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Price-cost Margin and Bargaining Power in the European Union

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Abstract

Using firm-level data between 2004 and 2012 for eleven countries of the European Union (EU), we document the size of product and labour market imperfections within narrowly defined sectors including services which are virtually undocumented. Our findings suggest that perfect competition in both product and labour markets is widely rejected. Levels of the price-cost margin and union bargaining power tend to be higher in some service sectors depicting however substantial heterogeneity. Dispersion within sector and across countries tends to be higher in some services sectors assuming a less tradable nature which suggests that the Single Market integration is partial particularly relaxing the assumption of perfect competition in the labour market. We report also figures for the aggregate economy and show that Eastern countries tend to depict lower product and labour market imperfections compared to other countries in the EU. Also, we provide evidence in favour of a very limited adjustment of both product and labour market imperfections following the international and financial crisis.

Keywords: market imperfection, market structure, nash bargaining, European Union

JEL Classification: D40, J50, L10

1 Introduction

It is well established that product market competition is key to achieve a static efficient allocation of resources. In a broad range of models, trade liberalization intensifies competition intensity in the product market which increases allocative efficiency and welfare (see for instance Edmond et al. (2015), Arkolakis et al. (2018) on theoretical work and Levinsohn (1993) Krishna and Mitra (1998) and more recently Lu and Yu (2015) and Brandt et al. (2017) on empirical work).

Measuring competition intensity is particularly relevant for the European Union (EU) since one of the main goals is to increase economic integration among country members towards the creation of a Single Market. Over the years, this process has increased competition intensity across firms by driving prices towards marginal costs and lowering markups (see for instance Badinger (2007), Griffith et al. (2010)). Two important dimensions are generally not considered in this context.

On one hand, this process of economic integration and trade liberalization is expected to discipline markups not only in goods but also in services sectors. Services assume a different nature than goods since they are in some cases characterized by market failures as the existence of natural monopolies and imperfect and asymmetric information, for instance. Hence, many of these sectors are heavily regulated and present at times natural and policy-induced entry barriers. In addition, given the burden of proximity of services they are generally less exposed to international competition than manufacturing goods (see Francois and Hoekman (2010)). Increasing competition intensity in services is still on the policy agenda of the EU. The Service Directive is an example of a measure introduced in 2006 and implemented in 2009 aimed at abolishing barriers to trade in this sector. Competition intensity in the services sector was often limited by the presence of entry and exit barriers, regulations and even in the form of price restrictions which is consistent with the presence of market power. In addition, services are frequently input to other sectors of the economy which can increase concerns given its potential spillover effects and also increasing relevance in aggregate value added.

On the other hand, labour market structures are generally not taken into account. The theoretical work of Blanchard and Giavazzi (2003) points out that product and labour markets are intimately connected. In other words, the market power of the firm determines the size of the rents, and the

bargaining between the firm and the workers determines the distribution of these rents. In fact, empirical evidence suggests that workers hold a positive bargaining power signalling that they are able to capture some of the rents extracted by the firm. When these rents are disregarded, product market imperfections appear to be lower than what they truly are. Hence, a correct assessment requires information on the degree of rent sharing between firms and workers.

More than two decades after the implementation of the Single Market, relatively little empirical evidence has been collected to document the size of product and labour market imperfections under an integrated framework. At this level, empirical evidence using comparable methodologies is extremely scarce particularly using firm-level data. In addition, time frame, coverage and type of data are very often distinct, limiting the comparability across studies and leading to an inability to establish relevant benchmarks.

This paper aims at filling this gap in the empirical literature by contributing in the following dimensions. Firstly, it provides estimates for the price-cost margin and the workers' bargaining power at narrowly defined sectors following Roeger (1995), Bassanetti et al. (2010), Moreno and Rodríguez (2011) and Amador and Soares (2017). Secondly, it assumes a cross-country perspective by including evidence for a set of countries representative of the EU. In particular, it gathers evidence for Belgium, Estonia, Finland, France, Germany, Italy, Poland, Portugal, Slovakia, Slovenia, Spain for the 2004-2012 period. Lastly, it uses representative firm-level data of the aggregate economy including evidence for services. Given that the large majority of earlier empirical work is focused on the manufacturing sector, services remain virtually undocumented in this literature with some exceptions. Christopoulou and Vermeulen (2012) and Estrada (2009) do not use firm-level data or provide evidence at narrowly defined sectors thus, to our knowledge, Molnár and Bottini (2010) and Molnár (2010) are the only studies to present evidence for services using firm-level data for several countries and for Slovenia, respectively. While they provide figures at a disaggregate level, they use data from AMADEUS which is biased to large firms, do not present figures for many sectors due to data limitations (such as Germany) or discuss the role of labour market imperfections. Amador and Soares (2017) only present evidence for Portugal and Dobbelaere and Vancauteren (2014) relies on a very small sample of firms. At the same time, estimates for both product and labour market imperfections jointly estimated are to our knowledge non-available in the empirical literature for countries as Finland, Slovakia, Slovenia, Estonia and Poland. The inclusion

of services allows also gathering evidence for the overall economy. All these dimensions yield a unique contribution to the empirical literature.

The methodology proposed by Roeger (1995) is particularly attractive for mainly two reasons. Firstly, it relies on nominal variables thus avoiding the need for firm-level deflators, which are difficult to obtain, particularly, in a cross-country study. Secondly, the OLS estimator is consistent. By subtracting the dual Solow residual from the primal residual, Roeger (1995) solves the endogeneity concern associated with the fact that input growth rates are likely correlated with technological progress, which is unobserved. His insight overcomes the need to use instrumental variables approaches at odds with the setup proposed by Hall (1988). More appealing estimation procedures have recently been proposed where markups are no longer constant across firms in a sector but are rather time variant and firm-specific (DeLoecker and Warzynski (2012)). Evidence at this level points to the presence of significant heterogeneity across firms. Nonetheless, labour market structures are not taken into account. The approach proposed by Roeger (1995) was modified to relax the assumption of competitive labour markets generally imposed in the literature. Crépon et al. (2005) and Dobbelaere and Mairesse (2013) introduce an efficient Nash bargaining negotiation of the surplus of the firm and its workers in the framework proposed by Hall (1988) and Bassanetti et al. (2010), Moreno and Rodríguez (2011) and Amador and Soares (2017) in the framework proposed by Roeger (1995). Our estimation relies on the latter set of papers and includes an extensive meta-analysis of virtually all papers, for this set of countries, on market power and bargaining power in order to assess the reasonability of our estimates.

We find that product and labour markets in the EU still depart substantially from their competitive benchmarks, suggesting that product market integration is limited, particularly if we consider labour market imperfections and/or some services sectors. Coefficients for the price-cost margin and the workers' bargaining power are widely positive and statistically significant. At the sectoral level, median figures range between 0.11 and 0.40, under imperfect labour markets and between 0.07 and 0.32 under competitive labour markets. Median workers' bargaining power range between figures slightly below 0 to around 0.25. There are still sizeable differences in the level of product and labour market imperfections both within country and across sectors in the EU which are in many cases related to services sectors. At the aggregate level, Eastern countries tend to depict lower product and labour market imperfections compared to other countries in the EU. We find also that product and labour market imperfections are positive and

strongly correlated and that the market power of the firm is substantially underestimated by ignoring the degree of rent sharing with their workers. Our findings suggest that the accounting price-cost margin seems to be a reasonable proxy for the corresponding estimated levels but only under the assumption of competitive labour markets. At last, we show that there was a very limited adjustment of both product and labour market imperfections following the international and financial crisis.

The paper is organised as follows. Section 2 briefly summarizes the theoretical model. Section 3 is devoted to database issues and estimation strategy. Section 4 contains the main findings and the following discusses the plausibility of the results in light of the evidence reported in earlier studies. Section 5 examines the impact of the international and financial crisis and the last section presents some concluding remarks.

2   Methodology

This section provides a brief review of the model used to identify the price-cost margin under two distinct assumptions. In the first, labour markets are assumed to be perfectly competitive (Roeger (1995) and Hall (1988)) and in the second this assumption is relaxed (Crépon et al. (2005), Dobbelaere and Mairesse (2013) and Abraham et al. (2009)).

Following Solow (1957), the standard growth accounting using a neoclassical production function under Hicks-neutral technological progress yields[1]:

$$\Delta q = \varepsilon^K \Delta k + \varepsilon^L \Delta l + \varepsilon^M \Delta m + \theta \tag{1}$$

where θ stands for technological progress, q is the log of gross output, k, l and m are the logs of inputs and ε^K, ε^L and ε^M are output elasticities with respect to capital, labour and intermediate inputs, respectively. Assuming perfectly competitive output and input markets, output elasticities with respect to each input (ε^J) match corresponding shares in nominal output (α^J), i.e. $\varepsilon^J = \alpha^J$ for $J = K, L$ and M. However, this is no longer the case in the presence of imperfect competition in the output market. Following Hall (1988), output elasticities become $\varepsilon^J = \mu\alpha^J$, where μ is the markup ratio defined as P/MgC where P and MgC represent price and marginal cost, respectively. Under the constant returns-to-scale assumption ($\alpha^K + \alpha^L + \alpha^M)\mu = 1$, the Solow residual ($SR$) (i.e. the difference between the

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[1]For simplicity firm and time subscripts are omitted. Roeger (1995) also holds under other forms of technological progress (see Boulhol (2008)).

output growth rate and the input share weighted average of input growth rates) can be rewritten as:

$$SR = \left(1 - \frac{1}{\mu}\right)(\Delta q - \Delta k) + \frac{1}{\mu}\theta \tag{2}$$

where

$$SR \equiv \Delta q - (1 - \alpha^L - \alpha^M)\Delta k - \alpha^L \Delta l - \alpha^M \Delta m$$

From equation (2), it is possible to estimate market power. Nevertheless, standard OLS estimator is inconsistent since the term associated with technological progress is not observed and very likely correlated with input growth rates. Roeger (1995) noticed that, by using the dual problem of the firm, it would be possible to eliminate the term generating this inconsistency. Using his insight, the nominal Solow residual (SR^n) can be written as:

$$SR^n \equiv SR - SR^d = \left(1 - \frac{1}{\mu}\right)[(\Delta p + \Delta q) - (\Delta r + \Delta k)] \tag{3}$$

where

$$SR^n \equiv (\Delta p + \Delta q) - \alpha^L(\Delta w + \Delta l) - \alpha^M(\Delta p^m + \Delta m)$$
$$- (1 - \alpha^M - \alpha^L)(\Delta r + \Delta k)$$

$(\Delta p + \Delta q)$, $(\Delta r + \Delta k)$, $(\Delta l + \Delta w)$ are growth rates of nominal output, stock of capital and labour costs, respectively. From equation (3), we can identify the price-cost margin $(1 - \frac{1}{\mu})$ relying on standard OLS and avoiding deflators. However, the assumption of competitive labour markets is also unlikely to hold as documented in the literature. In fact, empirical evidence supports the efficient Nash Bargaining over alternative models of negotiation between unions and firms (see for instance Dobbelaere and Mairesse (2013)). Under an efficient Nash bargaining and assuming that unions are risk neutral and demand for output is isoelastic, the modified Roeger (1995) approach becomes: [2]

$$SR^n = \left(1 - \frac{1}{\mu}\right)[(\Delta p + \Delta q) - (\Delta r + \Delta k)]$$
$$+ \frac{\phi}{(1 - \phi)}(\alpha^L - 1)[(\Delta l + \Delta w) - (\Delta r + \Delta k)] \tag{4}$$

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[2]This approach allows to test the efficient Nash bargaining against the right-to-manage model (where $\phi = 0$ is equal to 0) or perfect competition. In the model, it is not possible to identify the right-to-manage model from perfect competition in the labour market. However, in both cases the bargaining power is equal to 0.

Equation (4) allows to jointly estimating price-cost margins $(1 - \frac{1}{\mu})$ and the workers' bargaining power (ϕ) following the work of Roeger (1995), Moreno and Rodríguez (2011), Bassanetti et al. (2010) and Amador and Soares (2017).[3]

3   Data and Estimation

3.1   Database

We use firm-level data for the period 2004-2012 collected under the Competitiveness Research Network (CompNet) for 11 members of the EU, namely: Belgium, Estonia, Finland, France, Germany, Italy, Slovakia, Slovenia, Spain, Poland and Portugal. The dataset comprises firms operating in non-financial business industries except for 'Manufacture of petroleum and coke' and 'Agriculture, Mining and Quarrying'.[4] Tables 11 and 12 summarize the main features of each dataset.[5]

The methodology requires a set of variables defined in nominal terms. The empirical counterparts to the theoretical variables in equations (3) and (4) are the following: $(P_{it} * Q_{it})$ is turnover; $(R_{it} * K_{it})$ is the nominal value of capital; $(L_{it} * W_{it})$ is total wage bill and $(P_{it}^m * M_{it})$ are intermediate inputs. The corresponding growth rates are, respectively, given by: $(\Delta p_{it} + \Delta q_{it})$, $(\Delta r_{it} + \Delta k_{it})$, $(\Delta l_{it} + \Delta w_{it})$, $(\Delta m_{it} + \Delta p_{it}^m)$. In addition, α_{it}^L and α_{it}^M are shares of the total wage bill and intermediate inputs on turnover, respectively. Except for the nominal value of capital, all variables are directly available from the income statement of the firm. Nonetheless, we require both a measure of the real stock of capital and its rental rate since neither is directly observed. Firstly, the stock of capital consists of tangible fixed assets at book-value (K_{it}).[6] Secondly, the rental price of capital (R_{it}) is obtained following Jorgenson and Hall (1967) as:

$$R_{it} = (i_{it} - \pi_t + \delta) P_t^I \tag{5}$$

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[3]See Amador and Soares (2017) for the full derivation of the model.

[4]Data for Portugal and Slovenia starts in 2006, for Spain in 2008 and Poland in 2005. The year 2012 is missing in Belgium and Slovakia. Figures for France related to Wholesale and Retail and some sectors in Other Services are excluded due to the difficulty in identifying separately valued added and turnover. For Slovakia, figures for Wholesale and Retail are also discarded due to the same obstacle.

[5]Due to confidentiality reasons, 'Electricity and Water supply' is excluded. The set of sectors is not exactly coincident. For instance, in Germany, there are a few sectors in the non-manufacturing sector which are not available.

[6]The stock of capital is not deflated. Additionally, intangible assets are disregarded from the measure of the capital stock. The reason is the impossibility of having this information for all countries.

where $i_{it} - \pi_t$ is the real interest rate, δ stands for the depreciation rate and P_t^I stands for an index of investment goods price. The nominal interest (i_{it}) is the ratio of interest to debt and the inflation rate (π_t) is the year-on-year growth rate of HICP for the overall economy obtained from Eurostat. The index of investment goods price is obtained for each country from AMECO. The depreciation rate is set at 8 per cent for all firm/country/years following Christopoulou and Vermeulen (2012). This figure is in line with the ones adopted in related empirical studies. Boulhol et al. (2011) use rates of 5 and 7 per cent, while Konings and Vandenbussche (2005) assumes a depreciation rate of 10 per cent. The choice of a fixed depreciation rate is mainly related to the lack of data. An additional reason in favour of this choice is that the accounting depreciation may not reflect the true economic depreciation which it is aimed at capturing. In contrast, interest rates are not fixed but, instead vary across firms and years. Using a firm-level interest rate allows capturing an important dimension of heterogeneity, particularly relevant since it includes the period of the international and financial crisis. Nonetheless, information for this variable is unavailable for some firms in several countries. In these cases, we assign the median interest rate in their respective year/sector/country. We use the same procedure if a firm reports figures outside the 0-1 interval. This assumption can increase measurement error in the level of the interest rate. Fortunately, the model includes variables in growth rates and thus the restrictive nature of this assumption is substantially minimized. Note also that this is a simplification of the definition of the cost of capital (see Hall (1988) and Martins et al. (1996)). Using an accurate definition would imply extra data requirements which would be too demanding in this context. As pointed out by Martins et al. (1996), using an approximation will reflect on the level but it is unlikely to impact on growth rate due to their low variability in time.

