalent product and labor market settings, and hence in the prevalent regimes across the three countries. Irrespective of the classification procedure, we find that (i) the proportion of industries (and firms) that is characterized by imperfect competition in the product market is much higher in France and the Netherlands than in Japan and (ii) the most prevalent labor market setting is efficient bargaining in France and perfect competition or right-to-manage bargaining in Japan and the Netherlands. As such, the dominant regime is one of imperfect competition in the product market and efficient bargaining in the labor market in France, one of perfect competition in the product market and perfect competition or right-to-manage bargaining in the labor market in Japan and one of imperfect competition in the product market and perfect competition or right-to-manage bargaining in the labor market in the Netherlands. In the second part, we investigate industry differences in the estimated product and labor market imperfection parameters within the predominant regimes in each country. In addition to the important cross-country regime differences that our analysis reveals, we also find differences in the levels of product market imperfections and scale economies within regimes.

From a methodological point of view, our analysis is most closely related to Dobbelaere and Mairesse (2013) and to some extent to Petrin and Sivadasan (2013). Both studies are based on the gap methodology, which is motivated by the observation that several phenomena move an economic entity away from the neoclassical setup where a variable input factor's estimated marginal product is equal to its measured payment. Paramount among these are economic factors like mark-ups, hiring, firing and search costs, variable factor utilization, factor adjustment costs and nonoptimal managerial behavior, and measurement errors. Using a sample of 10646 manufacturing firms in France over the period 1978–2001, Dobbelaere and Mairesse (2013) provide a detailed industry- and firm-level analysis of product and labor market imperfections as

<sup>1</sup> For example, Bellone et al. (2014) use the same firm-level data for France and Japan to investigate productivity gaps between French and Japanese manufacturing industries.

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