WPS5303

Policy Research Working Paper 5303

Rigidities in Employment Protection and Exporting

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The World Bank
Financial and Private Sector Vice Presidency
Enterprise Analysis Unit
May 2010

Policy Research Working Paper 5303

Abstract

A large number of studies have shown that contribution of exporters to economic growth and development is much higher than non-exporting firms. This evidence has lead governments to improve their trade policies in order to increase foreign exposure of firms. However, improvements in trade policies can only be fully effective when they are complemented with other regulatory reforms that improve the investment climate for firms. This study focuses on a particular aspect of investment climate, namely employment protection legislation, and shows how these regulations discourage firms from exporting. Using a rich set of firm level data from 26 countries in the Eastern Europe and Central Asia region, the author shows that firms that cannot create new jobs due to restrictive labor regulations are less likely to export. Evidence shows that firms that plan to export expand their size before they start to export. However the rigidities in labor markets make this adjustment costly. Higher costs of labor decrease operating profits and lead to a higher threshold value of productivity required for entering export markets. As a result, a smaller fraction of firms chooses to export.

This paper—a product of the Enterprise Analysis Unit, Financial and Private Sector Vice Presidency—is part of a larger effort in the department to understand the functioning of the private sector. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at mseker@worldbank.org.

Rigidities in Employment Protection and Exporting*

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Keywords: Exports, firm heterogeneity, employment protection legislations, developing countries
JEL Classification: F12, F14, F16, J23

* I would thank to Pierella Paci and to the participants of 2010 World Bank Economists' Forum for their helpful suggestions.
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1. Introduction

Availability of detailed firm level datasets since the early 1980s has led to discoveries of important regularities in firm and industry evolution. In the international trade literature, research based on these datasets has shown that firms that export, although they are small in number, make a large contribution to economic growth and welfare. Recent surveys by Bernard et al. (2007) and Greenaway and Kneller (2007) show that exporting firms are larger, more productive and they grow faster. Higher performance of exporters and their significant contribution to economic development make it important to determine how the investment climate affects their progress.

Evidence shows that export market entry is associated with significant changes in firm performance around the time at which export sales begin. In the data from Enterprise Surveys[3] employment levels of future-exporters grow by 13%, four times higher than the growth rate of non-exporting firms. Bernard and Jensen (1999) analyze the evolution of future-exporters among the US firms. They find that in addition to being larger in employment, shipments, and labor productivity, future-exporters also grow faster than non-exporters in all three measures. They find that growth premiums between future-exporters and non-exporters are 1.4% per year for employment and 2.4% for shipments. Greenaway and Kneller (2007) summarize a collection of studies that similarly find faster total factor productivity or labor productivity growth of future-exporters relative to non-exporters. Alvarez and Lopez (2005) argue how firms increase their productivities with the explicit purpose of becoming exporters[4]. Using data from Chilean manufacturers they show that future-exporters invest more in physical capital than non-exporters. They find that 1% increase in investment increases the probability of exporting by 0.2%. Overall, all these evidences highlight the changes in firm performance before exporting starts and I argue that any factor that obstructs these changes are likely to discourages firms from exporting.

Faster growing efficient firms self-select themselves into foreign markets. This has been a robust finding in many empirical studies as reviewed in Bernard et al. (2007) and others. However, a sound investment climate is required to complement firm specific, technological, or market driven factors in order the self-selection process to work efficiently. Dollar et al. (2006) show that highly bureaucratic and corrupt governments, inefficient financial services or low quality of infrastructure make it difficult for firms to expand into foreign markets in developing

[3] This is the main data source used in this paper. It is explained in detail in data description section.
[4] They call this as conscious self-selection process.

countries. They argue that a good investment climate works in the direction of decreasing the sunk costs of exporting and eventually leads to higher participation in export markets. In the absence of complementary regulatory reforms that improve the investment climate, focusing only on the elimination of trade barriers might not yield the expected gains from trade.

In this study, I look at the relation between a particular aspect of investment climate and exporting. I show that firms that find it difficult to create new jobs are less likely to participate in export markets. Stringent employment protection legislations (EPL) hinder job flows in firms by raising the costs of hiring workers[5,6]. The higher costs in turn decrease the competitiveness of firms which lead to lower rates of participation in export markets. In a recent study, Helpman and Itskhoki (2009) construct a theoretical model that explains how rigidities in labor markets impact trade. In a general equilibrium model of trade with two countries, they show that labor market flexibility is a source of comparative advantage for firms. Frictions in labor markets reduce operating profits which lead to lower competitiveness of the firms. As a result firms are discouraged from exporting. In this study, I present empirical evidence that supports the theoretical results of Helpman and Itskhoki (2009)[7].

Almost all empirical work that analyzes the effects of labor regulations on firm performance has concentrated on the effects on size, investment, and productivity. Besley and Burgess (2004) provide an analysis of how labor regulations affect firm performance across Indian states. They find that restrictive labor regulations lead to lower investment, employment, and productivity in the formal sector. Bassani and Ernst (2002) and Scarpetta and Tressel (2004) show that innovation activity and productivity are negatively affected by the distortions in institutional environment including EPL in countries. Khan (2006) performs a similar analysis in French industries and finds that restrictive labor regulations have negative effects on total factor productivity growth. Almeida and Carneiro (2009) find that in Brazil, stricter enforcement of labor regulations reduce firm size measured as employment and sales. Caballero, Cowan, Engel, and Micco (2004) find that job security regulations hamper the process of creative destruction

[5] Within the rules and regulations set for governing the employment relationship between workers and firms, those that focus on hiring and firing of workers are often referred to as employment protection legislations.

[6] Micco and Pages (2007) show that stringent EPL reduce job flows. Kugler (2007) summarizes a number of empirical studies that derive the same conclusion.

[7] In a related work Cunat and Melitz (2009) show that institutional differences in labor markets can give way to comparative advantage even when technologies and relative factor endowments are identical across countries. As a result, countries with more flexible labor markets specialize in sectors with higher volatility.

especially in countries where these regulations are likely to be enforced. They show that higher levels of job security decrease productivity growth roughly by one percent.

In this study, I empirically show how stringent EPL have detrimental effects on exporting using data from a detailed firm level survey that covers 26 countries from Eastern Europe and Central Asia (ECA) region. Most studies that analyze the effects of labor regulations resort to cross country data in institutions and regulations using different data sources. This might create problems due to differences in measurement across countries. These problems are ruled out in this study because the data used is homogeneous in unit of observations, the measures of firm performance, and labor regulations.