We perform a standard data cleaning. Firstly, only firms reporting strictly positive figures for turnover, labour costs, intermediate inputs and stock of capital are considered. Secondly, firms reporting growth rates for key variables (turnover, labour costs, intermediate inputs and the capital stock) below the 10th and above the 90th percentile for each year/sector/country are eliminated. In addition, firms that report persistent negative profits (i.e. a firm reporting three consecutive years of negative operational profits) are also disregarded. Profit maximization is consistent with one-period losses but becomes less likely in the presence of persistent losses.

3.2 Estimation

We estimate equations (3) and (4) at the sectoral level defined at 2 digit level in NACE Rev 2 classification for each country separately.[7] Each equation generates two coefficients for the price-cost margin $(1 - 1/\mu)$ for each sector/country. In the former equation, we assume that labour markets are perfectly competitive. In the latter, this assumption is relaxed yielding also a coefficient for the workers' bargaining power (ϕ). This estimation approach yields an average coefficient across the firms in the sector for each country.[8] We estimate both equations by fixed effects including time dummies in order to control for the presence of neglected heterogeneity and specific shocks, respectively. To ensure reasonability of the coefficients, we disregard sectors with less than 50 observations for the entire period under analysis.

In the presence of deviations from the assumptions of the model, as for instance, constant returns-to-scale, instantaneous adjustment of all inputs or the presence of measurement error, the estimates would be biased (see Christopoulou and Vermeulen (2012), Martins et al. (1996), Dobbelaere and Mairesse (2013), Crépon et al. (2005) for a discussion of the sources and direction of the biases).

4 Price-cost margin and bargaining power in the EU

4.1 Testing perfect competition

Table 1 depicts the proportion of sectors where the null hypothesis of perfectly competitive product markets is not rejected. In this setting, firms set prices equal to marginal costs and the price-cost margin is 0. The test on the perfect competition hypothesis in the product market, i.e. if $1 - 1/\mu = 0$, is conducted under competitive and imperfect labour markets by estimating equation (3) and (4), respectively. This last equation allows also to test if labour markets fall within the scope of perfect competition, i.e. if $\phi = 0$. Estimated coefficients are also trimmed. Around 2.5 per cent of the sectors are dropped to ensure that these few outliers are not driving our results. We compute the median both across sectors and countries and rescale each

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[7]There is also a potential sample selection concern in some countries since the universe of firms is not surveyed.

[8]The constant markup assumption in the long-run is consistent with models assuming constant elasticity of substitution (CES) preferences (see Melitz (2003)).

coefficient according to the corresponding median. A sector is considered an outlier if it depicts a figure below the 1st percentile or above the 99th percentile in both of the rescaled distributions.

On the product market, coefficients for the price-cost margin $(1 - 1/\mu)$ are widely positive and statistically significant across sectors for all countries. There are at most 6 per cent of the sectors where we fail to reject perfect competition which accounts for, at most, 3 per cent of aggregate turnover of a country. This fact provides evidence supporting the rejection of perfect competition in the EU's product market which holds regardless of the assumption on the labour market structure.[9]

On the labour market, the perfect competition hypothesis is also predominantly rejected across sectors for all countries. Coefficients for the workers' bargaining power (ϕ) are also generally positive and statistically significant. In Slovakia, there are 30 per cent of sectors where we fail to reject the price-taking assumption which accounts for 11 per cent of aggregate turnover. While in all other countries these figures are lower depicting however some heterogeneity. Rejecting the competitive labour market assumption is less likely in Eastern countries where approximately in 1 out of 4 sectors, workers do not hold a bargaining power that is statistically different from 0, representing less than 11 per cent of aggregate turnover. While for Finland, France, Belgium and Italy, there are less than 1 out of 10 sectors where workers are exactly paid according to their marginal productivity, which represents less than 5 per cent of aggregate turnover. Compared to our findings for the product market, rejecting perfect competition is less likely on the labour market, accounts for a higher share on aggregate turnover and translates also a higher heterogeneity across countries in these two dimensions.

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[9]For some countries, the introduction of the term related to the bargaining power implies that perfect competition in the product market is no longer rejected. However, these sectors account for a very small share in turnover and are mainly associated with negative and non-significant coefficients for the bargaining power.

Table 1: Non-rejection of the null hypothesis of Perfect Competition: Share of sectors

	ESP	ITA	EST	PRT	SVN	SVK	FIN	BEL	DEU	POL	FRA
Share on the total number of sectors (per cent)											
Under Competitive Labour markets											
Price-cost margin $(1-1/\mu)$	0.0	0.0	5.8	0.0	0.0	2.3	1.9	0.0	0.0	0.0	0.0
Under Imperfect Labour markets											
Price-cost margin $(1-1/\mu)$	1.9	0.0	3.8	1.8	3.8	4.7	0.0	0.0	4.7	1.9	0.0
Bargaining power (ϕ)	11.3	5.6	21.2	10.9	18.9	30.2	7.4	7.4	18.6	17.3	6.3
Share on the total number of sectors using turnover as weights (per cent)											
Under Competitive Labour markets											
Price-cost margin $(1-1/\mu)$	0.0	0.0	0.4	0.0	0.0	0.4	0.9	0.0	0.0	0.0	0.0
Under Imperfect Labour markets											
Price-cost margin $(1-1/\mu)$	1.0	0.0	0.2	0.2	3.0	0.9	0.0	0.0	1.5	0.3	0.0
Bargaining power (ϕ)	8.4	1.1	4.4	4.6	8.0	11.3	4.8	2.2	5.3	2.2	2.0
Number of sectors	53	54	52	55	53	43	54	54	43	52	32
Number of observations	1,921,644	1,827,588	117,726	751,510	109,224	17,928	516,177	550,181	173,788	161,696	479,033

Note: The coefficients for the price-cost margin $(1-1/\mu)$ under the assumption of perfect labour markets are obtained by estimating equation (3). Relaxing this assumption yields coefficients for the price-cost margin and the workers' bargaining power (ϕ) by estimating equation (4). The null hypothesis of perfect market structures, on the product and labour market, corresponds to test if the parameters $(1-1/\mu$ and ϕ, respectively) are equal to zero against the alternative hypothesis that the parameters are positive. The significance level is 5 per cent.

4.2 Price-cost margin and bargaining power: Levels

Figure 1 reports the median estimate for the price-cost margin $(1 - 1/\mu)$ computed across countries for each sector. We find that the size of product market level imperfection in the EU is substantial. The median price-cost margin, at sectoral level, ranges from around 0.11 to 0.40, under imperfect labour markets, and from around 0.07 to 0.32 under competitive labour markets. Highest market power stands in professional services (Management consultancy, Architectural and engineering and Other professional, scientific and technical activities) reflecting entry barriers associated to their highly regulated nature and also high relevance of human capital. This set includes also several non-tradable sectors as Accommodation, Rental and leasing activities and Real estate but very few beyond non-manufacturing. The exceptions are some high sunk cost industries related to Transports (as Water and Land transports). In contrast, prices appear much closer to marginal costs in all the sectors related to Trade reflecting their high levels of tradability and product homogeneity and some services sectors mainly

Figure 1: Median price-cost margin at 2 digit level in NACE Rev.2
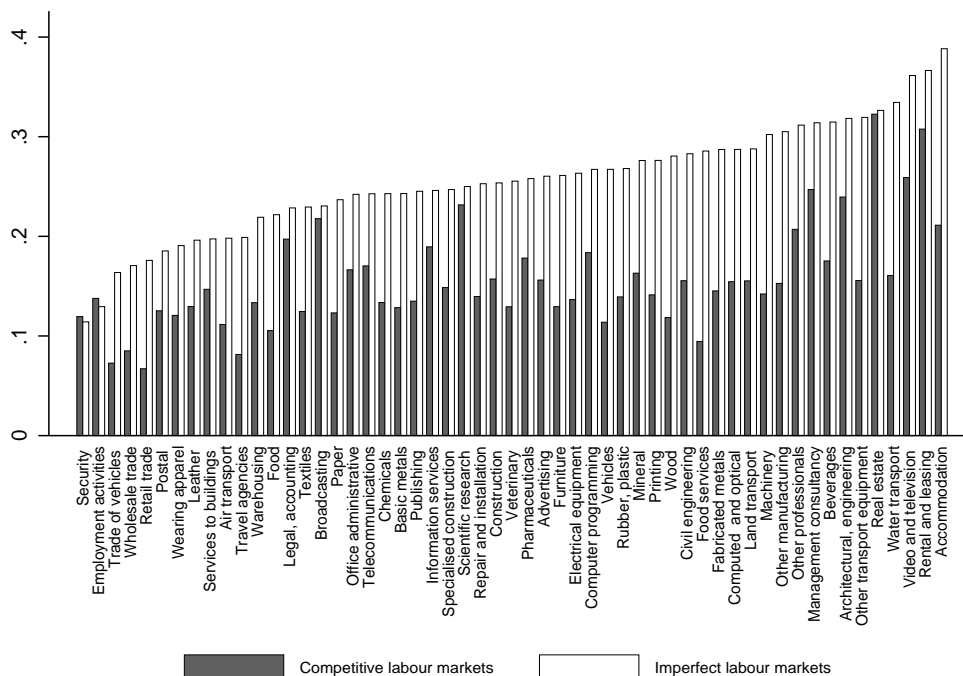
Note: The coefficient $(1 - \frac{1}{\mu})$ for the price-cost margin under competitive and imperfect labour markets was obtained from estimating equations (3) and (4), respectively. The median is computed in the country distribution for each sector. The figures are sorted in increasing order of the median coefficient for the price-cost margin under imperfect labour markets for each sector.

related to Administrative and support activities (as Employment activities, Security and Travel agencies). Very few manufacturing sectors are in this set, at least when allowing for non-competitive labour market structures. Despite this heterogeneity, there are no substantial changes in the set of most and least competitive sectors by moving to a framework where labour markets are competitive.

Figure 2 depicts the median estimate for the bargaining power computed across countries for each sector. On average, workers in the EU can extract a substantial share of the firms' rents. The median workers' bargaining power ranges from figures close to 0 to around 0.25 depicting a lot of cross-sector variation. The workers holding the highest bargaining power are generally employed in the manufacturing sector. There are few exceptions related to professional services (as Architectural and engineering activities, Civil Engineering, Other Professionals) and services selling to highly segmented markets (as Accommodation and Food and Beverage service activities) some high sunk cost industries (as Water transports) and also Construction. In contrast, lowest bargaining power is associated to sectors as Trade and

Figure 2: Median workers' bargaining power at 2 digit level in NACE Rev. 2
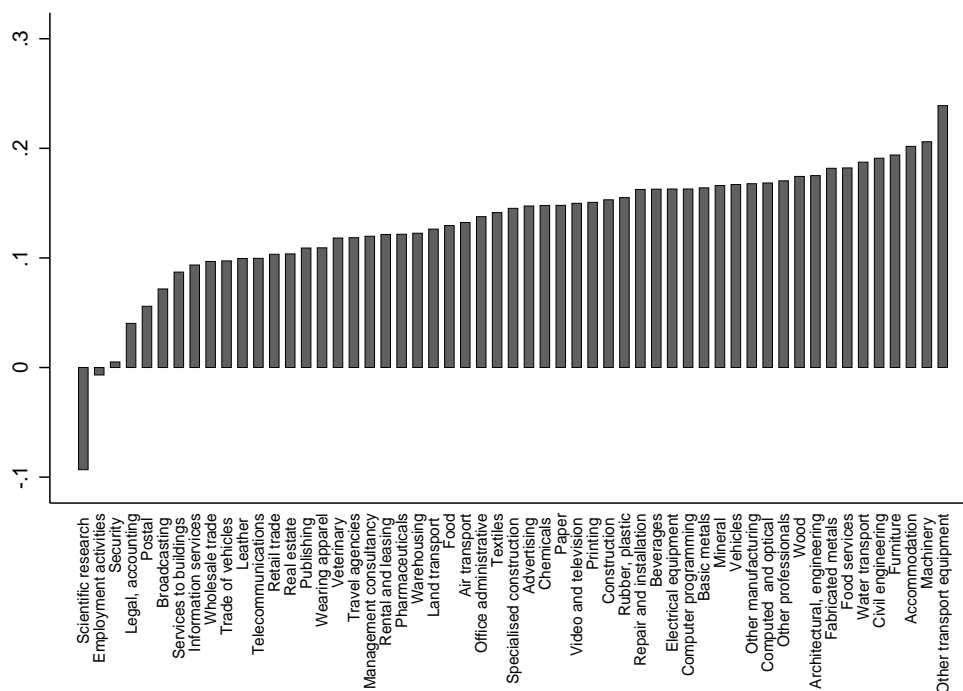
Note: The coefficients for the workers' bargaining power are obtained from estimating equation (4 for each sector/country.

The figures are sorted in increasing order of the median value computed at the country level for each sector.

services assuming in some cases high levels of tradability, strong product homogeneity and low relevance of human capital (as for instance Employment activities, Security, Services to Buildings). These findings can be related, for instance, to union densities, skill levels of the workers and asymmetrical exposure to international competition. Du Caju et al. (2008) collects evidence reporting that the degree of trade union density (and generally bargaining coverage) is generally lower in market services while Dumont et al. (2012) suggests that low skilled workers hold less bargaining power than high skilled. Differentiated roles of unions across sectors can also account for some of these differences.

A recent paper by De Loecker and Eeckhout (2017) stresses that drawing aggregate figures from firm-level data is key for identification of aggregate markups. Table 2 and 3 show average coefficients for the price-cost margin, under the two labour market settings, and corresponding standard errors for the overall economy and main economic sectors. Similarly, table 4 reports similar figures for the workers' bargaining power. We find that product markets in the EU depart substantially from the competitive benchmark. On average, the price-cost margin is 24 per cent considering the rents captured by the workers depicting some variability across countries. In Eastern countries such as Poland, Estonia, Slovakia and Slovenia the distance to perfect competition is substantially smaller compared to the remaining countries. In these countries, the price-cost margin is around 19-21 per cent while in Belgium and Germany the average of the total economy can reach figures above 30 per cent.

Under competitive labour markets, this figure drops almost to half reaching on average 14 per cent.[10] These findings illustrate the relevance of assuming competitive labour markets. Under this assumption, workers are exactly paid according to their productivity. In this case, their corresponding bargaining power is null. As a matter of fact, evidence described above suggests that this is not the case. Thus, by receiving wages above productivity, employees are in fact capturing some of the market power held by the firm. If these rents are disregarded, product market imperfection is perceived to be lower than what it truly is. Our results point to a significant underestimation of market power.

