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The impact of worker bargaining power on the organization of global firms[☆]

Juan Carluccio[a,b,*], Maria Bas[c]

[a] Banque de France, France
[b] University of Surrey, United Kingdom
[c] Centre d'études prospectives et d'informations internationales (CEPII), France

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ABSTRACT

Do variations in labor market institutions affect the cross-border organization of the firm? Using firm-level data on multinationals located in France, we show that firms are more likely to outsource the production of intermediate inputs to external suppliers when importing from countries with high worker bargaining power. This effect is stronger for firms operating in capital-intensive and differentiated industries. We propose a theoretical mechanism that rationalizes these findings. The fragmentation of the value chain weakens the workers' bargaining position, by limiting the amount of revenues that are subject to union extraction. The outsourcing strategy reduces the share of surplus that is appropriated by the union, which enhances the firm's incentives to invest. Since investment creates relatively more value in capital-intensive industries, increases in worker bargaining power are more likely to be conducive to outsourcing in those industries. Overall, our findings suggest that global firms choose their organizational structure strategically when sourcing intermediate inputs from markets where worker bargaining power is high.

1. Introduction

The globalization process is characterized by increasing international specialization of production and the organization of firms' activities on a global scale. Around one-third of total trade takes place within multinational firms' boundaries, with developed countries posting an even larger proportion. Furthermore, trade in intermediate inputs has risen steadily in recent decades to become a key feature of the current international trade structure (Hummels et al., 2001). In this context, the study of global production networks naturally attracted a great deal of attention.

In this paper we ask how the cross-border organization of firms is affected by bargaining in the labor market. We are interested in the way the bargaining power of workers in host countries affects sourcing decisions by multinational firms. We present an empirical analysis based on a unique firm-level dataset on the sourcing modes of multinationals located in France. An important feature of these data is that they provide the proportion of intra-firm imports for each firm, seller-industry, and country-of-origin triplet. We use an index developed in Botero et al. (2004) that captures the power of workers by means of the extent to which industrial action is allowed by the law. Our results show that the bargaining power of workers in origin countries has a negative effect on the share of intra-firm imports. The effect is sizeable. The average share of intra-firm imports in the sample is 28%. Take the countries with the highest (Italy) and lowest (Denmark) index values.[1] If Italy's labor market institutions were equal to Denmark's, the average intra-firm exports to France would increase by 7.6%. This figure rises to 12.8% when we run the regression on OECD countries alone.

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* Corresponding author at: 31, Rue Croix-des-Petits-Champs, 75001 Paris, France. Tel.: +33 677357305; fax: +33 142926292.
E-mail address: juan.carluccio@gmail.com (J. Carluccio).

1 See Hummels et al. (2014) for a discussion on the flexibility of the Danish labor market.

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Our results hold using more traditional measures of bargaining power such as union coverage, and they are robust to the inclusion of a large set of controls that have been shown to determine intra-firm trade shares. We also present within-country evidence based on the variation in unionization rates across US industries. Our estimations indicate that the negative correlation between the share of intra-firm imports and worker bargaining power increases with capital intensity, but only in the case of industries for which relationship-specific investments are substantial ("relationship-specific" industries), and thus for which the hold-up problem is relatively more important. We identify the relationship-specific industries in our data using the Rauch (1999) classification of commodities, following a strategy similar to that of Nunn (2007).

We motivate our empirical analysis with a simple model of outsourcing under incomplete contracts, to which we introduce labor market bargaining. In an upstream stage of production, an intermediate good is manufactured by workers, who bargain collectively on wages and employment. Downstream, the intermediate good is transformed into a final good by means of the firm's capital stock. The organizational decision is whether to keep the production of the component within the firm's boundaries or to outsource it to an independent supplier. A key assumption of the model is that, when operating an integrated facility, the final-good producer bargains with the union over the sharing of total profits. Conversely, when production of the component is outsourced, the supplier and the workers bargain over the profits of the subcontractor. Through this mechanism, outsourcing weakens the union's bargaining position. However, when subcontracting, the firm faces a risk of opportunistic behavior from the supplier. When union bargaining power is above a certain cutoff, the cost of running an integrated plant in terms of rent-sharing is large, and subcontracting is chosen. This cutoff value depends on the capital intensity of the production process. With specific capital, the firm faces a potential hold-up problem from the union (Grout, 1984). Outsourcing reduces exposure to ex-post worker opportunism because, in the bargain with the workers, the outside option for the supplier is greater than that of the final-good producer when he runs an integrated plant. Under plausible parameter configurations, the cutoff increases with capital intensity. Hence, worker bargaining power is more conducive to outsourcing in capital-intensive industries.