Another novel feature of this study is that it does not only look at the cross-country differences in labor regulations but also looks at the variation of their effects across sectors like construction, manufacturing, and retail. Although in most countries labor laws don't vary across sectors, differences in the intrinsic demand and supply shocks can lead to differential effects of labor regulations across sectors. On the other hand, most of the existing studies analyzing exports focus on export of products in manufacturing sector. Services are the fastest growing sector of the global economy and the growth in service trade has surpassed the growth in goods trade. Hence it is important to incorporate firms in service sector in the analysis. Data from Enterprise Surveys show that in both 2002 and 2005 roughly 20% of firms in service sector export part of their services. The analysis is also performed across industries within the manufacturing sector. There are only a few studies that perform cross-industry analysis on the differential impacts of labor regulations on firm performance within a country. Two such studies are Micco and Pages (2007) and Haltiwanger, Scarpetta, and Schweiger (2008). Both studies show that high hiring and firing costs are detrimental to job flows particularly in those industries that require more frequent labor adjustments.

The rest of the paper is organized as follows. In section two, I explain the methodology and the specification of the model. Then in section three, I describe the data used in the analysis. The empirical analysis is presented in section four and a sensitivity analysis using additional controls, different specification and the panel data is performed in section five. Finally, in section six I present concluding remarks.

2. Model Specification and Methodology

Numerous studies in the past decade have shown that reallocation of resources including labor plays an important role in driving productivity growth (see Griliches and Regev (1995), Olley and Pakes (1996), Foster et al. (2001), and Bartelsman et al. (2004)). EPL can stifle labor reallocation by raising hiring costs. In this paper, I argue that obstructing the reallocation of labor has negative impact on firms' decisions to participate in foreign markets.

The analysis that I present in this study is based on two studies by Melitz (2003) and Helpman and Itskhoki (2009). Melitz (2003) presents a model with heterogeneous firms where efficient firms self-select themselves into export markets. Efficient firms who earn the highest profits are the only ones who can compensate the sunk costs of exporting. Helpman and Itskhoki (2009) construct a two-country model of international trade allowing labor markets to be subject to search and matching frictions and wage bargaining. They introduce Diamond-Mortensen-Pissarides type frictions into an economy with heterogeneous producers as in Melitz (2003). With this setup, they allow firms to exercise market power in the product market on one hand and bargain with workers over wages on the other. In their structural model, they analytically show how labor market frictions impact trade. The rigidities in labor markets increase the costs of hiring workers which results in lower operating profits. In a sense, these increases in hiring costs are similar to a proportional reduction in the productivity of firms. In order to make exporting profitable, the disadvantage created by high hiring costs must be compensated with high productivity levels which cause an increase in the productivity cutoff for exporting. Higher cutoff value leads to lower fraction of exporters[8].

The uncertainties about a firm's potential performance and its competitiveness in foreign markets might contribute to its decision of not participating in export markets. Using data from different regions and countries, Besedes and Prusa (2008) show that 30 to 40 percent of firms fail in exporting within their first two years of service. Brenton, Saborowski, and Uexkull (2009) also find low survival rates in export markets especially in developing countries. Facing these uncertainties and lower level of competitiveness due to stringent EPL will make firms reluctant to participate in foreign markets.

Analysis performed in this study uses data from manufacturing and service sectors. Both the models in Melitz (2003) and Helpman and Itskhoki (2009) are constructed for manufacturing

[8] See Lemma 1 in Helpman and Itskhoki (2009) for a formal proof of this relation.

firms. Although the definition of exports is likely to vary across these sectors, the idea of self-selection of more efficient firms into export markets and how labor market frictions impact firms' exporting decision can be applied to firms in service sectors. A wholesaler or a construction firm needs to incur extra sunk costs to provide services for foreign buyers and these firms also have to consider the effects of EPL on deciding to adjust their workforce.

Enterprise Surveys conducted in 2002 and 2005 include a section regarding firm's employment level. In one of the questions in this section firms are asked how much they would adjust the number of their full-time workers if there were no restrictions in the labor markets for hiring and firing. The exact question is:

"If you could change the number of regular full-time workers your firm currently employs without any restrictions (i.e. without seeking permission, making severance payments etc.), what would be your optimal level of employment as a percent of your existing workforce? (e.g., 90% implies you would reduce your workforce by 10%, 110% means you want to expand by 10%)".

The question targets to measure the restrictiveness of labor regulations, more specifically EPL, on firms' hiring/firing decisions. Out of the firms who responded to this question, 40% want to increase, 20% want to decrease and the rest 40% do not want to change their employment levels. In manufacturing sector the values are 40%, 22%, and 38% in respective order.

Using this information, I compute potential employment growth rate for each firm if it was not constrained by the EPL. In calculating the growth rates I follow Davis and Haltiwanger (1992). I divide the difference between the actual employment level and the potential level once hiring or firing decision is made by the simple average of both employment levels. Let l_i be the employment level of firm i and l'_i be the potential employment level once hiring or firing decision has taken place. Define $\bar{l}_i = (l'_i + l_i)/2$ as average employment level. Then the percentage change in employment that would have been achieved by making labor regulations more flexible is formulated as

$$g_i = \frac{l'_i - l_i}{\bar{l}_i}.$$

The value of g_i shows the deviation between actual and potential employment level that stems from the frictions in the labor market caused by EPL. Its value is bounded by values of -2 and 2 which makes it a robust measure to outliers.

The dataset used for the analysis is mostly cross-sectional. Hence it is quite possible that a firm's hiring/firing decision and exporting decision can be simultaneously determined and the inference drawn can be biased. For example, efficient firms can complain less about labor regulations. These firms can attract workers with higher skill levels and utilize their workers in a more productive way. Thus the additional burden of hiring an employee might be less for them. At the same time as modeled in Melitz (2003), efficient firms are more likely to export. On the other hand, less efficient firms might feel more constrained by the EPL which might create the negative relation between stringent labor laws and exporting.

To alleviate this problem and capture the effects of the restrictiveness of regulations on exporting, I try several methods. The dataset from Enterprise Surveys cover all major sectors like manufacturing, wholesale, retail, construction and others according to 2-digit ISIC classification. In the first method, I analyze the relation between labor regulations and exporting at sector level. The averages for sectors are likely to be exogenous to firm's own decisions. Moreover, I can perform a comprehensive analysis of exporting incorporating export of services and not just focus on export of products. In this method, I analyze whether variation in the restrictiveness of EPL across sectors explain the variation in participation in export markets. In the second method, I use a sample of panel firms which is constructed from the original dataset. The use of the panel data mitigates the endogeneity problem that exists in the cross-sectional data. As a third method, I restrict the sample to manufacturing firms and analyze how much of the variation in EPL across 2-digit industries in this sector explain the variation in the decision to export.