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[10]Our results are consistent with an elasticity of substitution between varieties inside the 3-5 interval under imperfect labour markets and 5-9 under perfect competition. The literature suggests figures within the 3 to 10 range which is consistent with our findings. Elasticities of around 3 have been used for calibration (see Hsieh and Klenow (2009) for instance).

Table 2: Price-cost margin in the European Union: Under imperfect labour markets

	ESP	ITA	EST	PRT	SVN	SLK	FIN	BEL	DEU	POL	FRA
Manufacturing	0.23***	0.29***	0.23***	0.28***	0.21***	0.21***	0.27***	0.34***	0.37***	0.27***	0.26***
	(0.008)	(0.005)	(0.026)	(0.012)	(0.029)	(0.025)	(0.015)	(0.019)	(0.01)	(0.01)	(0.011)
	333,629	507,130	17,197	123,444	19,809	9,877	74,864	65,867	73,212	56,431	206,082
Construction	0.21***	0.46***	0.23***	0.38***	0.19***	0.18***	0.26***	0.37***	0.7***	0.26***	0.27***
	(0.004)	(0.005)	(0.01)	(0.008)	(0.013)	(0.015)	(0.003)	(0.004)	(0.009)	(0.006)	(0.003)
	367,821	262,597	18,481	104,503	13,322	2,871	101,016	98,574	9,989	19,246	166,204
Trade	0.16***	0.18***	0.14***	0.18***	0.15***		0.22***	0.24***	0.2***	0.13***	
	(0.001)	(0.001)	(0.006)	(0.002)	(0.005)		(0.002)	(0.003)	(0.003)	(0.002)	
	596,622	508,866	29,313	253,561	30,429		127,386	194,388	66,098	54,259	
Transports and Communications	0.21***	0.24***	0.22***	0.32***	0.22***	0.32***	0.26***	0.33***	0.31***	0.19***	0.18***
	(0.014)	(0.007)	(0.012)	(0.046)	(0.014)	(0.027)	(0.023)	(0.016)	(0.052)	(0.008)	(0.013)
	105,022	89,941	12,915	55,654	6,470	1,095	51,391	28,265	10,811	7,920	54,777
Other services	0.27***	0.28***	0.28***	0.25***	0.23***	0.23***	0.26***	0.38***	0.34***	0.25***	0.370***
	(0.01)	(0.011)	(0.028)	(0.021)	(0.02)	(0.057)	(0.014)	(0.019)	(0.03)	(0.026)	(0.005)
	518,550	459,054	39,820	214,348	39,194	4,085	161,520	163,087	13,678	23,840	51,970
Total economy	0.21***	0.26***	0.19***	0.25***	0.19***	0.21***	0.25***	0.30***	0.32***	0.21***	0.25***
	(0.004)	(0.003)	(0.009)	(0.008)	(0.013)	(0.026)	(0.008)	(0.007)	(0.01)	(0.005)	(0.011)
Number of observations	1,921,644	1,827,588	117,726	751,510	109,224	17,928	516,177	550,181	173,788	161,696	479,033
Number of sectors	53	54	52	55	53	43	54	54	43	52	32

* * *$p < 0.01$, $**p < 0.05$, $*p < 0.1$

Note: The coefficients for the price-cost margin $(1 - 1/\mu)$ are obtained by estimating equation (4). We compute aggregated coefficients by calculating the average of sectoral coefficients within each aggregate, using average turnover weights of the sector/country within the aggregate (first row for each aggregate). Standard errors (se) for the each of the aggregates are computed as $se^{ag} = \sqrt{\sum w_i^2 se_i^2}$ where i is the sector and w_i is the turnover weight of the sector within the aggregate considered (second row for each aggregate). The number of observations is depicted in the third row for each aggregate.

Table 3: Price-cost margin in the European Union: Under Competitive labour markets

	ESP	ITA	EST	PRT	SVN	SLK	FIN	BEL	DEU	POL	FRA
Manufacturing	0.12***	0.14***	0.13***	0.12***	0.11***	0.11***	0.15***	0.18***	0.21***	0.13***	0.15***
	(0.005)	(0.002)	(0.015)	(0.006)	(0.013)	(0.011)	(0.007)	(0.012)	(0.003)	(0.006)	(0.003)
	333,629	507,130	17,197	123,444	19,809	9,877	74,864	65,867	73,212	56,431	206,082
Construction	0.17***	0.25***	0.14***	0.21***	0.13***	0.11***	0.18***	0.24***	0.22***	0.15***	0.10***
	(0.003)	(0.004)	(0.007)	(0.005)	(0.009)	(0.008)	(0.002)	(0.003)	(0.005)	(0.004)	(0.001)
	367,821	262,597	18,481	104,503	13,322	2,871	101,016	98,574	9,989	19,246	166,204
Trade	0.07***	0.10***	0.06***	0.07***	0.07***		0.11***	0.14***	0.14***	0.07***	
	(0.001)	(0.0005)	(0.003)	(0.001)	(0.002)		(0.001)	(0.002)	(0.001)	(0.001)	
	596,622	508,866	29,313	253,561	30,429		127,386	194,388	66,098	54,259	
Transports and Communications	0.12***	0.17***	0.13***	0.16***	0.12***	0.18***	0.17***	0.22***	0.22***	0.10***	0.09***
	(0.008)	(0.003)	(0.007)	(0.017)	(0.007)	(0.012)	(0.012)	(0.011)	(0.01)	(0.004)	(0.004)
	105,022	89,941	12,915	55,654	6,470	1,095	51,391	28,265	10,811	7,920	54,777
Other services	0.16***	0.20***	0.20***	0.17***	0.14***	0.20***	0.18***	0.28***	0.29***	0.15***	0.22***
	(0.008)	(0.005)	(0.016)	(0.013)	(0.012)	(0.034)	(0.009)	(0.014)	(0.008)	(0.013)	(0.001)
	518,550	459,054	39,820	214,348	39,194	4,085	161,520	163,087	13,678	23,840	51,970
Total economy	0.11***	0.14***	0.11***	0.12***	0.11***	0.13***	0.14***	0.18***	0.19***	0.11***	0.14***
	(0.003)	(0.001)	(0.005)	(0.004)	(0.007)	(0.012)	(0.004)	(0.005)	(0.003)	(0.003)	(0.003)
Number of observations	1,921,644	1,827,588	117,726	751,510	109,224	17,928	516,177	550,181	173,788	161,696	479,033
Number of sectors	53	54	52	55	53	43	54	54	43	52	32

$***p < 0.01, **p < 0.05, *p < 0.1$

Note: The coefficients for the price-cost margin $(1 - 1/\mu)$ are obtained by estimating equation (3). We compute aggregated coefficients by calculating the average of sectoral coefficients within each aggregate, using average turnover weights of the sector/country within the aggregate (first row for each aggregate). Standard errors (se) for each of the aggregates were computed as $se^{ag} = \sqrt{\sum w_i^2 se_i^2}$ where i is the sector and w_i is the turnover weight of the sector within the aggregate considered (second row for each aggregate). The number of observations is depicted in the third row for each aggregate.

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Table 4: Workers' bargaining power in the European Union

	ESP	ITA	EST	PRT	SVN	SLK	FIN	BEL	DEU	POL	FRA
Manufacturing	0.17***	0.17***	0.14***	0.19***	0.13***	0.11***	0.16***	0.19***	0.18***	0.17***	0.12***
	(0.009)	(0.004)	(0.024)	(0.01)	(0.034)	(0.025)	(0.015)	(0.015)	(0.009)	(0.009)	(0.011)
	333,629	507,130	17,197	123,444	19,809	9,877	74,864	65,867	73,212	56,431	206,082
Construction	0.070***	0.29***	0.13***	0.27***	0.09***	0.09***	0.12***	0.18***	0.44***	0.18***	0.20***
	(0.006)	(0.003)	(0.009)	(0.007)	(0.016)	(0.017)	(0.003)	(0.003)	(0.004)	(0.007)	(0.003)
	367,821	262,597	18,481	104,503	13,322	2,871	101,016	98,574	9,989	19,246	166,204
Trade	0.13***	0.09***	0.09***	0.13***	0.10***		0.12***	0.12***	0.07***	0.07***	
	(0.001)	(0.001)	(0.005)	(0.002)	(0.004)		(0.002)	(0.002)	(0.003)	(0.002)	
	596,622	508,866	29,313	253,561	30,429		127,386	194,388	66,098	54,259	
Transports and Communications	0.12***	0.10***	0.10***	0.18***	0.12***	0.16***	0.12***	0.15***	0.09*	0.12***	0.12***
	(0.024)	(0.007)	(0.012)	(0.039)	(0.013)	(0.023)	(0.018)	(0.015)	(0.067)	(0.008)	(0.011)
	105,022	89,941	12,915	55,654	6,470	1,095	51,391	28,265	10,811	7,920	54,777
Other services	0.17***	0.1***	0.11***	0.06***	0.12***	0.04	0.12***	0.14***	0.06**	0.12***	0.18***
	(0.011)	(0.011)	(0.027)	(0.025)	(0.021)	(0.081)	(0.014)	(0.016)	(0.052)	(0.029)	(0.005)
	518,550	459,054	39,820	214,348	39,194	4,085	161,520	163,087	13,678	23,840	51,970
Total economy	0.14***	0.14***	0.11***	0.15***	0.11***	0.10**	0.14***	0.15***	0.13***	0.12***	0.13***
	(0.005)	(0.003)	(0.009)	(0.007)	(0.016)	(0.028)	(0.008)	(0.006)	(0.011)	(0.005)	(0.01)
Number of observations	1,921,644	1,827,588	117,726	751,510	109,224	17,928	516,177	550,181	173,788	161,696	479,033
Number of sectors	53	54	52	55	53	43	54	54	43	52	32

$* * * p < 0.01, * * p < 0.05, * p < 0.1$

Note: The coefficients for the workers' bargaining power (ϕ) were obtained by estimating equation (4). We compute aggregated coefficients by calculating the average of sectoral coefficients within each aggregate, using average turnover weights of the sector/country within the aggregate (first row for each aggregate). Standard errors per aggregate were obtained by using the delta method (second row for each aggregate). The number of observations is depicted in the third row for each aggregate.

More specifically, the price-cost margin is underestimated, on average, by around 0.10 varying across sectors and countries. These findings are consistent with the ones presented in earlier studies (see Crépon et al. (2005), Dobbelaere (2004), Abraham et al. (2009) and Amador and Soares (2017)). At the aggregate level, labour markets also depart significantly from their competitive levels. On average, EU workers can extract 14 per cent of the firms' economic profits but there is some heterogeneity across countries. The lowest aggregate bargaining power stands between 10-12 per cent in eastern countries as Slovenia, Estonia, Slovakia and Poland and highest in Portugal, Belgium and to a smaller extent Spain, Italy and Finland (around 15 to per cent).[11]

Our findings unveil robust patterns for both product and labour market imperfections. We find that market power is consistently lowest in Wholesale and retail trade under both labour market assumptions. At the opposite, the highest market power stands in Construction and Other services under the assumption of competitive labour markets. However, this result no longer holds when this assumption is relaxed. Under imperfect labour markets, highest market power becomes more heterogeneous across countries and can be related not only to Construction and Other services but also to Manufacturing and Transports. This result directly translates the extent of rent sharing between firms and workers which is relatively low in Wholesale and Retail trade and high in Manufacturing and Construction. The increasing relevance of service sectors implies that advanced economies are shifting towards sectors assuming lower bargaining power which is likely to contribute to the recent decline in the labour share.

At last, we discuss the consistency of these results with two of the most popular indicators: the Product Market Regulation (PMR) and Employment Protection Legislation (EPL) collected by the OECD. These are often used for economic policy and research however there is limited evidence suggesting that these indicators can be traced back to more structural models. We find that the price-cost margin at the aggregate level to be poorly correlated with the PMR indicator for 2008 across countries. In fact, the correlation coefficient is negative of around 0.5 considering both assumptions on the labour market structure. One of the reasons that could justify this poor performance is the fact that these indicators generally to do not convey enforcement of the measures adopted. Regarding EPL, we find that the corre-

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[11]Aggregate figures are obtained using turnover weights computed at the country level. These weights reflect country-specific specialization patterns. Nevertheless, results are barely unchanged by using country invariant weights (equal to the mean).

lation coefficient with the bargaining power is positive and strong for both *Strictness of employment protection – individual and collective dismissals (regular contracts)* and only individual dismissals (regular contracts) (0.55 and 0.53, respectively). It is also positively correlated with the indicator that captures the cost of dismissals for regular contracts but less strongly (0.14).[12]

4.3   Price-cost margin and bargaining power: Dispersion

The process of trade liberalization and economic integration across members in the EU is expected to reduce barriers to trade, increase price transparency and boost competition intensity. Excessive rents should induce new entries in face of broadened arbitrage opportunities. In this case, prices are pushed towards marginal costs while reducing markup dispersion which is consistent with Lu and Yu (2015) for instance.

Figure 3 reports the interquartile range of the coefficients for the price-cost margin (Panel A), under the two labour market settings, and also the ones for the bargaining power (Panel B) computed for each sector across countries. Firstly, despite the free circulation of goods, capital and people we still find significant differences across countries within narrowly defined sectors particularly in services that assume a less tradable nature. The vast majority of sectors assuming the highest dispersion are services sectors reflecting, for instance, the presence of entry and exit barriers, information asymmetries and reduced exposure to international trade signalling that the Single Market implementation is, to some extent, partial. More specifically, Real Estate, Scientific Research and Construction are especially high (above 20 p.p.). Sectors depicting lowest dispersion are related to Wholesale and Retail Trade and also Manufacturing (below 10 p.p.) suggesting that product market integration is higher in these sectors. Notwithstanding, it is important to note the significant heterogeneity across sectors, particularly in Other services. This finding highlights the fact that product market integration should be considered at a disaggregate level. Secondly, product market integration in the EU appears to be much less substantial as the rents captured by the workers are taken within the total size of the rents captured by the firm. Under competitive labour markets, there are approximately 87 per cent of sectors assuming an interquartile range below 10 p.p. which drops to 58 per cent of the sectors if we relax the assumption of com-

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[12]We used the latest version of these indicators and considered the average over the same period.

