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Strategic sourcing and wage bargaining[☆]

Nicholas Sly [a,*], Anson Soderbery [b]

[a] Department of Economics, University of Oregon, Eugene, OR 97403-1285, United States
[b] Department of Economics, Purdue University, West Lafayette, IN 47907-2056, United States

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ABSTRACT

We examine how multinational firms strategically source production to mitigate the consequences of wage bargaining with workers. When wage bargaining pressure differs across countries, firms allocate production of goods with high markups toward countries with relatively competitive labor markets, limiting the rents available to workers with strong bargaining power. We use product-level data from the universe of automotive production facilities in North America at a monthly frequency between 1988 and 2009 to structurally estimate variable price elasticities of demand for different vehicles. From the theory we derive an empirical strategy that allows us to distinguish the impact of wage bargaining pressure from other sourcing motives. We find robust evidence that multinational firms strategically source their products across countries in response to differences in wage bargaining pressure.

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1. Introduction

Despite the popular concern in developed nations that multinational firms source increasing amounts of production from developing countries with low-wage levels, there is little evidence that offshoring activities respond to observed international wage differences.[1] In fact, many studies have reported a puzzling finding that multinationals source production from countries with relatively high wage levels, not lower.[2] These results seem to suggest that multinational firms do not take advantage of opportunities to reduce their wage bill when deciding where to source production. Yet, a common approach when examining foreign sourcing decisions by multinationals is to consider wages that are determined in competitive settings. In reality, multinationals often have to bargain with workers over wages, and the bargaining power held by the labor force often differs across countries. Rather than simple differences in competitive *wage levels*, we argue that multinationals respond strategically to differences in *wage bargaining pressure* when deciding whether to locate production in a developing country.

The impact of wage bargaining pressure on global investment decisions, as distinct from wage levels, may be important to policy makers in the developing world. Many developing nations pursue economic strategies designed to attract inbound foreign investment. And while market wages are not under the direct control of policy makers, the

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* Corresponding author at: 1285 University of Oregon, Department of Economics, Eugene, OR 97405-1285 USA.

E-mail addresses: sly@uoregon.edu (N. Sly), asoderbe@purdue.edu (A. Soderbery).

[1] See for example the seminal analysis in Aitken et al. (1996). Subsequent studies have shown that the strongest and most consistent predictors of foreign investment are country size and the relative distance between investment partners. Rather than international wage differences, Blonigen et al. (2007), Bergstrand and Egger (2007) and Blonigen and Piger (2011) argue that gravity models that include measures of host and parent country GDP levels and distance perform best as explaining multiple measures of foreign investment. In addition, di Giovanni (2005) shows that a key mode of FDI, cross-border M&A, does not have a robust relationship with international wage differences. Similarly, Chakrabarti (2001) finds no robust impact of host country wage levels on FDI flows.

[2] Wei (2000) finds that inbound FDI stocks are larger in high wage countries. Also, Blonigen et al. (2003) use differences in average skill between countries to proxy for differences in competitive wage levels, and show that large differences between home and destination countries' skill endowments are unexpectedly associated with smaller measures of foreign affiliate sales.

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institutional policies that support workers' rights to form collective bargaining units, create mediation and arbitration procedures, or require the hiring of union workers are each within the policy scope of developing nations.[3] It is important to recognize that shifts in these policies can alter the inflow of investment from abroad.

This paper examines a new mechanism by which multinational firms respond strategically to wage bargaining pressure, by choosing to offshore different products within their portfolio based on the price markups that they charge consumers. A multinational firm can improve its bargaining position without large changes in the total volume of foreign production, the stock of foreign investment, or even in foreign and domestic employment levels. Instead, multinational firms can take advantage of offshoring possibilities by moving particular products abroad, and allocating specific products to domestic facilities. A strategic allocation across product lines enables the multinational to be more effective during wage negotiations. To be specific, if domestic workers bargain over wages, while foreign labor markets are relatively more competitive, the optimal strategy for multinationals is to offshore production of goods with high price markups more intensively. This strategy makes the rents to be divided highly sensitive to labor costs, and as a result bargaining workers cannot effectively seek higher wages.[4]

In practice we do see anecdotal evidence of firms engaging in strategic sourcing behavior across products in response to wage bargaining pressure. In the North American automotive industry, unionized workers (i.e., the UAW) face concerns about production to Mexico, where bargaining power among the labor force is much lower. A 2011 resolution by the UAW explicitly sets the strengthening union bargaining power of in developing countries, such as Mexico, as one of its own bargaining initiatives[5]:

> *"Our continued ability to win contracts that improve the compensation and working conditions of our members can be strengthened by negotiating international standards of conduct that limit the ability of employers to pit workers in one country against workers in another."*

Relative differences in bargaining power across countries have important implications for international investment decisions outside North America as well. The Italian automaker Fiat recently had to contend with its domestic union workers when it purchased a production facility in Serbia, a developing country where wage bargaining pressure is much lower. The Italian union workers fought the automaker specifically over which vehicles would be produced in the Serbian plant, citing the fact that Fiat had not hired Italian workers in many years to produce newly released models which typically have higher markups.[6] These specific anecdotes in North America and Europe each suggest that multinational firms do respond strategically to differences in wage pressure across countries, and that one of their key strategies lies within how they manage the sourcing decisions for different products. Our goal is to first provide a rigorous analysis of such sourcing behavior, and then use direct measures of offshore production and price markups for various products to empirically identify strategic sourcing by multinational firms.

