



Labor market institutions, firm-specific skills, and trade patterns[☆]

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ABSTRACT

This paper studies how a country's labor market institutions, by affecting workers' skill acquisition, can shape its export patterns. I develop an open-economy model in which workers undertake non-contractible activities to acquire firm-specific skills on the job. In the model, labor market protection raises workers' incentives to acquire firm-specific skills relative to general skills, turning labor laws into a source of comparative advantage. In particular, the model shows that countries with more protective labor laws export relatively more in firm-specific skill-intensive sectors at both the intensive and extensive margins. To test the theoretical predictions, I construct sector proxies for the firm-specific and industry-specific skill intensity by estimating returns to firm tenure and industry tenure for different U.S. manufacturing sectors during the 1974–1993 period. By estimating sector-level gravity equations for 84 countries using the Helpman–Melitz–Rubinstein (2008) framework, I find evidence supporting the predicted effects of labor market institutions at both margins of exports.

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1. Introduction

Recent research in international trade shows that a country's contracting and legal institutions can shape its comparative advantage.¹ Labor market institutions, which vary widely across countries, receive relatively less attention in the literature on international trade patterns. Although there is an extensive strand of research examining how labor market regulations are linked to labor market outcomes, little work has been done to examine their effects on workers' investment decisions. Even less has been written about how such effects can determine a country's comparative advantage.²

This paper fills this void by studying how cross-country differences in labor market institutions are related to trade patterns. In particular, I focus on the channel through which labor market institutions affect workers' on-the-job skill acquisition. The idea is that when labor laws are more protective, workers expect a more stable relationship with their employers and obtain higher *de facto* bargaining power vis-à-vis their employers. Thus, they have more incentives to acquire firm-specific skills relative to general skills on the job. As such, countries with more protective labor laws have a comparative advantage in sectors for which firm-specific skills are more important. I test this hypothesis by estimating the gravity equation at the sector level, and find evidence that countries with more protective labor laws export relatively more in both firm-specific and industry-specific skill-intensive sectors.

A simple model is constructed to highlight how protective labor laws affect workers' on-the-job investment incentives. In the model, each worker is endowed with an exogenous level of general skills, but she needs to undertake non-contractible activities to acquire firm-specific skills on the job. The combination of the non-contractibility and relationship-specificity of investments results in ex-post bargaining over the division of the joint surplus between employers and workers. Workers acquire firm-specific skills in anticipation of payoffs from ex-post bargaining. Since they are not the full residual claimants of the gains from investments, the resulting hold-up would lead to under-investment in skills relative to the first-best level under complete contracting. Despite their well-known

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¹ This literature includes Levchenko (2007), Nunn (2007), and Costinot (2009a), among others. See the literature review below.

² This literature includes Saint-Paul (1997), Brügemann (2003), and Cuñat and Melitz (2010b, forthcoming). See the literature review below.

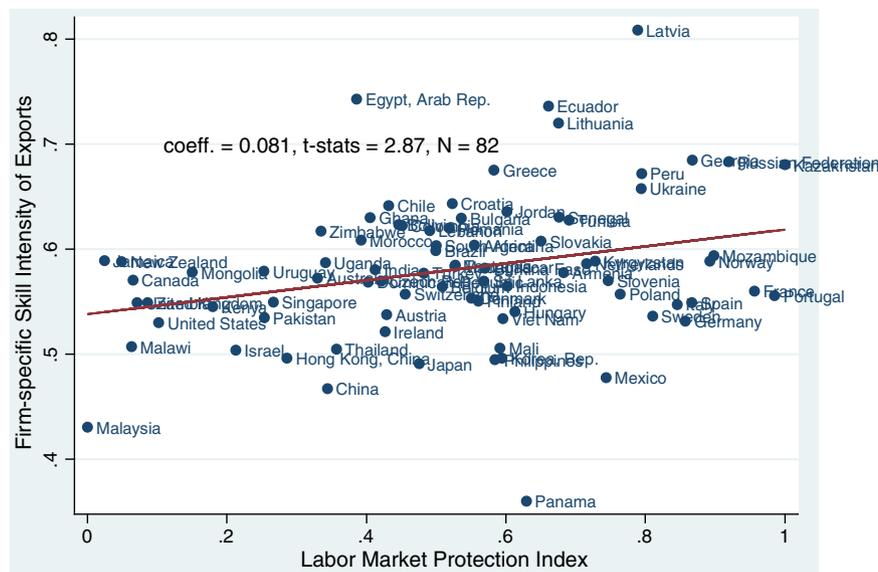


Fig. 1. Countries' firm-specific skill intensity of exports and labor protection (full sample).

inefficiencies, stringent labor laws raise workers' bargaining power and thus increase their incentives to acquire firm-specific skills. These effects are more pronounced in more specific skill-intensive sectors.