Figure 3: Dispersion within sector defined at 2 digit level in NACE Rev. (Interquartile range)
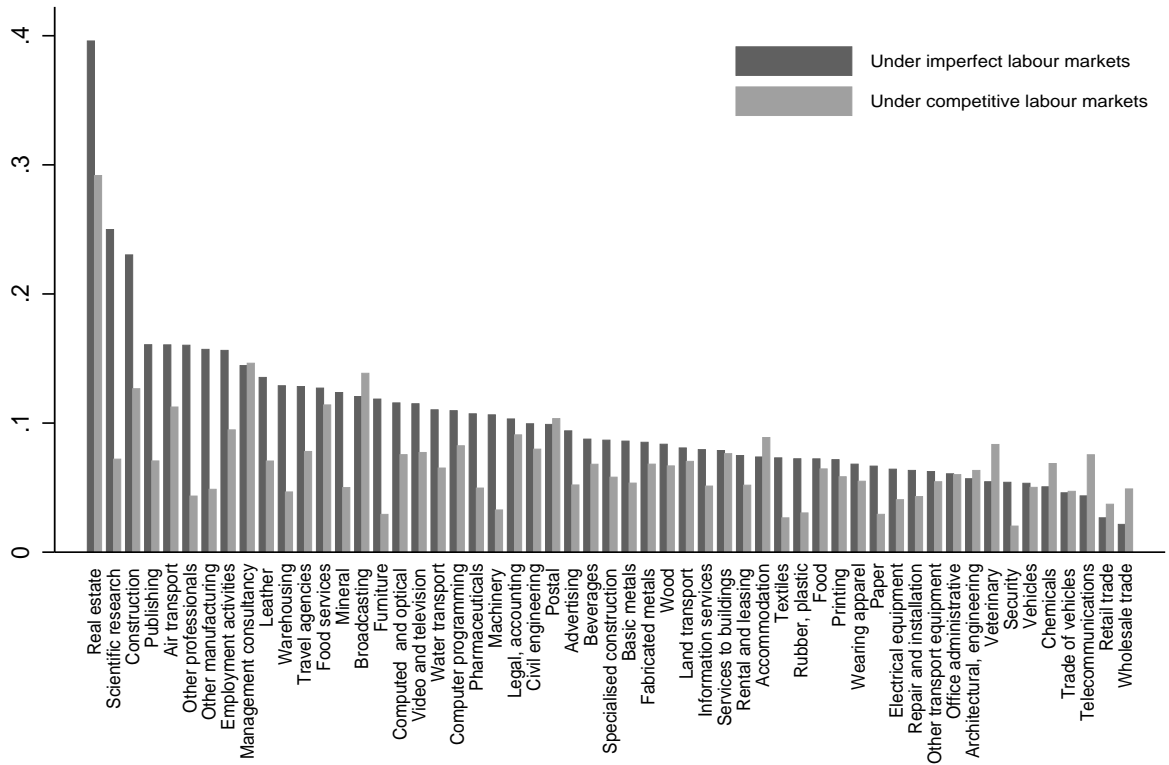
(a) Price-cost margin
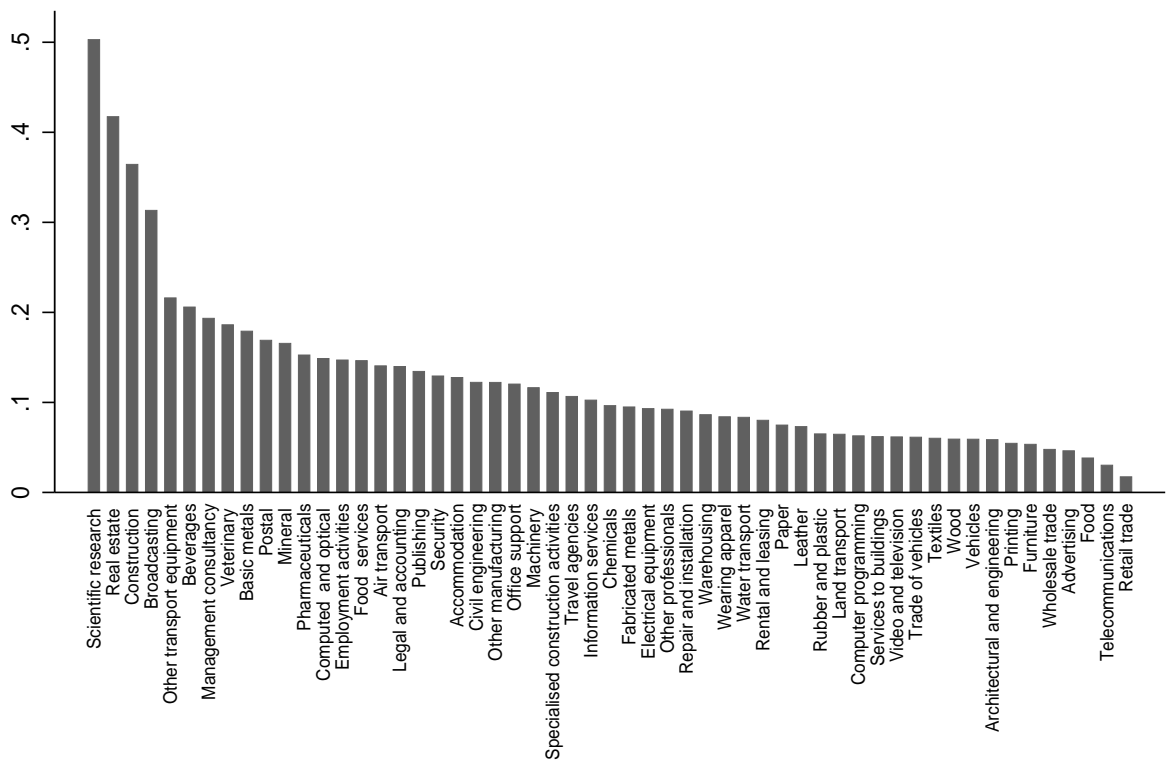
(b) Workers' bargaining power

Note: The coefficients for the price cost margin $(1 - \frac{1}{\mu})$ were obtained by estimating equation (3) and (4) assuming perfect and imperfect labour markets, respectively (panel (a)). The coefficients for the bargaining power (ϕ) were obtained by estimating equation (4) (panel (b)). Both equations were estimated using firm-level data by fixed effects, including time dummies, separately for each country/sector. Dispersion is computed across countries for a given sector.

petitive labour markets. At last, we also find that within sector variation in the bargaining power to be substantial. At the same time, aggregate bargaining figures are similar across countries. These facts suggest that both institutions and sectoral level specificities play a role with this respect.

4.4 Link between product and labour market imperfection

Table 5 shows positive, high and statistically significant correlation coefficients between labour and product market imperfections. The majority of the countries depict correlation coefficients above 0.75. This result is in line with the ones reported in related empirical studies. Estrada (2009) found a correlation coefficient of 0.50 for several EU countries in the period 1980-2004. Boulhol et al. (2011) uses data for the British manufacturing sector in the period 1988-2003 and reports correlations of 0.71 and 0.53 in different specifications. Dobbelaere (2004) reports a correlation of 0.87 for a set of Belgian firms in the period 1988-1995 but using the methodology proposed by Hall (1988). Amador and Soares (2017) report a correlation coefficient

Table 5: Correlation between coefficients for the price-cost margin and the workers' bargaining power at country level

Country	Correlation coefficient	Nb. of sectors
ESP	0.60***	53
ITA	0.75***	54
EST	0.41***	52
PRT	0.61***	55
SLO	0.81***	53
SLK	0.78***	43
FIN	0.70***	54
BEL	0.46***	54
DEU	0.80***	43
POL	0.89***	52
FRA	0.81***	32
All	0.59***	545

$***p < 0.01, **p < 0.05, *p < 0.1$

Note: The coefficients for the price cost margin $(1 - 1/\mu)$ and the workers' bargaining power (ϕ) are obtained by estimating equation (4).

around 0.81 for the Portuguese economy using firm-level data for the period 2006-2009. At the sectoral level, we also find a similar relation between the two market imperfections depicting however some heterogeneity. Around 60 per cent of the sectors depict significant correlation coefficients and in approximately 7 out of 10 exhibit a correlation coefficient above 0.6. Note also that the majority of non-significant coefficients stand in Other services.

Figure 4 plots estimated coefficients for the price-cost margin against the ones for the bargaining power for each country. The figure shows also a positive correlation between the two market imperfections across countries highlighting some patterns. There is a first group assuming both high product and labour market imperfections comprising Southern and Central European countries and a second group registering lower figures for both these imperfections comprising Eastern countries. In Poland and Estonia, the wage bargaining has been found largely deregulated presenting low trade union densities, low levels of collective agreement coverage and decentralized bargaining frameworks and a relatively short agreement length. In the remaining countries, wage bargaining is broadly regulated particularly in countries as Belgium, Spain, Slovenia and Finland where wage indexation and government interventions are more relevant (see Du Caju et al. (2008) and Visser et al. (2013)). Workers hold in general higher bargaining power in more regulated frameworks. However, this is not always the case. This result suggests that the degree of bargaining power does not derive exclusively from their national institutional setups.

Following the literature, this positive correlation can be interpreted in two ways as suggested by Blanchard and Giavazzi (2003), Crépon et al. (2005) and Dobbelaere (2004). A first argument is related to the fact that the presence of unions can increase the rents extracted by the workers instead of the firms. Firms see their profitability decreasing which can force them to exit. In this case, the number of firms will decrease, reducing competitive pressures which raises the total amount of rents extracted from the consumer. The second argument highlights the fact that the presence of unions is endogenous, i.e. unions are more likely to be created once their workers perceive that rents are being extracted from the consumer. These unions would be established in the firms reporting higher market power and would bargain for their share on these rents. High price-cost margins can lead to higher workers' bargaining power but the reverse can also hold and the empirical evidence provided does not distinguish between the two. Still, Dobbelaere (2004), for instance, argues that this latter channel is more likely to hold. From a policy perspective, this result calls attention to the

Figure 4: Price-cost margin and Bargaining power: At country level
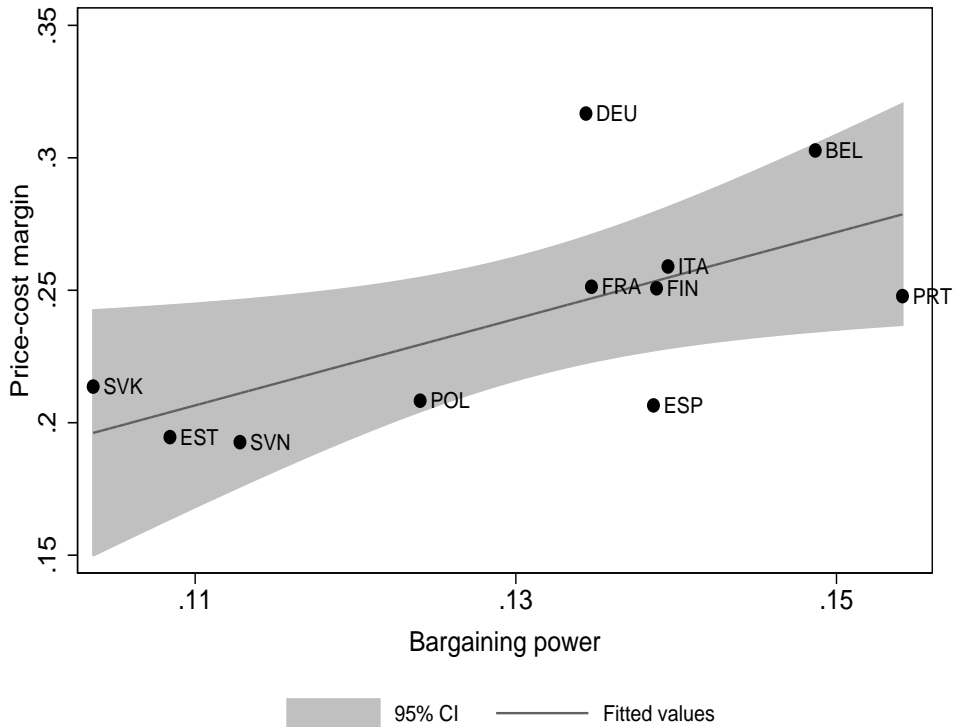
need to consider product and labour market reforms jointly rather than independently.

4.5 Price-cost margin: Accounting versus estimated

One of the issues often discussed in the empirical literature is the ability to use accounting price-cost margins as an approximation for estimated levels (see for instance Abraham et al. (2009)). The main issue when computing the Lerner Index directly from firm-level data is that marginal costs are unobserved. Under the assumptions of constant returns-to-scale, product homogeneity, no adjustment costs and perfectly competitive input markets, accounting and estimated price-cost margins are expected to be very similar. Relaxing one of these assumptions such as perfect competition in the labour market can drive a wedge between the two approaches. Also, accounting information is more susceptible to measurement error which is a source of inconsistency between the two approaches. In addition, accounting data reflects also specific shocks and business cycle fluctuations which can be

Table 6: Correlation coefficients between estimated and accounting price-cost margin at country level

Country	Nb. of sectors	Correlation between accounting and estimated price-cost margin under			
		Competitive labour markets		Imperfect labour markets	
ITA	54	0.57	***	0.27	**
EST	52	0.32	**	0.31	**
PRT	55	0.31	**	0.22	
SVN	53	0.35	***	0.06	
SVK	43	0.52	***	0.03	
FIN	54	0.28	**	0.15	
BEL	54	0.45	***	0.45	***
DEU	43	0.71	***	0.23	
POL	52	0.65	***	0.33	**
FRA	32	0.73	***	0.28	
All	545	0.42	***	0.25	***

$* * *p < 0.01, * * p < 0.05, *p < 0.1$

Note: Estimates for the price-cost margin $(1 - 1/\mu)$ are obtained assuming imperfect and competitive labour markets, i.e. estimating equation (4) and equation (3).

isolated within an econometric setup. In the presence of a close relation, it would be possible to use accounting information to monitor product market competition avoiding the need to resort to econometric estimations. This question assumes particular relevance given the increasing availability and representativeness of firm-level datasets. Tables 6 report correlation coefficients between accounting and estimated price-cost margins at the country level. The accounting price-cost margin corresponds to the ratio between turnover deducted from labour costs and intermediates to the turnover of the firm. We compute a weighted average using turnover as a weight.[13] Our findings suggest that there is a robust relation between estimated and accounting price-cost margins when labour markets are assumed to be perfectly competitive. However, this finding no longer holds by relaxing this assumption. In fact, correlation coefficients between accounting and corresponding estimated levels, under imperfect labour markets, are relatively weak.

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[13]The price-cost margin computed at firm-level can assume arbitrarily low values. For this reason, observations below the first percentile of the distribution for each sector and year were disregarded.

5 Comparison with related studies

This section discusses the plausibility of estimated coefficients for the price-cost margin and workers' bargaining power reported in light of the evidence presented in earlier studies. Note, however, that establishing a comparison with other studies is far from straightforward. In fact, comparability across studies is rather limited due to differences in sectoral coverage, time span, methodological and econometric options and the type of data considered. As pointed out by Crépon et al. (2005) and Klette (1999), estimates for the price-cost margin under Hall (1988) tend to be higher compared to the ones obtained using the methodology proposed by Roeger (1995). Even considering the framework proposed by Roeger (1995) some differences still arise. For instance, some papers use the extended version of the model to include intermediates and not all the papers measure the capital stock in the same way. For instance, intangible assets are often disregarded. These choices are likely to impact the size of the estimates hindering the comparability of results. Furthermore, aggregated coefficients, at comparable levels, are not always available. Despite these challenges, the comparison with other studies offers interesting insights.

Table 7 identifies the main empirical papers containing evidence for the countries under analysis. It summarizes their main features in terms of time frame, countries considered, estimation approach, types of data and assumption regarding the labour market setting. Table 8 depicts the coefficients for the price-cost margin collected from the papers reported in table 7. In this table, we report the estimates for the price-cost margin assuming that labour markets are perfectly competitive which can be compared to the ones reported in the previous section in table 3. When a paper includes more than an estimate, the table 3 reports the one obtained in the time period and estimation approach closer to the one considered in this paper in order to increase comparability as much as possible.