To find how constraining EPL are in each sector, I compute job creation (JC) and destruction (JD) rates as weighted average of firms' growth rates in each country. I use firms' employment levels as weight. Defining $L_{jc} = \sum_{i \in j} \bar{l}_{ic}$ as the total employment in sector j in country c, I get

$$JC_{jc} = \sum_{i} \frac{\bar{l}_{ic}}{L_{jc}} g_{ic} \; for \; g_{ic} > 0,$$

$$JD_{jc} = \sum_{i} \frac{\bar{l}_{ic}}{L_{jc}} g_{ic} \; for \; g_{ic} < 0.$$

Then net job creation JN_{jc} in sector j is computed as the difference between job creation and job destruction rates $JN_{jc} = JC_{jc} - JD_{jc}$. Higher the values of net job creation, more constrained firms

are in creating new jobs. In calculating the net job creation rates, firms' own responses can dominate the average for the sector if the number of firms in the sector is small. In order to control for this effect, I drop country-sector cells with less than 20 observations[9].

The hypothesis I want to test is whether firms are less likely to export in sectors where they are more discouraged to create new jobs. I estimate a probit model with the specification given in equation 1,

$$\Pr(z_{ijc}=1)=\Pr(\beta_1 JN_{jc}+\beta_2\log(L)_{ijc}+\beta_3 Age_{ijc}+\beta_4 Foreign_{ijc}+\delta I_j+\lambda I_c+\mu I_t+\varepsilon_{ijc}>0) \quad (1)$$

In this equation z_{ijc} is a discrete random variable equal to one if the firm i in sector j and country c exports any part of its output. In Melitz (2003), driving force of a firm's exporting decision is its intrinsic efficiency level. I use log of employment level as a proxy to the efficiency level. In addition to size, age and foreign ownership levels are other important characteristics of firms that can affect their exporting decisions. Foreign owned firms are more likely to be engaged with the rest of the world, hence more likely to export. There is also a vector of variables controlling the sector, country, and survey year fixed effects listed in respective order I_j, I_c and I_t. Sectors are likely to vary in intrinsic volatility of demand and supply shocks due to differences in technological or market characteristics. These differences might lead to different demands of job creation and destruction across sectors. As a result, sectors might be affected differently by labor regulations. Moreover, sectors are likely to vary in how engaged they are in international trade. I include sector dummies to control for these possible differences across sectors. I include country dummies to control for country level trade and other policies differences. With the inclusion of these controls, I explore the extent to which differences in restrictiveness in creating new jobs explain the remaining variation in exporting. In the estimations all standard errors are clustered to allow for possible correlations across firms within the same sector, country, and year.

3. Data Description

The source of the data used in this paper is World Bank's Enterprise Surveys[10]. In the surveys, a random sample of firms is selected that is representative of non-agricultural private sector of each country. The data cover firms from 26 countries from Eastern Europe and Central

[9] The value of 20 was arbitrarily chosen, alternative values like 15, 25 didn't affect the results. 10% of the dataset was excluded as a result of this selection. When I focus on industries in manufacturing sector, since the sample size is much smaller, I use 10 observations instead of 20 in order to have enough variation per country-industry cell.
[10] See www.enterprisesurveys.org for detailed description of the data and methodology used for data collection.

Asia region (ECA). There are three rounds of surveys which are conducted in 2002, 2005, and 2008. The survey conducted in 2002 includes 6343 and the one in 2005 includes 9265 firms. A panel dataset is constructed from a part of the cross-sectional data. Data from 2008 survey is only used in the analysis with this panel dataset. There are 1552 observations in the panel. 1025 of these firms are surveyed in 2002 and 2005 and 527 of them are surveyed in 2005 and 2008[11]. The size of the panel data for manufacturing sector is 943. The countries that are included in the analysis are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Croatia, FYR Macedonia, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russian Federation, Tajikistan, Turkey, Ukraine, and Uzbekistan. In addition to these countries there are 10 European Union (EU) members: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, and Slovenia.

The randomly selected sample is stratified by 2-digit industry, size, and region. The survey covers the major industries in each sector across countries. The list of the sectors, the industries they cover, and the fraction of exporters in each sector are given in Table 1.

Table 2 shows the same statistics for industries covered in manufacturing sector. The industries included in each sector are selected based on their contribution to GDP and they represent the majority of output in each country. All of the sectors described are covered in each country. The classification of the industries is made according to ISIC classification revision 3.1. Manufacturing and wholesales-retail sectors are the largest sectors in terms of firms included.

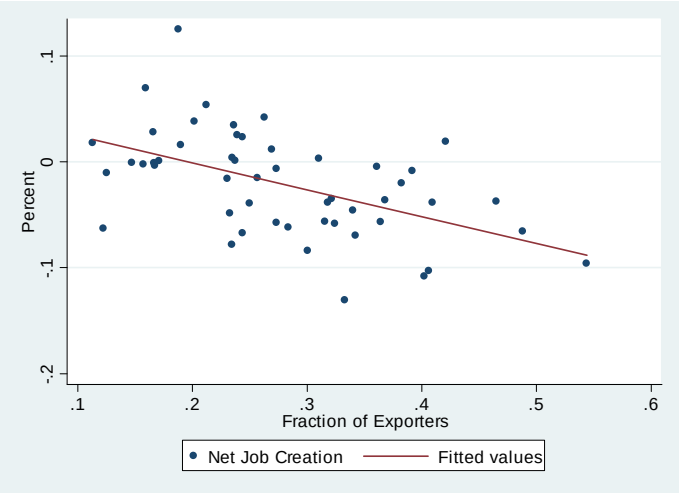
Definition of exporting varies across sectors. A guideline of export in services is described in the General Agreement on Trade in Services (GATS). World Trade Organization and World Bank provide detailed description of different possible methods of trade in services. In the Enterprise Surveys, the exact wording of the question for exporting is "*Does your firm currently sell its products or services directly to customers outside the country?*" Hence it covers both exporting of products and services. In the data, two of the most export intensive sectors are transport and communication and manufacturing. Both sectors have more than 30% of firms that export products or services. A more detailed table for the fraction of exporters in each sector covered in each country for 2005 is given in Table 3. Data for 2002 is quite similar. Net job

[11]The survey conducted in 2008 is not included in the cross-sectional analysis because the question on net job creation is only available in 2002 and 2005 surveys. However, I use the information on export status for the panel firms in 2008.

creation across sectors in each country is given in Table 4. These tables show the variation in both percentage of exporters and net job creation rates across sectors.