We build a theoretical framework that incorporates offshoring possibilities for imperfectly competitive multinational firms. Domestic workers belong to a union that collective bargains over wages, but foreign labor markets are competitive. Multinational firms are also multiproduct firms, and must decide the intensity of foreign production for each product line. Consumer tastes vary across products so that firms select different markups for different goods in their portfolio. For any given set of products that a firm produces, we show that the optimal strategy for multinational firms is to use bargaining workers to manufacture products with low price markups more intensively.

The second component of our analysis tests the predictions of the model by examining the sourcing decisions of automobile manufacturers across the universe of North-American production facilities. Our empirical analysis of sourcing behavior centers on the automobile industry in North-America for two reasons. First, the labor force for this industry belongs to a large union in the US and Canada, while plants in Mexico can hire workers from relatively more competitive markets. The Canadian Auto Workers union and the United Auto Workers union in the US are among the largest collective bargaining groups in the world, and since the US–Canada Auto Pact in 1965 these two unions have engaged in highly coordinated bargaining actions.[7] On the other hand, unionization of Mexican autoworkers is relatively decentralized, with membership often limited to a single plant or specific company in a geographic region. The Mexican labor force has historically low and rapidly declining union membership (Fairris and Levine, 2004), and has little ability to extract rents, especially in northern regions where automotive production is highly concentrated (Shaiken and Herzenberg, 1987).[8] These differences in bargaining pressure across countries within the automotive sector allow us to identify strategic responses of multinational firms in their foreign sourcing decisions.

A second reason to focus on the automotive industry is that every multinational firm in the industry manufactures several classes of automobiles including sedans, trucks, passenger vans and compacts. The elasticities of consumer demand (and thus markups) differ across these product lines, allowing firms to manipulate wage bargaining outcomes by varying offshoring intensity across products. We use variation in price markups within and across products over time, to identify the varying incentives of firms to offshore production because of strategic wage considerations.

Our empirical strategy occurs in two stages. In the first stage, we structurally estimate the demand elasticities, and thus price markups, for various models of automobiles from a translog expenditure system. The procedure builds from Feenstra and Weinstein (2010). Given our product-level sales data we are able to relax many of the structural assumptions implicit in their methodology regarding the distribution of market shares. The estimated elasticities for each product line (i.e., each model of automobile) are time varying and are consistent with homothetic consumer preferences. Our estimated elasticities from the translog expenditure system are highly consistent with demand

[3] Furthermore, developing nations often enter agreements about labor market standards and collective bargaining rights along with international trade and investment agreements. For example, Mexico and the US entered the North American Agreement on Labor Organization (NAALC), which was the labor side-agreement that was signed with the North American Free Trade Agreement.

[4] Rodrik (1997) makes a complementary argument that globalization could allow multinational firms to shift production across locations, which raises the derived elasticity of labor demand and therefore affects wage bargaining outcomes. Our approach is distinct in that we show how firms can strategically manipulate bargaining outcomes by allocating specific products across locations, rather than moving large production volumes to developing countries. The strategy we describe is also distinct in that multinational firms respond specifically to differences in wage bargaining pressure, and does not rely on differences in wage levels across countries. Previous studies have examined labor demands given the fact that multinationals are relatively footloose; i.e., with foreign production capacity in place a multinational can respond to productivity shocks by shifting the volume of production across plants more easily, leading to higher elasticities of labor demand. This footloose nature of multinationals has been demonstrated empirically by Fabbri et al. (2003) and Senses (2010). The former finds that multinational firms in the UK exhibit a higher elasticity of labor demand than is observed among their domestic counterparts, while the latter shows that increase exposure to offshoring in recent decades has raised the elasticity of labor demand for production workers in the US. Also see Slaughter (2001), Hasan et al. (2007), and Gorg et al. (2009).

[5] See page 52 of the 2011 Approved Resolution to the Special Convention on Collective bargaining, within the section on International Corporate Conduct.

[6] Many details of the ongoing feud between Fiat and Italian union workers is discussed in the *Financial Times* story "Fiat: Marchionne's gamble" from 2012. Moreover, Fiat's acquisition of a large stake in the US automaker Chrysler in 2010 has put new pressure on Italian workers to ease their bargaining position, and accept more flexible labor contracts. The ultimatum given to Italian union workers by Fiat, that they must accept American style contracts, has led to comparisons of the its CEO Sergio Marchionne to the so called 'English union buster' Margaret Thatcher.

[7] See Abowd and Lemieux (1993) for evidence that collective bargaining units in the U.S. are able to extract significant rents from automotive firms.

[8] There is further evidence that this limited bargaining power among Mexican workers has had a substantial impact on real wages in Fairris (2003).

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