For France, we find an estimate for the price-cost margin of 0.14 in line with figures reported in Crépon et al. (2005) and Martins et al. (1996) (0.12 and 0.17, respectively). While Crépon et al. (2005) uses data for around 1000 firms for the French manufacturing sector between 1986 and 1992, Martins et al. (1996) do not use firm-level data and use a sample that ends in 1992. Using sectoral data from EU-KLEMS for the period 1981-2004, Christopoulou and Vermeulen (2012) reports a price-cost margin of 0.13 for Manufacturing and Construction, which matches the average of our estimates. For Belgium, the empirical evidence is relatively more

extensive compared to the one available for the remaining countries. For the Manufacturing sector, we report an estimate for the price-cost margin of 0.18, which is within the lower and upper bound reported in Martins et al. (1996) and Abraham et al. (2009) (0.14 and 0.22, respectively). The same result is found for Italy. The price-cost margin of the Manufacturing sector is 0.14 below the figures Martins et al. (1996) who do not consider firm-level data. Considering Manufacturing and Construction, we find a figure of 0.17, which is extremely close to the figure of 0.19 reported in Christopoulou and Vermeulen (2012). For Germany, our estimate for the price-cost margin is 0.21, which matches the figures reported by Martins et al. (1996), but are higher than the one reported in Christopoulou and Vermeulen (2012), even when considering the average including construction. Both for Finland and Spain, the figures for Manufacturing and Construction are 0.17 and 0.15, which are close to the figures reported in Christopoulou and Vermeulen (2012) (0.18 and 0.15 respectively). Evidence for Slovenia can be found in Molnár (2010). Nevertheless, their figures for the price-cost margin are much higher than the ones reported in this paper. Similarly, Molnár and Bottini (2010) report figures for Construction and Trade for the period 1993-2006 which are much higher than the ones reported in this paper. Despite the fact that they use firm-level data, their evidence is based on AMADEUS which exhibits a bias towards large firms for some countries.

With respect to services, empirical evidence is rare. Using sectoral level data, Christopoulou and Vermeulen (2012) reports figures for Non-manufacturing sectors but including Financial intermediation and Electricity, at odds with this paper. These two sectors report higher coefficients for the price-cost margin and hence it contributes to the fact that our estimates are clearly below the ones reported by Christopoulou and Vermeulen (2012).

The lack of empirical evidence for the price-cost margin is particularly relevant when the assumption of competitive labour markets is relaxed. This set of results is summarized in table 9 and discussed in comparison with the figures reported in table 2. Using sectoral level data from EU-KLEMS from 1970-2004, Estrada (2009) is one of the rare studies to assume a cross-country nature. However, his figures for the price-cost margin are not directly comparable with either of the tables reported in the previous section.[14] At this level, the empirical evidence collected from earlier studies

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[14]Estrada (2009) reports an aggregate price-cost margin by combining two sets of coefficients. He considers the coefficient for the price cost margin, estimated assuming that labour markets are not necessarily competitive, when the parameter for the bargaining power is statistically significant. If this is not the

includes only France, Belgium, Portugal, Spain and Italy and it is mainly related to the Manufacturing sector.

For the Manufacturing sector in France, our results point to an estimate of 0.26, which is in line with Dobbelaere (2004) and above the figure reported by Crépon et al. (2005) (0.17). For Belgium, our estimate of 0.34 is above the figures reported by Abraham et al. (2009) and Dobbelaere (2004), who report figures around 0.26. For Italy, our results are slightly higher for Manufacturing and substantially lower for Services when compared to Giordano and Zollino (2017). Amador and Soares (2017) report figures for the Portuguese economy between 2006-2009 which are similar to the ones reported in the paper. While Moreno and Rodríguez (2011) reports a higher figure compared to our findings.

Similarly, table 10 contains the estimates for the workers' bargaining power obtained from empirical evidence summarized in table 9. These figures can be compared to the ones in table 4 of Section 4. An additional issue arises when looking at estimates for the bargaining power. As mentioned by Crépon et al. (2005) there is a wide diversity of estimates across studies which has been related to the lack of adequate control for the endogeneity on the degree of rent sharing.

For the Manufacturing sector in Belgium, Dobbelaere (2004) and Abraham et al. (2009) report figures of 0.29 and 0.12, respectively. We found a figure of 0.19 which is closer to the one reported by Abraham et al. (2009). For Portugal, Amador and Soares (2017) found figures that are below the ones reported in this paper for all sectors. The difference between these results is linked to sectoral coverage, time periods, the definition of the capital stock (includes intangibles). For France, our results point to an estimate of 0.12, which is much smaller than the figures of 0.56 and 0.41 reported by Crépon et al. (2005) and Giordano and Zollino (2017) and close to the one reported by Estrada (2009), who report a figure of 0.15. For Italy, Giordano and Zollino (2017) reports a figure of 0.20 for the Manufacturing sector slightly higher than the 0.17 reported in this paper. With respect to services, their estimate (0.54) is much higher than the figures reported but, as mentioned above, there are substantial differences in sectoral coverage in services. For Germany and Spain, the only evidence is presented in Estrada (2009). In the first case, our figure are lower than their figure but for Spain these are

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case, he considers the price-cost margin coefficient that is estimated in a setting where labour markets are assumed to be competitive. His approach yields aggregate coefficients that are not directly comparable to ours. Nevertheless, our results are closer to the ones obtained under competitive labour markets than the ones where this assumption is relaxed.

Table 7: Main features of a set of related studies

Paper	Data	Time-frame	Coverage	Methodology	Assumption on the labour market setting	Estimation	Country
Abraham et al. (2009)	Firm-level	1996-2004	Manufacturing	Hall (1988)	Both competitive and imperfect	OLS and FE	Belgium
Amador and Soares (2017)	Firm-level	2006-2012	Overall economy	Roeger (1995)	Both competitive and imperfect	FE	Portugal
Christopoulou and Vermeulen (2012)	EU-KLEMS	1981-2004	Overall economy with some exceptions	Roeger (1995)	Competitive	OLS in time series	France, Germany, Italy, Belgium, Finland, Spain and others
Crépon et al. (2005)	Firm-level biased towards large firms	1986-1992	Manufacturing	Hall (1988)	Both competitive and imperfect	GMM	France
Dobbelaere et al. (2015)	Firm-level	1986-2001 for France	Manufacturing	Hall (1988)	Several schemes of negotiation	GMM	France, Netherlands and Japan
Dobbelaere (2004)	Firm-level	1988–1995	Manufacturing	Hall (1988)	Both competitive and imperfect	GMM	Belgium
Estrada (2009)	EU-KLEMS	1980-2004	Overall economy	Hall (1988)	Both competitive and imperfect	OLS and IV	France, Germany, Italy, Spain and others
Giordano and Zollino (2017)	EU-KLEMS	1993-2007	Overall economy	Roeger (1995)	Both competitive and imperfect	OLS in time series	Italy
Martins et al. (1996)	STAN	1970-1992	Manufacturing	Roeger (1995)	competitive	OLS	France, Germany, Italy, Belgium, Finland and others
Molnár and Bottini (2010)	Firm-level from AMADEUS biased towards large firms	1993-2006	Services	Roeger (1995)	Competitive	OlS with and without FE	France, Germany, Italy, Belgium, Finland, Poland, Portugal, Spain and others
Molnár (2010)	Firm-level from AMADEUS	1993-2006	Overall economy	Roeger (1995)	Competitive	FE	Slovenia
Moreno and Rodríguez (2011)	Firm-level	1990-2005	Manufacturing	Roeger (1995)	Both competitive and imperfect	OLS	Spain

Table 8: Evidence from earlier studies: Estimates for the price-cost margin under competitive labour markets

Paper	Aggregate	FRA	DEU	ITA	BEL	FIN	ESP	SVN	POL	PRT
Abraham et al. (2009)	Manufacturing				0.22					
Amador and Soares (2017)	Overall									0.14
	Manufacturing									0.14
	Construction									0.23
	Trade									0.08
	Transports and Communications									0.14
	Other Services									0.23
Crépon et al. (2005)	Manufacturing	0.12								
Christopoulou and Vermeulen (2012)	Manufacturing and Construction	0.13	0.14	0.19	0.12	0.18	0.15			
	Services	0.21	0.35	0.47	0.22	0.28	0.27			
	Aggregate	0.17	0.25	0.38	0.18	0.22	0.21			
Dobbelaere (2004)	Manufacturing				0.16					
Giordano and Zollino (2017)	Overall economy			0.12						
Martins et al. (1996)	Manufacturing	0.17	0.21	0.17	0.14	0.14				
Molnár and Bottini (2010)	Construction	0.38		0.59	0.32	0.25	0.26		0.79	0.50
	Trade	0.25		0.33	0.19		0.19		0.79	
Molnár (2010)	Manufacturing							0.33		
	Construction							0.52		
	Trade							0.40		
	Other Services							0.55		
Moreno and Rodríguez (2011)	Manufacturing						0.16			

Table 9: Evidence from earlier studies: Estimates for the price–cost margin under imperfect labour markets

Paper	Aggregate	FRA	DEU	ITA	BEL	FIN	ESP	SVN	POL	PRT
Abraham et al. (2009)	Manufacturing				0.26					
Amador and Soares (2017)	Overall									0.25
	Manufacturing									0.24
	Construction									0.45
	Trade									0.17
	Transports and Communications									0.27
	Other Services									0.33
Crépon et al. (2005)	Manufacturing	0.17								
Dobbelaere (2004)	Manufacturing				0.26					
Dobbelaere et al. (2015)	Manufacturing	0.25								
Estrada (2009)1	Manufacturing	0.12	0.15	0.11			0.12			
	Construction	0.14	0.14	0.19			0.11			
	Services	0.14	0.33	0.23			0.26			
Giordano and Zollino (2017)	Overall			0.33						
	Manufacturing			0.23						
	Other market services			0.40						
Moreno and Rodríguez (2011)	Manufacturing						0.18			

Note: 1) The figures reported following Estrada (2009) are a combination of estimated coefficients obtained assuming competitive and imperfect labour markets at odds with remaining papers.

Table 10: Summary of related evidence for the workers' bargaining power

Paper	Aggregate	FRA	DEU	ITA	BEL	ESP	PRT
Abraham et al. (2009)	Manufacturing				0.12		
Amador and Soares (2017)	Overall						0.11
	Manufacturing						0.11
	Construction						0.23
	Trade						0.09
	Transports and Communications						0.14
	Other Services						0.12
Crépon et al. (2005)	Manufacturing	0.56					
Dobbelaere (2004)	Manufacturing				0.29		
Dobbelaere et al. (2015)	Manufacturing	0.41					
Estrada (2009)	Overall	0.14	0.20	0.13		0.07	
	Manufacturing	0.15	0.24	0.18			
	Services	0.12		0.09		0.15	
Giordano and Zollino (2017)	Overall			0.36			
	Manufacturing			0.20			
	Other market services			0.54			
Moreno and Rodríguez (2011)	Manufacturing					0.13	

similar for the services sector. For Spain, Moreno and Rodríguez (2011) reports a figure for the Manufacturing sector which is lower than our findings. For countries as Finland, Estonia, Slovenia, Slovakia and Poland, our paper is the first to show empirical evidence at this level.

6 Product and labour market imperfections during the international and financial crisis

Given that the period under analysis includes the international and financial crisis, one can argue that estimated coefficients are not constant in this time-frame. To test this hypothesis, we estimate an additional set of regressions, including an interaction dummy for the term related to the price-cost margin and also to the one related to workers' bargaining power. The dummy variable assumed the value 1 for the years after 2008 and 0 for the remaining.

Figure 5 reports the share of significant interaction dummies for both market imperfections. We find that for all countries the share of significant interaction dummies was below 35 per cent of the sectors at a significance level of 5 per cent, under imperfect and competitive labour markets. With respect to the labour market, significant interaction dummies are also below 35 per cent for all countries considering a significance level of 5 per cent. Other authors found also that the degree of market imperfections is not significantly affected by the exclusion of the crisis years (see Dobbelaere and Vancauteren (2014)). The presence of a limited adjustment ensures that the findings reported above hold in spite of including the years of the financial and international crisis. Interestingly, the sign of significant interaction dummies exhibits a substantial variation across countries. While some sectors face reductions, in either product or labour market imperfections, others depict increases which, in the last case, is consistent with the presence of selection effects.

7 Concluding remarks

More than two decades after the implementation of the Single Market, relatively little empirical evidence has been collected to document the size of product and labour market imperfections. This paper aims at filling this gap in the empirical literature. We use the methodology proposed by Roeger (1995) and the extension used by Bassanetti et al. (2010), Moreno and

Figure 5: Effect of the crisis: Share of Significant interaction dummies (unweighted and weighted according to aggregate turnover)