In Figure 1, I look at the relation between the percentage of exporters and net job creation rate for all countries in 2002 and 2005. The correlation coefficient between these two variables is -0.52. Quite a similar picture emerges when I plot the same graph separately for each survey year as well as for the industries in manufacturing sector. The graph shows in a crude way that the more firms are constrained by EPL in creating new jobs, the smaller fraction of them chooses to export. The empirical analysis will refine this relation by controlling for the factors that might affect this negative relation.

Figure 1 Net Job Creation and Fraction of Exporters



The broad scope of the survey conducted to firms allows me to observe a rich set of variables on firm performance and investment climate. The questions about export ask the percentage of revenues obtained from direct and indirect exports. In analyzing the relation between restrictive labor regulations and exporting, I can control for factors like innovative capacity, skill level in the firm, wages paid, use of external finance, population of the city where firm is located, and being part of a multi-plant firm. Description of all variables used in the analysis is given in Table 5 and descriptive statistics for these variables are presented in Table 6. In one of the specifications, I use labor productivity as a control of firm performance. In calculation of productivity, I use real sales which are calculated as deflating nominal sales by GDP deflators. GDP deflators are obtained from World Bank Development Indicators database.

4. Empirical Results

I use several specifications of the model in identifying the relation between restrictiveness of EPL and exporting. Correlation matrix for the variables used in the analysis is given in Table 7. Regression results are given in Table 8. In all results where I use probit method, I report the marginal effects of the variables at their mean values and I cluster the standard errors at sector-country-year level. The main regression result is given in the first column. This result shows that 1% increase in net job creation rate decreases probability of exporting by 16 %. This result is not affected by the differences among sectors in their trade orientation or differences among countries in their trade policies due to inclusion of sector and country fixed effects in the regressions. As expected, larger and older firms are more likely to export. Also firms with foreign ownership are more likely to export. 1% increase in foreign ownership increases probability of exporting by more than 20%.

In the second column, I introduce an alternative definition of exporting. A firm is considered as an exporter if it gains more than 10% of its total revenue from foreign sales. I call this as conservative definition of exporting[12]. If a firm exports very small fraction of its sales, this might show that exporting decision does not play a crucial role in firm's maximization problem or the firm is only experimenting on exporting. Hence the firm might not need to go through a substantial capacity adjustment process for exporting. Defining exporters with this restriction provides a more robust definition of exporting[13]. Results are very similar to the main result in column one except that the coefficient of age is no longer significant.

In the data some of the firms export directly where the rest participate in export markets indirectly through a distributor. In the data, 90% of exporters are direct exporters. Selling part or all of output to some distributor who exports is less costly than exporting directly to foreign markets as these firms do not need to search for foreign customers or do not have to deal with transportations and customs services. Although their products must still satisfy the high standards needed by foreign customers and be competitively priced, it might be ambiguous to consider them as exporters. To see whether this distinction plays any role in the results I include only direct exporters in the third specification. The results are again quite similar. Next, in the fourth specification, I use log of labor productivity, measured as real sales per worker, as a proxy

[12] In the data 17% of all exporters gain less than 10% revenue from exports.
[13] I performed all regressions presented in the paper using this alternative definition of exporting and the results were mostly significant.

for firm's efficiency level instead of size and this alternative proxy for efficiency does not change the results.

Firms that plan to export in the future increase their capacities and grow faster than non-exporters before they start to export. Hence a firm's past growth performance can be a determinant of its exporting decision. Moreover, firms which would like to create more new jobs could be those that did not succeed in growing in the past. This might affect the negative relation between net job creation and exporting because firms with low past growth rates would also be less likely to export. In the fifth specification, instead of controlling current firm size, I control for the past employment growth of firms. The survey includes information on firms' employment levels three years before the survey was conducted. Using this information, I calculate the past growth rates. Regression results show that firms that grew faster in the past are more likely to export. The coefficient of net job creation does not change much in this specification and it is still significant.

In the last two specifications, I analyze how the restrictiveness of labor regulations affects export intensity. I measure export intensity as the share of revenue gained from exports. In the sixth specification, using ordinary least squares estimation method, I regress export intensity on net job creation including other control variables. Finally in the seventh column, I perform the same analysis as in specification six including only the firms with positive export entries. Coefficient of net job creation is negative in both regressions. These results show that the restrictiveness of EPL not only distorts the decision of exporting, they also distort how intensively firms export.

5. Tests for Robustness of Results

Additional Controls

In this section, I test the sensitivity of the main results to inclusion of additional controls. All test results are given in Table 9[14]. In the first specification, I control for the firm's access to external finance. Firms with increased access to finance would have more confidence in searching new markets for their products as they would be more likely to cover the additional costs for these searches. Regression result confirms this hypothesis. Dollar et al. (2006) uses

[14] All tests in Table 9 are also performed using the conservative definition of exporting and results were significant in all specifications.

information on whether firms have overdraft facilities as a measure of access to finance and they also conclude that those firms are more likely to export.

In the second specification, I control for past innovative performance of firms. As a proxy measure for innovation I use the survey question asking whether the firm has developed a major new product line or service in the last three years. It is important to note that the question also includes services. Bernard and Jensen (1999) show that among manufacturing firms in the US, the ones that have recently introduced new products are more likely to export. Introduction of new products or services brings a new source of revenue and firms can have high comparative advantage in these innovations. Results show that innovative firms are more likely to export.

Other factors like the cost of labor and the skill level of the workers can influence the decision of exporting. Cross-country or cross-sector differences in the supply of skill or cost of labor are controlled by the country and sector fixed factors. However, there can still be significant variation in skill levels among firms. To assess how these factors affect the impact of stringent labor regulation on exporting, I include log of wage rate measured as annual wage per employee and the share of non-production workers in the firm. Wage rates could affect export participation in either direction. Higher wage rates can imply lower markups which reduces the comparative advantage of the firm in international markets. On the other hand, higher wages can also imply higher skill level employed by the firm which can put the firm in an advantageous position in export markets. The third specification shows that higher wage payment leads to higher probability of exporting[15]. A similar result emerges when fraction of non-production workers is used as a proxy for the average skill level in the firm in the fourth specification.