By embedding the model in an open-economy framework à la Helpman et al. (2004), I show that all else being equal, when labor laws become more protective, firms in more specific skill-intensive sectors have a relative cost advantage in production. Thus, in countries where labor laws are more protective, both the average volume of a firm's exports (the intensive margin) and the fraction of firms exporting (the extensive margin) are relatively higher in specific skill-intensive sectors.

To test these theoretical predictions, I construct sector proxies for the importance of firm-specific skills in production, following the approach adopted in studies on seniority effects on wages (Altonji and Shakotko, 1987; Topel, 1991; Altonji and Williams, 2005). Although alternative hypotheses can rationalize an upward-sloping wage–tenure profile, such as theories on incentive contracts to elicit workers' efforts (Lazear, 1981), asymmetric information about workers' abilities (Gibbons and Katz, 1991), and wage compression due to labor market frictions (Acemoglu and Pischke, 1999), I adopt the traditional approach and interpret higher returns to firm tenure as an outcome of higher intensity of firm-specific skills in production (Becker, 1964). Specifically, I estimate returns to firm tenure for different industries using the U.S. Panel Study of Income Dynamics (PSID) data for the 1974–1993 period. I use the estimated returns to tenure as sector proxies for the firm-specific skill intensity at the SIC 3-digit level. A common concern is that the estimated firm tenure effects may be industry-specific. Ideally, both industry and firm tenure effects should be estimated simultaneously for each industry. Due to data limitations, however, the industry tenure effects are estimated separately instead of simultaneously in the same wage equation.

I then adopt the Helpman et al. (2008a) two-stage procedure to estimate the gravity equation at the sector level. An interaction term between a country's index of labor protection and a sector proxy for the firm-specific skill intensity is included to identify the differential impacts of labor laws across sectors.³ The results from the first-stage estimation confirm that countries with more protective labor laws are more likely to export in firm-specific skill-intensive sectors (the extensive margin). When the industry-specific skill interaction term is controlled for, the firm-specific skills become a less

important determinant of export participation. The second-stage gravity estimation, after correcting for both the omitted variables and the selection biases in the OLS estimates, shows that firm-specific skills rather than industry-specific skills remain a significant factor shaping trade patterns at the intensive margin. These results are robust to the inclusion of controls for other sources of comparative advantage, such as cross-country differences in factor endowments, income, and contracting institutions. Moreover, an interaction term between a country's labor protection index and a sector measure of volatility is included to control for the previously studied channel through which labor market institutions affect trade patterns. In addition to checking the robustness of my results, I find evidence supporting the existing theoretical predictions. I also discuss how alternative theories about varying estimated tenure effects across sectors may explain my findings.

To preview the empirical findings, in Fig. 1 I plot countries' export specialization in specific skill-intensive sectors against their degree of labor protection.⁴ A positive relationship suggests that countries with more protective labor laws have their exports more biased toward specific skill-intensive sectors. The relationship is economically significant. An increase from the 25th to the 75th percentile in the index of labor protection is associated with an increase in specialization in specific skill-intensive sectors by 0.4 standard deviation. Fig. 2 confirms the robustness of this positive association, after partialling out the effects of countries' factor abundance.

1.1. Related literature

This paper relates to several strands of literature. The first focuses on how labor market institutions affect workers' human capital investment decisions (Houseman, 1990; Estevez-Abe et al., 2001; Hassler et al., 2001; Belot et al., 2007). Among the studies on “varieties of capitalism,” Estevez-Abe et al. (2001) argue that workers have more incentives to invest in firm- and industry-specific skills, instead of portable general skills, in countries that have more protective labor laws. They conjecture that in developed countries, there may be two equilibria, one characterized by high levels of job turnovers, general skills, and portable assets; and the other characterized by high levels of job tenure, specific skills, and specific assets. Consistent with this conjecture, Wasmer (2006) shows that higher firing costs increase labor market frictions

³ This literature includes, among others, Romalis (2004), Levchenko (2007), Nunn (2007), and Manova (2008).

⁴ A country's export specialization in firm-specific skill intensive sectors is a weighted average of sector measures of specific skill intensity, with weights equal to the respective sector shares in the country's total exports. See Eq. (8) for details.

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