(a) Price-cost margin under competitive labour markets
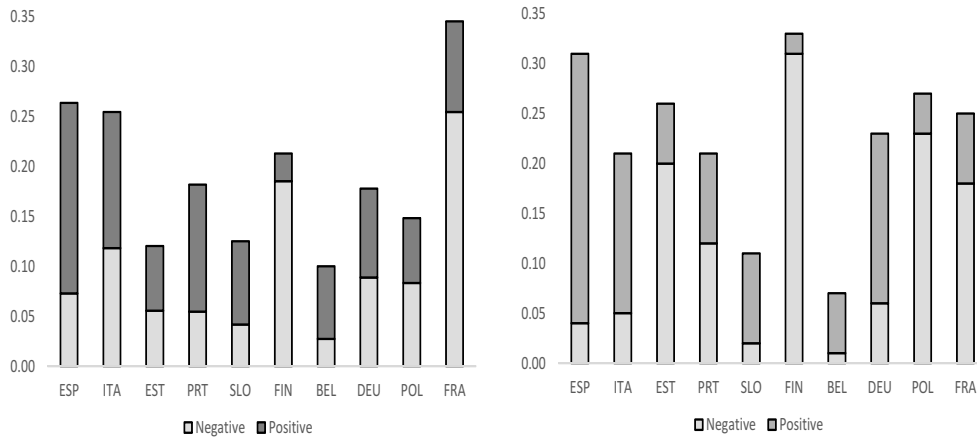
(b) Price-cost margin under imperfect labour markets
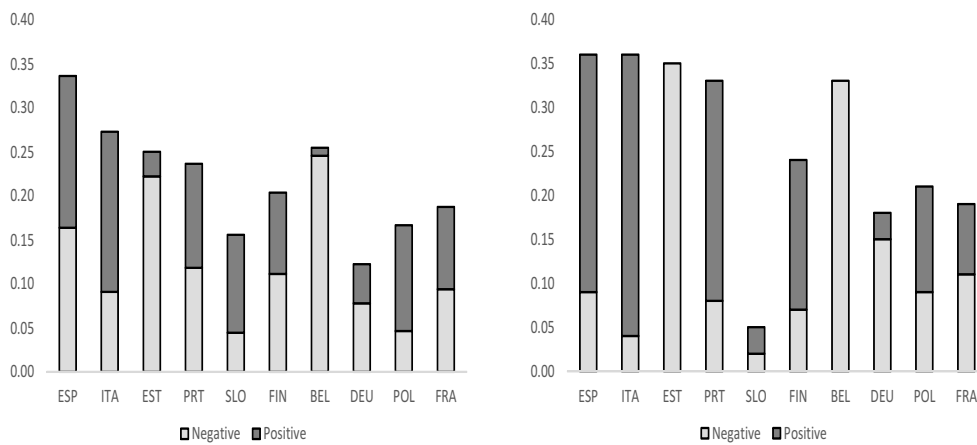
(c) Workers´ bargaining power
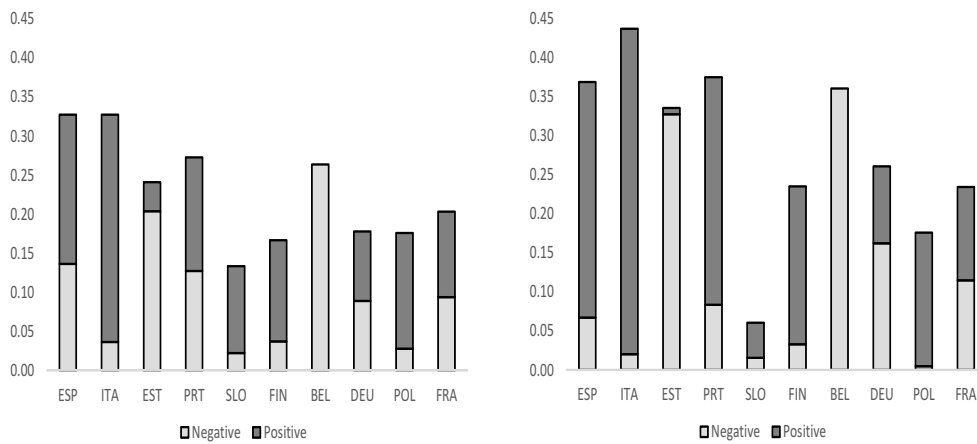
Rodríguez (2011) and Amador and Soares (2017) to jointly estimate price-cost margins and workers' bargaining power at narrowly defined sectors including evidence for services. Although this last sector assumes increasing relevance in the overall economy, it is virtually undocumented in the empirical literature. We use firm-level data representative of the aggregate economy including In particular, it gathers evidence for Belgium, Estonia, Finland, France, Germany, Italy, Poland, Portugal, Slovakia, Slovenia and Spain for the 2004-2012 period. Our findings suggest that perfect competition is widely rejected for product and labour markets across narrowly defined sectors. Coefficients for the price-cost margin and the workers' bargaining power are widely positive and statistically significant. There are sizeable differences in the level of product and also labour market imperfections both within country and across sectors in the EU which signals an incomplete integration of the Single Market particularly in some services sectors. Median figures for the price-cost margin across sectors range between 0.11 and 0.40, under imperfect labour markets and 0.07 and 0.32 under competitive labour markets. The workers' bargaining power ranges between figures slightly below 0 to around 0.30. At the aggregate level, Eastern countries tend to depict lower product and labour market imperfections compared to other countries in the EU. A striking feature of the results is that product and labour market imperfections are positive and strongly correlated and that the market power of the firm is substantially underestimated by ignoring the degree of rent sharing. We find also that the accounting price-cost margin seems to be a reasonable proxy for estimated levels but only under the assumption of competitive labour markets. One interesting finding is that the international and financial crisis implied a very limited adjustment of both product and labour market imperfections. This result could be potentially worrying in light of the work by Cette et al. (2016).

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Supplementary material

Table 11: Main features of the datasets

Country	Data source	Name of the data source	Institution
Belgium	Administrative data	Central Balance Sheet Office database	National Bank of Belgium
Estonia	Business Register	Business Register	Estonian Centre of Registers and Information Systems
Finland	Administrative data	Structural Business Statistics	Statistics Finland
France	Administrative data	Fiscal Form (Fiben)	Banque de France
Germany	Multiple sources	Financial Statements Data Pool	Deutsche Bundesbank
Italy	Multiple sources	1) Statistical Business Register (Asia), corporate events and company groups; 2) Financial statements; 3) Large enterprise survey (SCI)	Istat – National Statistical Institute of Italy
Poland	Administrative data	F-01 and F-02 forms	Central Statistical Office of Poland
Portugal	Unique source	Informação Empresarial Simplificada	Ministry of Justice, Ministry of Finance and Public Adminis Instituto Nacional de Estatística - INE Portugal and Banco
Slovakia	Multiple sources	Report on production industries Business registry	Statistical Office of the Slovak Republic
Slovenia	Administrative data	Slovenian companies' annual reports	Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES)
Spain	Survey Administrative data	Annual Central Balance Sheet Data Office (CBA) Annual Accounts Deposited in Mercantile Registries Data Base (CBB-RM)	Banco de España

Table 12: Main features of the datasets

Country	Main selection rule	Time and sector coverage		Average number of firms per year
		Sample period	Sectors covered (deviations from default)	
Belgium	None	2004-2011	-	68,816
Estonia	None	2004-2012	12	13,110
Finland	None	2004-2012	12, 68	57,353
France	turnover¿750,000	2004-2012	12	53,226
Germany	Firms applying for a rating 1)	2004-2012	12, 55, 56, 63, 68, 75, 77-82	20,112
Italy	Limited Liability companies with employees	2004-2012	-	203,401
Poland	More than 20 employees	2005-2012	75	20,226
Portugal	None	2006-2012	-	107,359
Slovakia	More than 19 employees, or total assets¿5M.€	2004-2011	12, 50, 51, 53, 59, 60, 65	2,274
Slovenia	More	2006-2012	12	15,660
Spain	None	2008-2012	-	223,796

Note: (1) See details in Annex 1 of Lopez-Garcia and Di Mauro (2015). This selection results in a significant over representation of large firms for a variety of reasons.

Table 13: Within country dispersion (Interquartile range)

	ESP	ITA	EST	PRT	SVN	SVK	FIN	BEL	DEU	POL	FRA	Total
Aggregate economy												
Price-cost margin $(1 - 1/\mu)$												
Under Imperfect Labour markets	0.05	0.09	0.13	0.11	0.09	0.14	0.08	0.10	0.13	0.11	0.08	0.11
Under Competitive Labour markets	0.08	0.07	0.10	0.06	0.05	0.07	0.07	0.08	0.08	0.05	0.05	0.09
Workers' bargaining power (ϕ)	0.06	0.07	0.06	0.09	0.09	0.12	0.06	0.05	0.12	0.11	0.09	0.08
Number of sectors	53	54	52	55	53	43	54	54	43	52	32	
Number of observations	1,921,644	1,827,588	117,726	751,510	109,224	17,928	516,177	550,181	173,788	161,696	479,033	
Manufacturing sector												
Price-cost margin $(1 - 1/\mu)$												
Under Imperfect Labour markets	0.04	0.05	0.05	0.06	0.06	0.05	0.06	0.05	0.11	0.07	0.05	0.09
Under Competitive Labour markets	0.02	0.03	0.04	0.03	0.02	0.04	0.03	0.04	0.03	0.04	0.03	0.05
Workers' bargaining power (ϕ)	0.05	0.04	0.06	0.06	0.05	0.09	0.06	0.06	0.08	0.06	0.07	0.07
Number of sectors	22	22	20	22	21	22	22	22	22	22	22	
Number of observations	333,629	507,130	17,197	123,444	19,809	9,877	74,864	65,867	73,212	56,431	206,082	

Note: The coefficients for the workers' bargaining power (ϕ) were obtained by estimating equation (4). We computed aggregated coefficients by computing the average of sectoral coefficients within each aggregate, using average turnover weights of the sector/country within the aggregate (first row for each aggregate). Standard errors per aggregate were obtained by using the delta method (second row for each aggregate). The number of observations is depicted in the third row for each aggregate.

Table 14: Correlation between product and labour market imperfections

	NACE Rev 2	N. obs.	Correlation coefficient	
C	Manufacturing			
	Food	11	0.10	
	Beverages	10	0.69	**
	Textiles	11	0.75	***
	Wearing apparel	11	0.66	**
	Leather	11	0.83	***
	Wood	11	0.34	
	Paper	11	0.67	**
	Printing	11	0.43	
	Chemicals	11	0.42	
	Pharmaceuticals	11	0.78	***
	Rubber and plastic	11	0.69	**
	Mineral	11	0.85	***
	Basic metals	10	0.76	**
	Fabricated metals	11	0.75	***
	Computed and optical	11	0.86	***
	Electrical equipment	11	0.69	**
	Machinery	11	0.91	***
	Vehicles	10	0.87	***
	Other transport equipment	11	0.85	***
	Furniture	11	0.56	*
	Other manufacturing	11	0.73	**
	Repair and installation	11	0.83	***
F	Construction			
	Construction	10	0.91	***
	Civil engineering	10	0.86	***
	Specialised construction activities	11	0.92	***
G	Wholesale and retail trade; repair of motor vehicles and motorcycles			
	Trade of vehicles	9	0.67	**
	Wholesale trade	9	0.75	**
	Retail trade	9	0.11	

$***p < 0.01, **p < 0.05, *p < 0.1$

	NACE Rev 2	Nobs	Correlation coefficient	
H	Transportation and storage			
	Land transport	11	0.34	
	Water transport	10	0.66	**
	Air transport	8	0.86	***
	Warehousing	11	0.89	***
	Postal	8	0.62	*
I	Accommodation and food service activities			
	Accommodation	10	0.32	
	Food services	10	0.36	
J	Information and communication			
	Publishing	10	0.76	**
	Video and television	9	0.67	*
	Broadcasting	9	0.74	**
	Telecommunications	10	0.31	
	Computer programming	10	0.3	
	Information services	9	0.5	
L	Real estate activities			
	Real estate	7	0.6	
	Legal and accounting	10	0.56	*
M	Professional, scientific and technical activities			
	Management consultancy	10	0.53	
	Architectural and engineering	10	0.61	*
	Scientific research	7	0.81	
	Advertising	10	0.55	*
	Other professionals	10	0.71	**
	Veterinary	7	-0.09	
N	Administrative and support service activities			
	Rental and leasing	9	0.28	
	Employment activities	8	0.84	***
	Travel agencies	8	0.88	***
	Security	9	0.78	**
	Services to buildings	9	0.26	
	Office administrative	9	0.68	**

$* * * p < 0.01, * * p < 0.05, * p < 0.1$

Note: The coefficients for the price cost margin $(1 - 1/\mu)$ and the workers' bargaining power (ϕ) are obtained by estimating equation (4).

Table 15: Price cost Margin under competitive labour markets by NACE Rev. 2- Manufacturing and Construction

NACE Rev. 2	ESP	ITA	EST	PRT	SVN	SLK	FIN	BEL	DEU	POL	FRA
10	0.08	0.12	0.09	0.10	0.07	0.11	0.11	0.19	0.21	0.10	0.15
	0.002	0.001	0.008	0.002	0.006	0.006	0.003	0.003	0.002	0.003	0.001
11	0.18	0.17		0.23	0.16	0.12	0.15	0.22	0.36	0.12	0.21
	0.009	0.006		0.015	0.028	0.012	0.018	0.019	0.008	0.014	0.006
13	0.10	0.14	0.10	0.12	0.12	0.12	0.14	0.19	0.18	0.12	0.13
	0.004	0.002	0.014	0.004	0.013	0.017	0.007	0.009	0.004	0.008	0.003
14	0.08	0.12	0.12	0.09	0.07	0.15	0.14	0.17	0.23	0.12	0.14
	0.005	0.002	0.010	0.003	0.017	0.012	0.009	0.010	0.005	0.009	0.003
15	0.07	0.11	0.13	0.11	0.07	0.10	0.17	0.22	0.20	0.15	0.13
	0.003	0.002	0.022	0.003	0.022	0.015	0.014	0.044	0.010	0.014	0.005
16	0.12	0.14	0.10	0.13	0.09	0.10	0.17	0.19	0.22	0.11	0.12
	0.003	0.002	0.007	0.005	0.009	0.008	0.004	0.008	0.004	0.006	0.002
17	0.09	0.13	0.11	0.10	0.12	0.11	0.12	0.14	0.22	0.12	0.15
	0.004	0.002	0.019	0.005	0.010	0.011	0.007	0.012	0.003	0.006	0.003
18	0.13	0.18	0.15	0.15	0.13	0.11	0.14	0.24	0.23	0.14	0.10
	0.003	0.002	0.009	0.004	0.006	0.011	0.004	0.005	0.003	0.007	0.002
20	0.12	0.13	0.17	0.09	0.10	0.10	0.14	0.16	0.23	0.12	0.19
	0.004	0.002	0.026	0.006	0.013	0.019	0.011	0.010	0.003	0.006	0.003
21	0.21	0.17	0.10	0.16	0.11	0.19	0.16	0.21	0.35	0.18	0.24
	0.022	0.005	0.061	0.017	0.033	0.025	0.018	0.030	0.006	0.018	0.005
22	0.11	0.14	0.14	0.13	0.14	0.08	0.16	0.16	0.22	0.13	0.15
	0.003	0.001	0.012	0.004	0.007	0.008	0.006	0.008	0.002	0.004	0.002
23	0.13	0.15	0.16	0.12	0.13	0.17	0.16	0.20	0.26	0.18	0.17
	0.003	0.002	0.015	0.005	0.010	0.014	0.006	0.006	0.003	0.005	0.002
24	0.12	0.11	0.23	0.13		0.10	0.17	0.12	0.17	0.10	0.13
	0.005	0.002	0.216	0.009		0.012	0.013	0.021	0.003	0.010	0.004
25	0.13	0.17	0.13	0.14	0.15	0.12	0.20	0.23	0.22	0.15	0.13
	0.002	0.001	0.007	0.002	0.004	0.006	0.003	0.004	0.002	0.003	0.001
26	0.13	0.15	0.19	0.15	0.12	0.10	0.15	0.20	0.22	0.20	0.16
	0.006	0.002	0.024	0.015	0.011	0.014	0.008	0.018	0.003	0.008	0.003
27	0.11	0.13	0.14	0.10	0.10	0.14	0.13	0.16	0.20	0.15	0.15
	0.005	0.002	0.020	0.008	0.010	0.008	0.007	0.012	0.003	0.007	0.003
28	0.13	0.15	0.04	0.14	0.13	0.11	0.14	0.22	0.23	0.15	0.16
	0.003	0.001	0.014	0.005	0.007	0.008	0.004	0.008	0.002	0.005	0.002
29	0.10	0.12		0.11	0.11	0.11	0.11	0.17	0.16	0.16	0.14
	0.005	0.003		0.009	0.014	0.010	0.008	0.019	0.003	0.007	0.004
30	0.23	0.17	0.13	0.14	0.12	0.15	0.16	0.22	0.18	0.17	0.11
	0.017	0.008	0.032	0.019	0.053	0.026	0.010	0.036	0.011	0.015	0.007
31	0.11	0.13	0.10	0.13	0.10	0.10	0.13	0.21	0.22	0.13	0.11
	0.004	0.002	0.009	0.005	0.010	0.011	0.004	0.007	0.004	0.005	0.003
32	0.11	0.14	0.14	0.14	0.13	0.15	0.19	0.24	0.28	0.16	0.18
	0.004	0.002	0.016	0.006	0.016	0.022	0.006	0.008	0.004	0.009	0.003
33	0.12	0.15	0.14	0.14	0.13	0.14	0.18	0.23	0.22	0.14	0.14
	0.003	0.002	0.011	0.005	0.008	0.013	0.004	0.016	0.011	0.006	0.002
41	0.20	0.33	0.12	0.27	0.12	0.11	0.16	0.24		0.16	0.12
	0.003	0.004	0.007	0.004	0.010	0.006	0.002	0.004		0.005	0.002
42	0.14	0.23	0.17	0.16	0.15	0.10	0.22	0.23		0.14	0.09
	0.006	0.006	0.011	0.007	0.010	0.009	0.007	0.008		0.004	0.002
43	0.12	0.16	0.14	0.15	0.13	0.14	0.18	0.23	0.22	0.16	0.10
	0.001	0.001	0.005	0.002	0.003	0.008	0.001	0.001	0.005	0.004	0.001