Cities with large population might have better investment climates and this can affect firms' choice of exporting. The infrastructure, customs services, and government services could be more efficient in large cities (unless the city is over populated). The fifth specification uses four dummy variables that represent the population of the city where the firm is located except the capital city which is a separate group. The city groups are: a) capital city, b) larger than 1 Million, c) 250,000-1 Million, d) 50,000-250,000, e) less than 50,000. The omitted group is small cities with less than 50,000 residents. It is seen that firms in capital cities or in cities with

[15] In this regression, I excluded log of employment as wage rate and employment level are highly correlated. Data for wage rate is only available in 2005 survey.

more than a million residents are more likely to export. Inclusion of this additional control does not distort the relation between net job creation and exporting.

The unit of observation in the survey is plant. A plant that is a subsidiary of a larger enterprise can find it easier to overcome the sunk costs required for exporting. Moreover the knowledge and skill embodied in the firm can be easily disseminated across establishments within a firm which might facilitate the subsidiaries' entry into foreign markets. The sixth specification controls for multi-plant firms by including a dummy variable set to one for the plants that are part of a larger enterprise. The coefficient of the dummy variable for multi-plant firms is positive although not significant. This might be due to small number of multi-plant firms in the data. Only 26% of the plants in the data are part of a multi-plant firm with at least 2 plants, and 7% have at least 5 plants. In the final specification, I include all control variables together. The coefficient for net job creation continues to be significant.

The survey includes several other measures of investment climate which can affect firms' exporting decisions. One of these measures is the level of competition in national markets. Large number of competitors can discourage a firm from expanding into foreign markets because competition would lead to lower profit margins and this would make it harder to compensate the sunk costs of exporting. This hypothesis is tested in the first column of Table 10. I set a dummy variable equal to one if a firm faces more than four competitors in its national market. Regression result shows that these firms are less likely to export. Another control variable is the percentage of senior management's time spent in dealing with public officials about laws, regulations or access to public services. This variable measures the inefficiencies in public services. The coefficient is positive and significant which might imply that exporting firms deal more frequently with public officials and hence spend more time.

In the third column of Table 10, I control for the severity of labor regulations on firms' operations and growth. One of the survey questions asks firms to rate the restrictiveness of labor regulations for firms' operations and growth. Firms answer in a range of 1 and 4where 1 means labor regulations are no obstacles and 4 means they are major obstacles. I set a dummy variable equal to one if a firm identifies labor regulations as moderate or major obstacle. Regression result shows that even after controlling for firm's perception of how restrictive labor regulations are, the coefficient of net job creation is still negative and significant. The positive coefficient on labor market rigidities could imply efficient firms complaining more about rigidities in labor

regulations who are also more likely to export. Finally, I control for the number of times that a firm was inspected or required to meet with agents from labor and social security services[16]. Although the coefficient of this variable is negative, it is not significant.

Tests with Sub-Samples

In the data, small firms, with less than 20 employees, are the ones that want to grow most. These firms have net job creation rate of 7.6% which is almost four times higher than medium size firms (firms between 20 and 100 workers). Large firms had the least net creation rate. Small firms are also the least likely group to export. More than half of the data is formed by small firms. The negative relation between net job creation in sectors and exporting can be affected by the existence of large number of small firms in the data. To control for this effect, I perform the regression analysis excluding small firms. The result is given in Table 11. The coefficient of net job creation is significantly negative[17].

Firms that are constrained by labor regulations may be more inclined to hire temporary workers. Use of temporary workers can allow firms to escape the heavy burden of EPL as contracts of temporary workers are usually less restrictive for firms than the contracts of full-time permanent workers. Pierre and Scarpetta (2004) find that firms that perceive labor regulations as constraining are more likely to use temporary workers. Hallward-Driemeier and Helppie (2007) also find that firms are more likely to hire temporary workers in countries with more restrictive labor laws. In the next two specifications in Table 11, I exclude firms that hire temporary workers assuming that these firms would be more likely to be constrained. The regression result shows that even among firms in this group, net job creation is negatively related to exporting. However the coefficient is only significant when I use the conservative definition of exporting.

Analysis with the Panel Data

A group of firms in the data were surveyed twice in three years. Despite of its small size, this panel dataset has great advantage over the cross-sectional data in handling the concerns on the endogeneity in net job creation. In the regressions with the panel dataset, current export status of firms (at time t) is regressed on the past values of net job creation, employment level,

[16] This question is only available for the 2005 survey.
[17] In these tests with sub-samples, only those firms that are included in the sub-samples are used to calculate net job creation rate.

foreign ownership and age (all of which are given at time *t-3*). Since the endogeneity of net job creation in the past is not of concern in this specification, in calculating net job creation in sectors I do not restrict number of observation in each country-sector cell to 20. Here instead of using average values of net job creation for each sector I use firms' own responses. Since firm's hiring/firing decision is evaluated at t-3, its current export decision is not likely to affect its past labor adjustment decision. The specification used for the panel data is given in equation 2

$$\Pr(z_{ijc,t}=1)=\Pr(\beta_1 JN_{jc,t-3}+\beta_2\log(L)_{ijc,t-3}+\beta_3 Age_{ijc,t-3}+\beta_4 Foreign_{ijc,t-3}+\delta I_j+\lambda I_c+\mu I_t+\varepsilon_{ijc}>0) \quad (2)$$

The regression results are given in Table 12. The first result shows that firms that couldn't create jobs due to stringent EPL at time t-3 are less likely to export at time t. In the second specification, I control for the past growth performance of the firm. Firms that grew faster in the past are more likely to export[18]. With the panel data I can control for the past export experience of firms. Bernard and Jensen (1999) show that firms that export grow faster in employment both before and after they enter the export market. Since firms with recent exporting experience would have information on the benefits of exporting, they might want to create more new jobs than the firms that have not exported. To control for this effect, in the third specification, I restrict the sample to firms that did not export three years ago. However the coefficient of net job creation is only significant when the conservative definition of exporting is used which is given in the fourth specification. Also, the magnitude of the coefficient decreases by half which confirms the hypothesis that firms who have experienced exporting would like to create more new jobs than firms that have not exported.

Analysis for Manufacturing Industries

In the analysis performed so far, I explained how the restrictiveness of EPL related to participation in export markets for firms across sectors. The sectors are broadly defined and what is exported shows great variation across sectors. In this section, I restrict the sample to 2-digit industries within manufacturing sector which are described in Table 2. Definition of exporting is relatively more homogeneous within manufacturing than across all sectors. However this restriction reduces the sample size by a third of the original size. Since the sample is much smaller, in the regressions, I include firms in industry-country-year cells with more than 10

[18] Growth rates for the panel data are calculated using both rounds of the survey, whereas in the cross-sectional analysis growth rates were calculated using only the data from the survey conducted at time t, which asked the employment level at both time t and t-3.

observations instead of 20. The coefficients in the probit regressions show the marginal effects at their mean values. I cluster the standard errors at industry-country-year level and I replace sector fixed effects with industry fixed effects.