The theoretical results are robust to considering alternative contracting and bargaining assumptions: adopting a production function with an investment to produce the intermediate good, allowing for ex-ante lump-sum transfers in outsourcing contracts, and reversing the sequence of bargains. We also discuss how our theory can shed light on the relationship between firm scope and wages.

Our baseline theoretical model focuses on the integration decision of an individual producer. We derive theoretical results for intra-firm trade shares from a multi-country version of the model, using the framework developed in Antràs (2014a). From this exercise, we obtain empirical predictions linking firm-level intra-firm import shares by country to empirical measures of worker bargaining power at the origin country-level, which are the subject of our empirical analysis.

One important assumption of our model is that of international rent-sharing within multinational firms. A group of empirical studies provide evidence supporting this hypothesis, by showing that wages paid by foreign affiliates are positively affected by the profits of their parent firms (e.g., Budd et al., 2005; Martins and Yang, 2014).[2]

Our work contributes to two important strands of the international trade literature. One is the work on collective bargaining and firms' internationalization strategies. Most of the existing work is theoretical and focuses on the incentives that unionization in domestic economies provides for firms to become horizontal multinationals (e.g., Zhao, 1995). A smaller group of papers studies the case of intermediate input sourcing. Skaksen and Sørensen (2001) neatly show that domestic unionization can generate incentives for firms to engage in vertical FDI. Skaksen (2004) finds that the threat of outsourcing to low-wage countries reduces home wages, while realized outsourcing increases them (see also Lommerud et al., 2009). None of these works studies the vertical integration versus outsourcing decision. Furthermore, while the focus has been on workers in different countries producing for the same firm, we offer an explanation based on outsourcing used to reduce the share of revenues available for union extraction. Our model shares with Zhao (2001) the idea that the driver for vertical fragmentation is that the cost of bargaining breakdown is higher for the integrated firm. We extend this idea in different ways, and within a different setup. In our model, fragmentation arises when the bargaining power of workers is above a threshold. This generalization allows taking the theoretical implications to the data, where we use measures of worker bargaining power across countries (and industries in the case of imports from the US). The incomplete contract setting allows us to study the role of investment and to derive implications based on the capital intensity of the production technology.

Our results also contribute to a now well-developed scholarship on the theoretical and empirical determinants of intra-firm trade, built around the seminal work of Antràs (2003) and summarized in Antràs (2014a,b). To the best of our knowledge, our paper is the first one to study role of worker bargaining power in shaping multinational firms' boundaries. We show empirically that labor market institutions are a strong determinant of intra-firm trade shares, with effects comparable to those of contracting and financial institutions. We also introduce the idea that labor market imperfections generate a source of contractual incompleteness, additional to the contractual frictions between firms and their foreign suppliers that have been studied thus far. Our empirical evidence is consistent with the idea that, without the possibility of integrating their workers, firms tend to rely on external suppliers to alleviate this alternative hold-up problem. One contribution of our paper is to bridge the two strands of the literature mentioned in the preceding paragraphs into one integrated analysis.

The rest of the paper is organized as follows. Section 2 develops the theoretical model and discusses the robustness analysis. Section 3 develops a multi-country model and presents the empirical predictions. Section 4 describes the estimating datasets and presents the empirical results. Section 5 concludes.

2. A simple model

We now develop a simple model of firm boundaries featuring labor market bargaining. We begin by studying firm behavior for a given demand. We describe the general equilibrium of the model in Section 3.1 below, where we analyze the implications for the share of intra-firm trade in a multi-country world.

2.1. Set-up

Three agents participate in production: a final-good producer (F), a manufacturer of intermediate goods (M), and a labor union (U).

2.1.1. Technology and demand

F owns the technology to produce a final good with demand $y = Ap^{-1/(1-\alpha)}$, where and A is a shifter and $\alpha \in (0, 1)$ governs the price elasticity. This demand schedule can be derived from consumer preferences that feature constant elasticity of substitution between differentiated varieties, as we do in Section 3.1.

[2] Martins and Yang (2014) use panel data for MNE-affiliate pairs in 47 countries. They find the effect to be increasing in the differences in per capita GDP across the locations of multinationals and their affiliates, consistently with rent-sharing occurring along vertical supply chains. Budd et al. (2005, p.1) mention the experience of the steel maker Corus that, in 2002, could face industrial action for freezing wages in the UK while increasing them in the Netherlands. The UK union stated "We all work for the same company, and we should all get the same deal."