Table 16: Price cost Margin under competitive labour markets by NACE Rev. 2- Non-Manufacturing

NACE Rev. 2	ESP	ITA	EST	PRT	SVN	SLK	FIN	BEL	DEU	POL	FRA
45	0.06	0.09	0.06	0.07	0.05		0.11	0.12	0.11	0.07	
	0.001	0.001	0.005	0.002	0.004		0.002	0.003	0.001	0.002	
46	0.08	0.10	0.07	0.08	0.09		0.13	0.14	0.13	0.08	
	0.001	0.000	0.003	0.001	0.002		0.001	0.002	0.001	0.001	
47	0.06	0.10	0.04	0.06	0.07		0.08	0.15	0.20	0.06	
	0.001	0.001	0.003	0.001	0.003		0.001	0.001	0.001	0.001	
49	0.14	0.15	0.16	0.16	0.14	0.21	0.21	0.22	0.28	0.09	0.06
	0.001	0.001	0.004	0.001	0.004	0.010	0.001	0.003	0.005	0.003	0.001
50	0.14	0.27	0.05	0.16	0.10		0.21	0.44	0.20	0.16	0.14
	0.012	0.011	0.081	0.024	0.024		0.013	0.040	0.016	0.036	0.011
51	0.08	0.26		0.23	0.08		0.07	0.16	0.14		0.09
	0.026	0.015		0.038	0.036		0.043	0.050	0.023		0.011
52	0.12	0.16	0.12	0.12	0.10	0.15	0.15	0.19	0.23	0.13	0.10
	0.003	0.001	0.008	0.004	0.008	0.013	0.005	0.009	0.003	0.006	0.002
53	0.09	0.12	0.07	0.13			0.17	0.19	0.21		0.07
	0.006	0.007	0.037	0.013			0.011	0.012	0.018		0.007
55	0.20	0.32	0.28	0.22	0.19	0.17	0.20	0.33		0.18	0.23
	0.003	0.002	0.019	0.006	0.015	0.022	0.006	0.007		0.009	0.002
56	0.08	0.19	0.05	0.07	0.08	0.09	0.11	0.25		0.10	0.22
	0.001	0.001	0.005	0.001	0.005	0.017	0.002	0.002		0.008	0.001
58	0.15	0.14	0.08	0.13	0.07	0.08	0.12	0.21	0.36	0.15	
	0.006	0.003	0.014	0.009	0.011	0.043	0.005	0.013	0.006	0.008	
59	0.26	0.26	0.28	0.24	0.16		0.21	0.38	0.35	0.15	
	0.009	0.006	0.029	0.015	0.024		0.008	0.015	0.017	0.024	
60	0.26	0.22	0.39	0.12	0.11		0.11	0.21	0.37	0.23	
	0.021	0.009	0.033	0.026	0.028		0.031	0.043	0.019	0.016	
61	0.13	0.16	0.13	0.15	0.08	0.23	0.18	0.21	0.28	0.18	
	0.010	0.007	0.020	0.018	0.018	0.037	0.015	0.022	0.010	0.015	
62	0.15	0.17	0.23	0.15	0.15	0.22	0.20	0.30	0.25	0.14	
	0.003	0.002	0.011	0.005	0.006	0.017	0.004	0.005	0.004	0.007	
63	0.18	0.23	0.19	0.21	0.15		0.13	0.30	0.29	0.19	
	0.010	0.001	0.027	0.019	0.025		0.012	0.017	0.011	0.015	
68		0.44	0.35	0.32	0.24	0.15		0.50		0.13	
		0.004	0.013	0.011	0.014	0.021		0.009		0.005	
69	0.15	0.21	0.23	0.19	0.18	0.16	0.25	0.40	0.31	0.15	
	0.002	0.002	0.007	0.002	0.004	0.027	0.003	0.003	0.009	0.009	
70	0.23	0.22	0.36	0.25	0.20	0.38	0.25	0.42	0.28	0.17	
	0.005	0.003	0.018	0.007	0.008	0.083	0.004	0.007	0.009	0.019	
71	0.27	0.21	0.25	0.24	0.19	0.21	0.24	0.38	0.31	0.17	
	0.003	0.002	0.009	0.005	0.005	0.020	0.003	0.005	0.009	0.007	
72	0.22		0.28	0.21	0.13		0.26		0.35	0.23	
	0.024		0.095	0.036	0.027		0.021		0.020	0.034	
73	0.15	0.18	0.14	0.13	0.12	0.20	0.17	0.25	0.18	0.10	
	0.003	0.002	0.010	0.005	0.009	0.031	0.004	0.007	0.008	0.007	
74	0.21	0.21	0.22	0.18	0.12	0.22	0.20	0.33	0.23	0.14	
	0.004	0.002	0.014	0.008	0.011	0.064	0.004	0.014	0.022	0.017	
75	0.09	0.18	0.13	0.12	0.06		0.13	0.30			
	0.005	0.012	0.018	0.007	0.010		0.008	0.016			
77	0.26	0.36	0.32	0.27	0.31	0.34	0.21	0.32		0.27	
	0.006	0.004	0.020	0.009	0.025	0.044	0.007	0.009		0.024	
78	0.14	0.17	0.20	0.07	0.14		0.09	0.26		0.09	
	0.009	0.008	0.019	0.008	0.028		0.005	0.013		0.014	
79		0.07	0.09	0.11	0.04	0.04	0.13	0.13		0.04	
		0.002	0.014	0.006	0.009	0.060	0.007	0.008		0.009	
80	0.12	0.13	0.11	0.09	0.12	0.12	0.10	0.22		0.04	
	0.007	0.003	0.014	0.010	0.012	0.014	0.009	0.021		0.007	
81	0.10	0.13	0.15	0.15	0.12	0.26	0.19	0.27		0.10	
	0.003	0.002	0.010	0.006	0.010	0.021	0.003	0.005		0.007	
82	0.19	0.19	0.10	0.17	0.17	0.13	0.14	0.27		0.10	
	0.004	0.002	0.020	0.005	0.016	0.043	0.007	0.007		0.015	

Table 17: Price cost Margin under imperfect labour markets by NACE Rev. 2- Manufacturing and Construction

NACE Rev. 2	ESP	ITA	EST	PRT	SVN	SLK	FIN	BEL	DEU	POL	FRA
10	0.19	0.27	0.20	0.27	0.20	0.23	0.21	0.30	0.30	0.20	0.22
	0.003	0.003	0.018	0.005	0.016	0.017	0.006	0.005	0.010	0.006	0.005
11	0.32	0.32		0.49	0.25	0.30	0.20	0.34	0.31	0.26	0.51
	0.011	0.012		0.025	0.050	0.042	0.026	0.025	0.034	0.024	0.011
13	0.20	0.28	0.17	0.21	0.23	0.24	0.26	0.36	0.29	0.21	0.18
	0.006	0.004	0.023	0.008	0.026	0.041	0.011	0.014	0.014	0.015	0.011
14	0.16	0.22	0.18	0.13	0.06	0.16	0.22	0.28	0.32	0.19	0.19
	0.007	0.004	0.017	0.005	0.024	0.023	0.015	0.015	0.023	0.014	0.011
15	0.14	0.22	0.19	0.19	0.09	0.15	0.24	0.42	0.29	0.29	0.20
	0.005	0.004	0.044	0.007	0.034	0.028	0.025	0.060	0.045	0.025	0.014
16	0.23	0.30	0.20	0.31	0.23	0.25	0.28	0.34	0.35	0.29	0.25
	0.005	0.005	0.012	0.009	0.018	0.021	0.006	0.013	0.015	0.010	0.007
17	0.21	0.27	0.24	0.18	0.26	0.21	0.27	0.30	0.36	0.23	0.19
	0.009	0.006	0.045	0.016	0.028	0.049	0.019	0.021	0.013	0.014	0.012
18	0.28	0.30	0.23	0.28	0.22	0.24	0.27	0.36	0.37	0.28	0.20
	0.004	0.004	0.020	0.009	0.013	0.042	0.008	0.008	0.012	0.017	0.006
20	0.22	0.25	0.22	0.22	0.27	0.17	0.27	0.31	0.34	0.24	0.24
	0.006	0.005	0.046	0.014	0.029	0.036	0.021	0.017	0.011	0.013	0.011
21	0.23	0.29	0.21	0.34	0.07	0.26	0.25	0.26	0.53	0.36	0.31
	0.039	0.017	0.083	0.038	0.082	0.055	0.045	0.044	0.027	0.039	0.022
22	0.21	0.28	0.16	0.28	0.27	0.24	0.31	0.33	0.34	0.25	0.24
	0.005	0.003	0.024	0.011	0.014	0.021	0.012	0.014	0.009	0.007	0.006
23	0.22	0.32	0.16	0.28	0.25	0.08	0.30	0.34	0.40	0.36	0.23
	0.005	0.004	0.024	0.010	0.019	0.029	0.010	0.010	0.012	0.010	0.007
24	0.24	0.23	0.38	0.31		0.25	0.21	0.34	0.24	0.23	0.17
	0.008	0.005	0.293	0.022		0.032	0.027	0.033	0.010	0.018	0.013
25	0.26	0.32	0.23	0.34	0.25	0.27	0.32	0.36	0.45	0.29	0.24
	0.002	0.002	0.011	0.005	0.008	0.015	0.004	0.006	0.006	0.006	0.003
26	0.23	0.29	0.35	0.28	0.20	0.21	0.32	0.38	0.42	0.30	0.25
	0.010	0.005	0.037	0.028	0.021	0.029	0.014	0.024	0.010	0.015	0.010
27	0.21	0.25	0.28	0.26	0.17	0.23	0.29	0.29	0.32	0.31	0.25
	0.008	0.004	0.036	0.017	0.019	0.021	0.013	0.018	0.011	0.013	0.011
28	0.26	0.36	0.14	0.32	0.25	0.24	0.26	0.40	0.50	0.34	0.30
	0.004	0.003	0.027	0.011	0.014	0.019	0.007	0.012	0.006	0.009	0.007
29	0.20	0.26		0.27	0.23	0.16	0.27	0.41	0.31	0.28	0.28
	0.008	0.007		0.017	0.023	0.022	0.015	0.031	0.010	0.012	0.013
30	0.35	0.40	0.31	0.32	0.19	0.34	0.24	0.31	0.47	0.36	0.29
	0.022	0.013	0.059	0.034	0.074	0.045	0.015	0.064	0.030	0.024	0.020
31	0.22	0.30	0.24	0.36	0.24	0.22	0.26	0.34	0.40	0.31	0.21
	0.005	0.004	0.015	0.009	0.017	0.028	0.008	0.011	0.017	0.010	0.010
32	0.22	0.28	0.21	0.31	0.16	0.41	0.32	0.37	0.38	0.32	0.16
	0.007	0.005	0.028	0.013	0.026	0.052	0.010	0.012	0.014	0.019	0.010
33	0.24	0.25	0.24	0.30	0.21	0.29	0.29	0.35	0.45	0.24	0.22
	0.004	0.003	0.019	0.011	0.013	0.023	0.006	0.019	0.025	0.011	0.006
41	0.18	0.55	0.18	0.46	0.13	0.17	0.22	0.41		0.29	0.37
	0.003	0.005	0.010	0.006	0.014	0.011	0.003	0.005		0.007	0.005
42	0.25	0.50	0.32	0.32	0.24	0.17	0.34	0.41		0.24	0.24
	0.007	0.009	0.016	0.011	0.017	0.017	0.011	0.011		0.006	0.006
43	0.23	0.32	0.23	0.31	0.20	0.21	0.28	0.33	0.70	0.25	0.24
	0.001	0.002	0.007	0.004	0.006	0.014	0.002	0.002	0.009	0.006	0.002

Table 18: Price cost Margin under imperfect labour markets by NACE Rev. 2- Non-Manufacturing