Table 13 shows the regressions results for manufacturing sector. The results are similar to the analysis presented in Table 8 and Table 9. However the magnitude of the decrease in probability of exporting is higher for industries in manufacturing sector. The result in the first column shows that one percent increase in net job creation rate decreases probability of exporting by more than 30%. The second column replaces log of employment level with employment growth rate. In the rest of the table except the last column, I perform the same robustness analysis that I performed in Table 9. Results are significant in all of the specifications.

In the last column of Table 13, I apply difference in difference methodology to test whether sector level differences in the intrinsic volatility of demand and supply shocks lead to differential effects of employment protection across sectors. EPL might be more binding in relatively more volatile sectors as they would require more frequent labor adjustments. Following the recent works of Micco and Pages (2007) and Haltiwanger, Scarpetta, and Schweiger (2008), I identify the intrinsic employment volatility of a 2-digit manufacturing industry by the relative job reallocation of that industry in the United States (US)[19]. Here, I assume that industry reallocation in US industries identify the frictionless level of reallocation. The US job reallocation data for industries during period 1994-1998 is obtained from the database used by Davis, Haltiwanger, and Schuh (1998)[20]. I interact this data with the net job creation rate for each manufacturing industry in each country. The regression result shows that the coefficient of the interaction term is negative and significant. This result complements the findings of Micco and Pages (2007) and Haltiwanger, Scarpetta, and Schweiger (2008). Micco and Pages (2007) find that stringent EPL reduce value added and labor productivity in industries with higher intrinsic volatility. The last column of Table 13 shows that stringent EPL reduces probability of exporting more in relatively more volatile industries once industry and country fixed effects are controlled for[21].

[19] Job reallocation is calculated as the summation of job creation and job destruction rates.
[20] The data is available at http://econweb.umd.edu/~haltiwan/download.htm.
[21] Inclusion of all additional controls that are shown in the specification given in column eight did not affect this finding.

Finally I replicate the panel data analysis in the manufacturing sector. For this panel analysis, I follow the same methodology that was described before. Results are presented in Table 14. In this table I only show the regressions where firms' own responses at time *t-3* were used as the net job creation rate instead of the industry averages. The second specification restricts the sample to firms that did not export at *t-3.* Results are significant in both specifications.

6. Conclusion

A large number of studies have shown that firms that export are better performers than non-exporting firms. These firms employ more workers, grow faster and they are more productive. They make a significant contribution to aggregate growth and economic development. Dollar et al. (2006) highlight the importance of the investment climate in determining the entry of firms into foreign markets. They show that in addition to technological or market driven factors, factors like finance, infrastructure, and customs service affect a firm's decision to export. In this study I focus on another aspect of the investment climate. I analyze how rigid labor regulations, particularly EPL, can distort the exporting decision. Evidence shows that future exporters start to increase their size before they start to export. Moreover they have to be competitive in order to survive in the foreign markets. However stringent EPL increase the opportunity cost of hiring workers and lead to lower competitiveness of firms. Although labor regulations are established to protect workers and increase aggregate welfare, they have negative effects on the labor demand of firms. This discouragement in creating jobs can make firms reluctant to enter foreign markets.

In the analysis, I use a detailed firm level dataset from 26 countries in the ECA region. I look at the variation in the stringency of EPL across sectors and see how much of that explains the variation in the decision to export. The results show that sectors in which firms want to create more new jobs have lower shares of exporters. The same conclusion is drawn when the analysis is restricted to industries in the manufacturing sector. Next, I show that these findings are not sensitive to inclusion of additional firm level control variables like access to finance, past innovative performance, the skill level, and several other variables measuring the investment climate. Evidence from the panel data provides further support to the robustness of the findings.

There are only a few studies that analyze the detrimental effects of labor regulations on firm and industry performance. In a recent study, Helpman and Itskhoki (2009) construct a

structural model where they show that stringent hiring laws distort exporting decision of firms. They also show that labor and trade market policies complement each other. The lower the frictions in the labor markets are, the more a country starts to gain from lower trade frictions. The existence and magnitude of relation between labor market frictions and exporting as well as the complementarity between labor market reforms and trade reforms are important questions that are worth investigating. In this study, I take a step in answering the first question. Although most of the findings are descriptive due to the cross-sectional nature of the data, it serves as a starting point for an important research question.

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Appendix

Table 1 Firm Coverage in Sectors

ISIC	Sector	2002		2005	
		% of Firms	% of Exporters	% of Firms	% of Exporters
45	Construction	0.12	0.10	0.10	0.08
15-37	Manufacturing	0.25	0.44	0.40	0.32
60-64	Transport, Storage, Communication	0.08	0.36	0.07	0.34
50-52	Wholesale, Retail trade	0.31	0.13	0.25	0.12
70-74	Real Estate, Rent, Business Service	0.10	0.15	0.09	0.12
55	Hotels &Restaurants	0.07	0.13	0.05	0.14
92-93	Other Services	0.06	0.10	0.05	0.10
	Total	6,343	0.22	9,265	0.21

Table 2 Industries in Manufacturing Sector

ISIC	Industries	2002		2005	
		% of Firms	% of Exporters	% of Firms	% of Exporters
17	Textiles	0.06	0.64	0.04	0.50
18	Garments	0.07	0.58	0.14	0.36
15	Food	0.23	0.33	0.29	0.22
27,28,29	Metals and machinery	0.18	0.63	0.27	0.43
31	Electronics	0.04	0.75	0.01	0.64
24	Chemicals and pharm.	0.05	0.63	0.03	0.64
20,36	Wood and furniture	0.12	0.48	0.07	0.39
25,26	Non-metallic and plastic	0.09	0.45	0.06	0.45
21	Paper	0.01	0.62	0.01	0.59
22	Printing & Publishing	0.06	0.27	0.04	0.25
	Other manufacturing	0.08	0.64	0.05	0.57
	Total	1,617	0.51	3,678	0.37

