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Comparing micro-evidence on rent sharing from two different econometric models☆

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ABSTRACT

The extent to which employers share rents with their employees is typically assessed by estimating the responsiveness of workers' wages on firms' ability to pay. This paper compares rent-sharing estimates using such a wage determination regression with estimates based on a productivity regression that relies on standard firm-level input and output data. Using a large matched firm-worker panel data sample for French manufacturing, we find that the respective industry distributions of the rent-sharing estimates are correlated and slightly overlap, but are significantly different on average. Precisely, if we only rely on the firm-level information, we obtain an average rent-sharing estimate of roughly 0.30 for the productivity regression and 0.17 for the wage determination regression. When we also take advantage of the worker-level information to control for unobserved worker ability in the model of wage determination, we find as expected a lower average value of 0.10.

1. Introduction

Contrary to the Walrasian labor market model, various non-competitive models predict a positive relationship between wages of comparable workers and the performance of their firms. Collective bargaining, optimal labor contract and search-theoretic models of the labor market share this theoretical conjecture, and consider different channels through which employer's ability to pay might affect wages.

We can view the wage determination equations specifying the expected positive wage-performance link as reduced-form models stemming from, or at least compatible with, such an underlying variety of theoretical structural models. Many empirical studies have estimated these reduced-form wage equations on firm data to test the rent-sharing hypothesis.[1] They have confirmed without exception that changes in firm performance feed through into changes in wages. In general, the estimated elasticities between wages and rents or profits per employee range between 0.05, even less, and 0.20, depending in particular on the quality of the instruments used to control for the endogeneity of profits. Following the seminal contribution of Abowd et al. (1999), more recent studies using matched employer-employee datasets, are able to include separately in the wage equations firm and worker effects that take into account the non-random sorting of high-ability (and thus high-wage) workers into high-profit firms. Compared to studies based on firm-level data only, these studies typically obtain, as expected, smaller estimates of wage-profit elasticities ranging from 0.01 to 0.10.[2]

Even more recently, a small set of productivity studies have extended the more standard productivity framework with imperfect competition in the product market to encompass two polar models of wage determi-

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[1] See in particular Barth et al. (2016) for the US; Abowd and Lemieux (1993) for Canada; Teal (1996) for Ghana; Van Reenen (1996) and Hildreth (1998) for the UK; Goos and Konings (2001) and Brock and Dobbelaere (2006) for Belgium; and Blanchflower et al. (1990), Nickell and Andrews (1983) and Hildreth and Oswald (1997) for a sample of European countries.

[2] See in particular Margolis and Salvanes (2001) for France and Norway; Kramarz (2003) and Fakhfakh and Fitzroy (2004) for France; Bronars and Famulari (2001) for the US; Arai (2003), Nekby (2003), Arai and Heyman (2009) and Carlsson et al. (2016) for Sweden; Bagger et al. (2014) for Denmark, Rycx and Tojerow (2004) and Du Caju et al. (2011) for Belgium; Guertzgen (2009) for Germany; Card et al. (2014) for Italy; and Cardoso and Portela (2009), Martins (2009) and Card et al. (2018) for Portugal.

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nation in imperfect labor markets.[3] These studies have also been able to provide estimates of the extent of rent sharing between firms and workers, and more specifically estimates of the corresponding wage-profit elasticities which are higher, in the [0.10-0.50] range.[4]

Our contribution to the empirical rent-sharing literature in this paper is to compare the rent-sharing estimates obtained in the case of French manufacturing for a large matched firm-worker panel data sample by relying on the wage determination and the productivity models. It is also to suggest potential explanations for the estimated discrepancies and to assess the advantages and shortcomings of both types of models.

The plan of the paper is as follows. Section 2 presents the two econometric models while Section 3 describes the data and explains the method of estimation. Section 4 compares and discusses estimates of the extent of rent sharing that we obtain from estimating the productivity and wage equations. Section 5 provides potential explanations of discrepancies between these estimates while Section 6 concludes.

2. Estimating rent sharing from two econometric models

We present in this Section the econometric reduced-form productivity and wage determination models as they have been usually specified in the literature and as we take them here to the data to better compare the estimates of extent of rent sharing they entail.

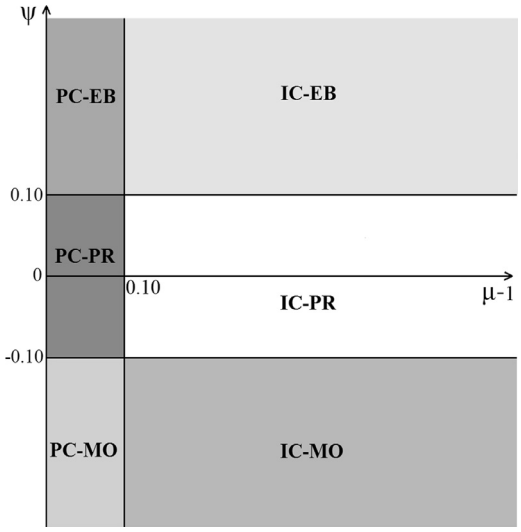
2.1. Reduced-form model of productivity

The specification of the reduced-form productivity equation we estimate is the following log-linear regression:

$$q_{it} = \mu[s_{Nit}(n_{it} - k_{it}) + s_{Mit}(m_{it} - k_{it})] + \psi[s_{Nit}(k_{it} - n_{it})] + \lambda k_{it} + \omega_{it} + \alpha_i + \alpha_t + \epsilon_{it} \quad (1)$$

where i is a firm subscript and t a year subscript. The variables q_{it}, n_{it}, m_{it} and k_{it} are respectively for each year the logarithms of output Q_{it}, labor N_{it}, material input M_{it} and capital K_{it}. s_{Nit} and s_{Mit} are for each year the shares of labor costs and material costs in total revenue. The parameters μ, ψ and λ are respectively the parameters of price-cost markup, joint product and labor market imperfections and elasticity of scale. ω_{it} is an index of "true" total factor productivity, or productivity for short, possibly observed by the firm at t when input choices are made, but unobserved to the econometrician. α_i is a firm-specific effect proxying for firm unobserved heterogeneity such as managerial ability differences, α_t is a year effect proxying for changes in firms' industrial environment, and ϵ_{it} is an idiosyncratic error term including non-predictable output shocks and potential measurement error in output and inputs.

As explained in Section 1 of the online supplementary material, we can distinguish six combinations or regimes of imperfect and "perfect or nearly perfect" competition in product and labor markets, which are based on the respective values of the price-cost mark-up and joint market imperfections parameters μ and ψ. We differentiate imperfect and nearly perfect product market settings on the basis of a price-cost markup μ higher than 1.1. Similarly, we separate the two settings of imperfect competition in the labor market, efficient bargaining and monopsony, from nearly perfect competition or right-to-manage bargaining in the labor market on the basis of a joint market imperfections parameter ψ respectively positive and higher than 0.1 or negative and smaller than −0.1. These threshold values, although conventional, are empirically reasonable. They also have the practical advantage of characterizing the different regimes as subsets of dimension 2 in the space of the two parameters μ and ψ (with $\mu \geq 1$), and they thus put the different regimes on a par when estimating their probability and testing that an industry or a selected group of firms belongs to a particular regime. The six regimes that we can thus consider are shown in Graph 1 in the two-dimensional space of the parameters μ and ψ .



Graph 1. Comparative analysis sample: IC-EB regime.
Notes: Product market settings: PC refers to perfect or "nearly perfect" competition and IC to imperfection competition, labor market settings: PR refers to perfect or "nearly perfect" competition or right-to-manage bargaining, EB to efficient bargaining and MO to monopsony. μ: price-cost markup, ψ: joint market imperfections parameter. PC-PR: $1 \leq \mu \leq 1.1$ and $-0.1 \leq \psi \leq 0.1$, PC-EB: $1 \leq \mu \leq 1.1$ and $\psi > 0.1$, PC-MO: $1 \leq \mu \leq 1.1$ and $\psi < -0.1$, IC-PR: $\mu > 1.1$ and $-0.1 \leq \psi \leq 0.1$, IC-EB: $\mu > 1.1$ and $\psi > 0.1$, IC-MO: $\mu > 1.1$ and $\psi < -0.1$.

More precisely, they are the following:

- $1 \leq \mu \leq 1.1$ and $-0.1 \leq \psi \leq 0.1$, or PC-PR, corresponding to perfect or "nearly perfect" competition in the product market, and perfect or "nearly perfect" competition or right-to-manage bargaining in the labor market.
- $1 \leq \mu \leq 1.1$ and $\psi > 0.1$, or PC-EB, corresponding to perfect or "nearly perfect" competition in the product market, and efficient bargaining in the labor market.
- $1 \leq \mu \leq 1.1$ and $\psi < -0.1$, or PC-MO, corresponding to perfect or "nearly perfect" competition in the product market, and monopsony in the labor market.
- $\mu > 1.1$ and $-0.1 \leq \psi \leq 0.1$, or IC-PR, corresponding to imperfect competition in the product market, and perfect or "nearly perfect" competition or right-to-manage bargaining in the labor market.
- $\mu > 1.1$ and $\psi > 0.1$, or IC-EB, corresponding to imperfect competition in the product market, and efficient bargaining in the labor market.
- $\mu > 1.1$ and $\psi < -0.1$, or IC-MO, corresponding to imperfect competition in the product market, and monopsony in the labor market.

Here, for the sake of comparison, we focus our analysis on the set of industries in which we expect that rent sharing is likely to prevail (IC-EB) on the basis of descriptive statistics as well as previous econometric studies where the estimates we found for the parameter of joint market

[3] This extension of the econometric productivity model to take into account imperfect labor markets has been developed in Dobbelaere and Mairesse (2013), after a first extension by Crépon et al. (2005), and following the revival of the empirical literature on productivity with imperfect product markets (Hall, 1988). Both extensions of econometric productivity analyses with imperfectly competitive product and labor markets find their historical roots in Marschak and Andrews (1944).

[4] Dobbelaere and Vancauteren (2014) use firm-level data for Belgium and the Netherlands, Dobbelaere et al. (2015) for France, Japan and the Netherlands, Dobbelaere et al. (2016) for Chile and France, Dobbelaere and Kiyota (2017) for Japan and Félix and Portugal (2017) for Portugal. Dobbelaere (2004), Abraham et al. (2009), Boulhol et al. (2011) and Ahsan and Mitra (2014) implement the extension of the econometric productivity model developed in Crépon et al. (2005).