NACE Rev. 2	ESP	ITA	EST	PRT	SVN	SLK	FIN	BEL	DEU	POL	FRA
45	0.16	0.17	0.14	0.18	0.10		0.20	0.22	0.14	0.12	
	0.002	0.002	0.009	0.003	0.007		0.003	0.004	0.003	0.004	
46	0.16	0.17	0.14	0.18	0.16		0.25	0.25	0.18	0.13	
	0.001	0.001	0.005	0.002	0.003		0.002	0.003	0.002	0.002	
47	0.17	0.19	0.13	0.18	0.16		0.18	0.23	0.30	0.13	
	0.001	0.002	0.007	0.002	0.006		0.002	0.002	0.006	0.003	
49	0.30	0.23	0.29	0.35	0.25	0.31	0.30	0.34	0.27	0.19	0.15
	0.003	0.003	0.007	0.003	0.008	0.030	0.003	0.005	0.016	0.007	0.003
50	0.29	0.38	0.33	0.39	0.12		0.34	0.60	0.38	0.27	0.22
	0.018	0.020	0.139	0.040	0.039		0.020	0.047	0.041	0.084	0.025
51	-0.02	0.39		0.38	0.19		0.20	0.18	0.15		0.28
	0.043	0.035		0.105	0.064		0.083	0.077	0.138		0.039
52	0.22	0.20	0.15	0.24	0.19	0.32	0.23	0.32	0.45	0.20	0.18
	0.004	0.003	0.013	0.010	0.015	0.024	0.007	0.014	0.011	0.011	0.005
53	0.20	0.17	0.07	0.24			0.19	0.29	0.18		0.08
	0.010	0.014	0.053	0.025			0.020	0.016	0.063		0.021
55	0.42	0.48	0.36	0.39	0.33	0.34	0.31	0.45		0.42	0.39
	0.004	0.003	0.028	0.009	0.026	0.042	0.008	0.009		0.019	0.005
56	0.27	0.35	0.18	0.28	0.16	0.34	0.23	0.36		0.29	0.35
	0.002	0.002	0.011	0.003	0.009	0.043	0.003	0.002		0.020	0.005
58	0.29	0.24	0.13	0.19	0.12	-0.05	0.25	0.38	0.40	0.26	
	0.008	0.009	0.029	0.017	0.023	0.089	0.009	0.019	0.024	0.018	
59	0.27	0.35	0.38	0.43	0.19		0.31	0.49	0.49	0.36	
	0.011	0.011	0.040	0.023	0.040		0.010	0.018	0.048	0.053	
60	0.17	0.28	0.30	0.03	0.23		0.21	0.29	0.05	0.29	
	0.026	0.020	0.085	0.042	0.051		0.046	0.051	0.109	0.040	
61	0.25	0.24	0.22	0.26	0.13	0.20	0.26	0.28	0.34	0.24	
	0.013	0.015	0.037	0.030	0.029	0.059	0.023	0.028	0.033	0.030	
62	0.24	0.25	0.34	0.24	0.27	0.36	0.25	0.39	0.36	0.26	
	0.004	0.003	0.016	0.009	0.010	0.026	0.006	0.007	0.011	0.014	
63	0.25	0.26	0.22	0.30	0.24		0.18	0.43	0.35	0.23	
	0.014	0.003	0.042	0.033	0.035		0.018	0.027	0.029	0.034	
68		0.54	0.43	0.14	0.28	0.15		0.60		0.33	
		0.006	0.020	0.012	0.020	0.042		0.010		0.010	
69	0.23	0.23	0.31	0.18	0.25	0.04	0.28	0.48	0.20	0.15	
	0.002	0.004	0.011	0.004	0.008	0.119	0.004	0.006	0.027	0.019	
70	0.31	0.23	0.42	0.25	0.32	0.31	0.35	0.51	0.39	0.17	
	0.007	0.006	0.024	0.010	0.012	0.132	0.006	0.009	0.021	0.034	
71	0.36	0.33	0.31	0.28	0.30	0.28	0.34	0.50	0.52	0.30	
	0.003	0.005	0.013	0.007	0.007	0.028	0.004	0.007	0.015	0.012	
72	0.05		0.23	0.31	0.08		0.33		0.25	0.50	
	0.028		0.129	0.053	0.041		0.029		0.038	0.044	
73	0.23	0.26	0.25	0.26	0.23	0.32	0.27	0.36	0.34	0.19	
	0.005	0.005	0.018	0.010	0.015	0.042	0.006	0.009	0.024	0.015	
74	0.32	0.28	0.37	0.21	0.25	0.41	0.31	0.47	0.44	0.24	
	0.005	0.004	0.020	0.013	0.016	0.110	0.006	0.018	0.045	0.031	
75	0.26	0.29	0.23	0.25	0.26		0.18	0.35			
	0.009	0.033	0.040	0.014	0.026		0.018	0.020			
77	0.34	0.45	0.36	0.37	0.43	0.39	0.31	0.42		0.32	
	0.007	0.008	0.027	0.015	0.034	0.089	0.011	0.011		0.048	
78	0.17	0.17	0.28	0.06	0.02		0.09	0.34		0.08	
	0.011	0.014	0.028	0.010	0.043		0.007	0.017		0.021	
79		0.13	0.13	0.27	0.14	0.31	0.22	0.25		0.18	
		0.004	0.023	0.012	0.018	0.155	0.009	0.015		0.022	
80	0.21	0.11	0.11	0.14	0.09	0.07	0.13	0.25		0.00	
	0.010	0.006	0.023	0.016	0.023	0.022	0.015	0.029		0.012	
81	0.14	0.12	0.24	0.20	0.15	0.20	0.23	0.36		0.15	
	0.004	0.003	0.015	0.010	0.016	0.031	0.005	0.006		0.013	
82	0.24	0.24	0.26	0.21	0.29	0.32	0.23	0.37		0.13	
	0.006	0.004	0.034	0.008	0.026	0.074	0.011	0.010		0.028	

Table 19: Worker's bargaining power by NACE Rev. 2- Manufacturing and Construction

NACE Rev. 2	ESP	ITA	EST	PRT	SVN	SLK	FIN	BEL	DEU	POL	FRA
10	0.14	0.16	0.13	0.21	0.15	0.14	0.12	0.13	0.10	0.12	0.08
	0.003	0.003	0.016	0.004	0.014	0.016	0.006	0.004	0.010	0.006	0.005
11	0.22	0.17		0.30	0.13	0.18	0.07	0.15	-0.07	0.16	0.29
	0.009	0.010		0.016	0.052	0.033	0.021	0.018	0.047	0.020	0.006
13	0.17	0.17	0.11	0.14	0.14	0.15	0.15	0.21	0.12	0.13	0.08
	0.006	0.004	0.025	0.009	0.025	0.040	0.010	0.011	0.015	0.015	0.012
14	0.13	0.13	0.12	0.08	-0.02	0.01	0.11	0.14	0.10	0.13	0.06
	0.008	0.003	0.024	0.007	0.034	0.036	0.015	0.013	0.023	0.017	0.012
15	0.12	0.14	0.09	0.13	0.04	0.08	0.08	0.23	0.10	0.18	0.10
	0.005	0.004	0.052	0.008	0.040	0.036	0.025	0.038	0.044	0.023	0.017
16	0.19	0.19	0.13	0.23	0.17	0.18	0.14	0.17	0.15	0.22	0.15
	0.005	0.004	0.012	0.007	0.016	0.019	0.005	0.010	0.013	0.008	0.007
17	0.16	0.15	0.15	0.10	0.16	0.10	0.17	0.19	0.15	0.12	0.05
	0.008	0.005	0.040	0.016	0.024	0.045	0.016	0.017	0.012	0.013	0.014
18	0.23	0.15	0.11	0.17	0.12	0.14	0.18	0.15	0.17	0.16	0.13
	0.004	0.004	0.020	0.008	0.013	0.040	0.008	0.006	0.012	0.016	0.007
20	0.15	0.13	0.07	0.16	0.18	0.08	0.15	0.18	0.12	0.15	0.07
	0.006	0.004	0.045	0.013	0.023	0.037	0.018	0.013	0.011	0.012	0.012
21	0.04	0.13	0.17	0.19	-0.06	0.09	0.12	0.08	0.20	0.22	0.09
	0.049	0.015	0.078	0.030	0.110	0.058	0.050	0.048	0.023	0.032	0.024
22	0.16	0.15	0.03	0.18	0.16	0.17	0.19	0.19	0.13	0.15	0.11
	0.005	0.003	0.028	0.010	0.012	0.018	0.010	0.011	0.009	0.007	0.007
23	0.15	0.20	-0.01	0.20	0.17	-0.15	0.19	0.17	0.16	0.21	0.08
	0.005	0.003	0.030	0.009	0.017	0.053	0.009	0.009	0.011	0.008	0.008
24	0.20	0.13	0.19	0.21		0.15	0.07	0.26	0.09	0.17	0.05
	0.008	0.005	0.198	0.018		0.027	0.038	0.023	0.011	0.016	0.015
25	0.21	0.18	0.13	0.24	0.15	0.18	0.17	0.18	0.26	0.19	0.15
	0.002	0.002	0.011	0.004	0.008	0.013	0.004	0.005	0.005	0.006	0.004
26	0.17	0.17	0.23	0.18	0.11	0.13	0.23	0.24	0.22	0.15	0.12
	0.010	0.005	0.035	0.027	0.023	0.026	0.012	0.017	0.008	0.016	0.012
27	0.16	0.15	0.17	0.19	0.10	0.11	0.21	0.17	0.15	0.20	0.12
	0.009	0.004	0.031	0.015	0.020	0.022	0.011	0.015	0.011	0.012	0.012
28	0.21	0.24	0.12	0.23	0.17	0.16	0.16	0.24	0.29	0.26	0.17
	0.005	0.002	0.028	0.009	0.013	0.019	0.007	0.009	0.004	0.008	0.007
29	0.16	0.17		0.20	0.16	0.06	0.20	0.27	0.17	0.17	0.16
	0.009	0.007		0.015	0.022	0.024	0.013	0.021	0.009	0.011	0.012
30	0.24	0.28	0.23	0.24	0.12	0.24	0.13	0.12	0.30	0.27	0.22
	0.021	0.009	0.050	0.029	0.082	0.039	0.017	0.063	0.021	0.021	0.018
31	0.20	0.20	0.18	0.29	0.20	0.15	0.17	0.17	0.19	0.21	0.13
	0.005	0.004	0.013	0.007	0.016	0.029	0.008	0.009	0.014	0.008	0.011
32	0.18	0.17	0.11	0.21	0.06	0.27	0.18	0.16	0.13	0.20	-0.03
	0.007	0.005	0.030	0.011	0.030	0.037	0.009	0.010	0.014	0.016	0.015
33	0.20	0.14	0.14	0.21	0.12	0.20	0.15	0.18	0.28	0.16	0.12
	0.005	0.004	0.019	0.009	0.015	0.020	0.006	0.015	0.020	0.012	0.007
41	-0.07	0.34	0.10	0.31	0.02	0.08	0.10	0.22		0.21	0.27
	0.006	0.004	0.010	0.004	0.020	0.012	0.003	0.004		0.006	0.004
42	0.21	0.32	0.20	0.23	0.14	0.09	0.15	0.23		0.15	0.18
	0.008	0.006	0.013	0.010	0.017	0.019	0.009	0.008		0.007	0.006

Table 20: Worker's bargaining power by NACE Rev. 2- Non-Manufacturing

NACE Rev. 2	ESP	ITA	EST	PRT	SVN	SLK	FIN	BEL	DEU	POL	FRA
43	0.19	0.20	0.13	0.23	0.11	0.11	0.13	0.13	0.44	0.15	0.18
	0.002	0.002	0.007	0.003	0.006	0.015	0.002	0.002	0.004	0.007	0.002
45	0.14	0.10	0.09	0.14	0.07		0.11	0.12	0.03	0.06	
	0.002	0.002	0.008	0.003	0.008		0.003	0.003	0.004	0.004	
46	0.11	0.08	0.08	0.12	0.10		0.14	0.13	0.06	0.07	
	0.001	0.001	0.005	0.002	0.003		0.002	0.002	0.002	0.002	
47	0.14	0.10	0.10	0.14	0.11		0.10	0.09	0.11	0.07	
	0.001	0.001	0.006	0.002	0.005		0.002	0.001	0.006	0.003	
49	0.22	0.11	0.15	0.22	0.13	0.12	0.12	0.17	-0.01	0.12	0.13
	0.002	0.003	0.006	0.003	0.007	0.027	0.003	0.004	0.024	0.006	0.004
50	0.22	0.18	0.27	0.28	0.03		0.18	0.22	0.19	0.17	0.10
	0.016	0.022	0.081	0.030	0.044		0.017	0.029	0.034	0.092	0.026
51	-0.18	0.14		0.16	0.13		0.14	0.03	0.02		0.20
	0.078	0.031		0.089	0.054		0.064	0.077	0.176		0.031
52	0.14	0.06	0.05	0.15	0.12	0.19	0.12	0.17	0.23	0.11	0.10
	0.004	0.003	0.015	0.009	0.015	0.020	0.007	0.012	0.008	0.012	0.006
53	0.18	0.07	0.01	0.13			0.04	0.11	-0.04		0.00
	0.010	0.016	0.050	0.023			0.028	0.013	0.089		0.031
55	0.29	0.20	0.13	0.23	0.18	0.23	0.14	0.15		0.28	0.20
	0.003	0.003	0.028	0.008	0.021	0.037	0.006	0.006		0.015	0.005
56	0.24	0.19	0.16	0.24	0.11	0.26	0.14	0.13		0.21	0.17
	0.001	0.002	0.010	0.002	0.009	0.031	0.003	0.002		0.016	0.005
58	0.22	0.12	0.07	0.10	0.07	-0.23	0.17	0.20	0.05	0.15	
	0.007	0.008	0.033	0.020	0.024	0.169	0.008	0.015	0.030	0.018	
59	0.03	0.12	0.15	0.25	0.05		0.15	0.16	0.16	0.23	
	0.015	0.011	0.036	0.018	0.044		0.008	0.013	0.043	0.040	
60	-0.29	0.08	-0.13	-0.22	0.15		0.18	0.12	-0.54	0.07	
	0.065	0.023	0.114	0.105	0.045		0.049	0.038	0.280	0.045	
61	0.19	0.09	0.11	0.14	0.07	-0.06	0.11	0.10	0.08	0.08	
	0.012	0.015	0.034	0.029	0.030	0.084	0.023	0.023	0.036	0.033	
62	0.18	0.11	0.16	0.14	0.17	0.23	0.09	0.13	0.16	0.18	
	0.005	0.004	0.014	0.010	0.010	0.026	0.008	0.007	0.012	0.016	
63	0.13	0.03	0.06	0.15	0.16		0.09	0.18	0.08	0.06	
	0.017	0.004	0.049	0.036	0.035		0.020	0.023	0.033	0.051	
68		0.14	0.10	-0.85	0.07	0.01		0.18		0.22	
		0.006	0.019	0.061	0.025	0.064		0.008		0.008	
69	0.15	0.03	0.12	-0.02	0.10	-0.23	0.05	0.10	-0.36	0.00	
	0.003	0.007	0.011	0.008	0.010	0.268	0.006	0.005	0.112	0.036	
70	0.15	0.02	0.10	0.01	0.18	-0.11	0.17	0.14	0.17	0.00	
	0.008	0.008	0.025	0.014	0.011	0.163	0.005	0.007	0.024	0.060	
71	0.18	0.15	0.11	0.08	0.18	0.14	0.18	0.17	0.31	0.24	
	0.004	0.005	0.015	0.010	0.007	0.035	0.004	0.005	0.013	0.014	
72	-1.02		-0.09	0.16	-0.11		0.11		-0.27	0.39	
	0.183		0.182	0.052	0.074		0.029		0.113	0.030	
73	0.15	0.09	0.14	0.17	0.14	0.17	0.16	0.15	0.18	0.11	
	0.005	0.005	0.016	0.009	0.013	0.035	0.006	0.007	0.021	0.016	
74	0.21	0.10	0.21	0.05	0.17	0.25	0.15	0.17	0.25	0.16	
	0.005	0.004	0.017	0.018	0.015	0.094	0.005	0.013	0.035	0.036	
75	0.21	0.11	0.12	0.17	0.27		0.07	0.05			
	0.008	0.027	0.036	0.013	0.024		0.022	0.013			
77	0.14	0.12	0.07	0.14	0.18	0.06	0.13	0.12		0.07	
	0.007	0.007	0.027	0.015	0.029	0.093	0.009	0.008		0.051	
78	0.09	-0.01	0.13	-0.05	-0.29		-0.01	0.14		-0.04	
	0.017	0.020	0.030	0.032	0.107		0.017	0.018		0.060	
79		0.06	0.05	0.18	0.11	0.24	0.11	0.13		0.15	
		0.004	0.024	0.010	0.016	0.096	0.007	0.012		0.018	
80	0.18	-0.06	0.01	0.10	-0.07	-0.21	0.05	0.06		-0.14	
	0.013	0.016	0.033	0.022	0.047	0.087	0.019	0.032		0.039	
81	0.11	0.00	0.15	0.10	0.06	-0.16	0.06	0.12		0.09	
	0.007	0.006	0.015	0.015	0.024	0.068	0.006	0.005		0.020	
82	0.11	0.07	0.19	0.06	0.17	0.28	0.14	0.15		0.05	
	0.007	0.004	0.026	0.010	0.023	0.067	0.011	0.008		0.039	

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