Table 3 Percentage of Exporters in Sectors in 2005

	Construction	Manufacturing	Transport, Communication	Wholesale, Retail	Real Estate, Business	Hotels, Restaur.	Other Services
Albania	0.05	0.39	0.55	0.06	0.18	0.60	0.33
Armenia	0.00	0.29	0.00	0.00	0.13	0.00	0.17
Azerbaijan	0.03	0.14	0.40	0.03	0.13	0.10	0.20
Belarus	0.15	0.47	0.50	0.09	0.15	0.22	0.00
Bosnia	0.27	0.34	0.79	0.11	0.14	0.19	0.20
Bulgaria	0.13	0.41	0.40	0.09	0.12	0.08	0.27
Croatia	0.00	0.46	0.65	0.16	0.13	0.55	0.00
Czech	0.04	0.49	0.18	0.13	0.14	0.04	0.15
Estonia	0.23	0.50	0.39	0.16	0.15	0.12	0.22
FYROM	0.14	0.59	0.36	0.12	0.23	0.00	0.08
Georgia	0.10	0.45	0.06	0.03	0.17	0.00	0.06
Hungary	0.07	0.39	0.23	0.14	0.08	0.38	0.10
Kazakhstan	0.07	0.11	0.17	0.07	0.00	0.00	0.00
Kyrgyzstan	0.13	0.37	0.20	0.08	0.12	0.00	0.08
Latvia	0.15	0.41	0.44	0.08	0.06	0.20	0.00
Lithuania	0.04	0.58	0.46	0.24	0.04	0.08	0.00
Moldova	0.00	0.29	0.36	0.08	0.33	0.00	0.04
Poland	0.05	0.27	0.30	0.14	0.13	0.00	0.06
Romania	0.00	0.27	0.31	0.06	0.09	0.29	0.00
Russia	0.07	0.21	0.22	0.14	0.02	0.00	0.00
Slovakia	0.14	0.68	0.31	0.13	0.22	0.06	0.07
Slovenia	0.15	0.81	0.65	0.28	0.13	0.07	0.32
Tajikistan	0.00	0.29	0.00	0.12	0.00	0.00	0.00
Turkey	0.20	0.52	0.37	0.29	0.31	0.22	0.24
Ukraine	0.06	0.23	0.36	0.07	0.14	0.15	0.12
Uzbekistan	0.03	0.31	0.22	0.02	0.10	0.05	0.00
Average	0.09	0.40	0.34	0.11	0.13	0.13	0.10
Std Dev	0.08	0.16	0.19	0.07	0.08	0.17	0.11

Table 4 Net Job Creation in Sectors Across Countries in 2005

	Construction	Manufacturing	Transport, Communication	Wholesale, Retail	Real Estate, Business	Hotels, Restaur.	Other Services
Albania	0.01	-0.01	-0.31	0.11	0.04	0.14	0.07
Armenia	0.04	0.07	-0.14	0.08	0.28	-0.03	-0.01
Azerbaijan	0.02	0.01	-0.02	0.03	0.01	0.00	0.02
Belarus	0.11	-0.04	0.02	0.00	0.12	-0.11	0.20
Bosnia	-0.01	0.01	-0.08	0.05	-0.03	-0.20	0.02
Bulgaria	-0.06	-0.02	-0.03	0.03	-0.12	0.04	-0.09
Croatia	0.09	-0.04	0.04	-0.11	0.01	-0.20	-0.03
Czech	0.05	0.02	-0.07	0.01	0.02	0.07	0.02
Estonia	0.03	0.00	-0.06	0.02	-0.01	-0.04	-0.03
FYROM	-0.14	0.01	-0.22	0.03	0.17	0.00	0.18
Georgia	0.18	0.11	0.02	0.09	0.09	0.00	0.00
Hungary	0.04	-0.02	0.01	-0.04	0.02	0.06	0.18
Kazakhstan	0.01	0.03	-0.05	0.04	-0.01	-0.03	0.01
Kyrgyzstan	0.33	0.02	0.01	0.07	0.01	0.04	0.03
Latvia	-0.03	0.03	0.04	0.03	0.10	-0.02	0.12
Lithuania	0.06	0.00	-0.08	-0.01	-0.03	-0.03	0.02
Moldova	0.54	-0.01	0.02	0.01	0.43	0.08	0.06
Poland	0.02	0.02	0.02	0.02	0.03	0.11	-0.02
Romania	0.11	0.03	0.05	0.05	0.14	-0.07	-0.07
Russia	-0.02	-0.01	-0.07	0.06	0.03	0.03	-0.01
Slovakia	0.02	-0.07	0.01	0.01	-0.02	-0.03	-0.03
Slovenia	0.08	-0.06	0.01	-0.02	0.01	0.00	-0.06
Tajikistan	0.09	-0.02	-0.04	0.02	0.03	0.04	0.00
Turkey	-0.01	0.01	0.03	0.03	0.03	0.00	0.04
Ukraine	0.05	0.02	-0.02	0.01	0.04	0.01	0.03
Uzbekistan	0.06	-0.02	0.00	-0.01	-0.05	-0.02	0.01
Average	0.06	0.00	-0.03	0.02	0.05	-0.01	0.03
Std Dev	0.13	0.04	0.08	0.04	0.11	0.08	0.07

Table 5 Variable Description

Variable	Definition
NetJobCr	Net Job Creation (Constructed from the data)
Export	Dummy variable equal to one if firm exports any product or services to customers outside the country.
Export (≥ %10)	Dummy variable equal to one if at least 10% of firm's revenue is gained from direct or indirect exports. (I refer to this as the *conservative definition of exporting*)
Total Export (%)	Percentage of sales gained from exports
Direct Export (%)	Percentage of sales gained from direct exports
Foreign (≥ %10)	Dummy variable equal to one if more than 10% of the firm is owned by private foreign individuals, companies or organizations.
log(Labor)	Log of number of full time workers.
log(Pro)	Log of labor productivity (real sales/# of workers)
Growth	Annual growth rate of employment between the survey year and three years prior to the survey
Innovate	Dummy variable equal to one if the firm developed a major new product line or service in last three years
Log(Wage)	Total annual cost of labor (including wages, salaries, bonuses, social payments).
Age	Survey year minus year the firm started operation
ExternalFin	Proportion of investment that is financed through external sources (banks, financial institutions etc.)
City	5 groups determining the population of the city that the firm is located
Competition	How many competitors in the national market do you currently face for your main product line or service (None, 1-3, 4 or more)
Senior	What percent of senior management's time over the last 12 months was spent in dealing with public officials about laws and regulations and access to public services
Obstacle	How problematic are labor regulations for the operation and growth of your business (no obstacle, minor obstacle, moderate obstacle, major obstacle)
Log(Inspect)	Log of the number of times in the last 12 months the establishment was inspected or was required to meet agents from labor and social security services
NonProdWrk	Ratio of non-production workers (e.g., managers, administration, sales) in all workers.
Multi-plant	Dummy variable equal to one if the firm has more than one establishment in the country
*IUS*NetJobCr*	Interaction between job reallocation in US manufacturing industries with net job creation in industries constructed from the data

Table 6 Descriptive Statistics

Variable	Observation	Mean	Standard Dev.
NetJobCr	13895	0.001	0.059
Export	13873	0.265	-
Export (≥%10)	13873	0.220	-
Total Export (%)	13873	10.750	24.801
Direct Export (%)	13873	9.263	23.059
Foreign (≥%10)	13895	0.136	-
log(Labor)	13874	3.072	1.678
log(Pro)	10299	-2.096	1.145
Growth	13698	0.031	0.153
Innovate	13870	0.362	-
Log(Wage)	1667	1.368	1.105
Age	13887	14.833	17.335
ExternalFin	13895	10.989	26.574
NonProdWrk	13687	0.408	0.306
Competition	9506	0.826	0.379
Senior	13067	1.128	1.209
Obstacle	13540	0.248	0.432
Inspect	4015	0.441	0.659
Multi-plant	13884	0.259	-

Table 7 Correlation Matrix

	NetJobCr	*Log (labor)*	*Growth*	*Log(Pro)*	*Age*	*Foreign*	*External Fin*	*Innovate*	*Log (Wage)*	*NonProd Wrk*
Log(labor)	-0.0655*									
Growth	0.0339*	0.0855*								
Log(Pro)	-0.0786*	-0.0718*	-0.0275*							
Age	-0.0522*	0.3686*	-0.1488*	0.0101						
Foreign	-0.0351*	0.1947*	0.0472*	0.0769*	-0.0531*					
ExternalFin	-0.0365*	0.1289*	0.0567*	0.1622*	0.0225*	0.0259*				
Innovate	-0.0308*	0.1831*	0.1340*	-0.0091	0.0294*	0.0844*	0.1037*			
Log(Wage)	-0.1692*	0.7343*	-0.0955*	0.2540*	0.2923*	0.0551*	0.0429	0.0482*		
NonProdWrk	0.0433*	-0.2399*	-0.0215*	0.0236*	-0.0849*	0.0391*	-0.0718*	-0.0106	-0.0157	
Multi-plant	-0.0489*	0.3033*	0.0750*	0.0615*	0.0815*	0.1075*	0.0706*	0.1057*	0.1373*	-0.0305*

* Shows significance of coefficients at 5%.

Table 8 Main Regression Results

VARIABLES	I	II	III	IV	V	VI	VII
NetJobCr	-0.160	-0.162	-0.168	-0.211	-0.199	-14.020	-23.481
	(0.083)*	(0.073)**	(0.081)**	(0.088)**	(0.092)**	(5.436)**	(14.195)*
Log(labor)	0.070	0.055	0.065			3.307	2.293
	(0.005)***	(0.005)***	(0.005)***			(0.395)***	(0.503)***
Age	0.001	0.000	0.001	0.003	0.004	-0.003	-0.120
	(0.000)***	(0.000)	(0.000)***	(0.000)***	(0.000)***	(0.018)	(0.029)***
Foreign	0.241	0.205	0.225	0.334	0.320	13.830	10.461
	(0.017)***	(0.018)***	(0.015)***	(0.019)***	(0.019)***	(1.442)***	(1.620)***
Log(Pro)				0.051			
				(0.011)***			
Growth					0.132		
					(0.033)***		
Observations	13845	13845	13845	10279	13669	13845	3671
R2/R2(p)	0.224	0.206	0.218	0.199	0.179	0.211	0.136

Robust standard errors clustered by country, sectors, year are in parentheses. In the regressions, I also control for sector, survey year, and country fixed effects. (I) is main result, (II) uses conservative definition of exporting, (III) sets dummy for exporters to one for only direct exporters, (IV) uses log of labor productivity as control (V) uses employment growth as a control instead of employment level, (VI) uses % of revenues generated from exports as the dependent variable, (VII) uses revenue generated from exports (only firms that export are included). Coefficients for the probit regressions show the marginal effects at their mean values. *** p<0.01, ** p<0.05, * p<0.1.

Table 9 Robustness tests

VARIABLES	I	II	III	IV	V	VI	VII
NetJobCr	-0.163	-0.154	-1.163	-0.202	-0.151	-0.160	-0.143
	(0.084)*	(0.082)*	(0.366)***	(0.081)**	(0.084)*	(0.083)*	(0.084)*
Log(labor)	0.068	0.066		0.076	0.069	0.070	0.069
	(0.005)***	(0.005)***		(0.005)***	(0.005)***	(0.006)***	(0.006)***
Age	0.001	0.001	0.002	0.001	0.001	0.001	0.001
	(0.000)***	(0.000)***	(0.001)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Foreign	0.242	0.235	0.283	0.229	0.229	0.240	0.218
	(0.017)***	(0.017)***	(0.032)***	(0.018)***	(0.017)***	(0.017)***	(0.018)***
ExternalFin	0.001						0.001
	(0.000)***						(0.000)***
Innovate		0.096					0.084
		(0.012)***					(0.011)***
Log(Wage)			0.057				
			(0.016)***				
NonProdWorker				0.133			0.116
				(0.023)***			(0.023)***
Capital City					0.069		0.051
					(0.016)***		(0.016)***
>1Billion					0.071		0.053
					(0.028)**		(0.026)**
250K-1 Billion					0.026		0.019
					(0.016)		(0.016)
50K-250K					0.000		-0.005
					(0.012)		(0.012)
Multi-plant						0.003	-0.005
						(0.013)	(0.013)
Observations	13845	13823	1663	13659	13845	13834	13627
R2(p)	0.227	0.233	0.242	0.229	0.228	0.224	0.242

Robust standard errors clustered by country, sector, year are in parentheses. In the regressions, I control for sector, survey year, and country fixed effects. (I) controls for use of external finance for investment, (II) controls for past innovative experience of the firm, (III) controls for log of wage rate, (IV) controls for ratio of non-production workers to all workers,(V) controls for population of the city that firm is located,(VI) controls for being part of a multi-plant enterprise, (VII) includes all controls. Coefficients for the probit regressions show the marginal effects at their mean values. *** p<0.01, ** p<0.05, * p<0.1.

Table 10 Other Factors Affecting Business Environment

VARIABLES	I	II	III	IV
NetJobCr	-0.177	-0.144	-0.161	-0.463
	(0.098)*	(0.081)*	(0.082)**	(0.247)*
Log(labor)	0.073	0.071	0.070	0.090
	(0.006)***	(0.005)***	(0.005)***	(0.008)***
Age	0.001	0.001	0.001	0.001
	(0.000)***	(0.000)***	(0.000)***	(0.000)
Foreign	0.210	0.239	0.244	0.263
	(0.017)***	(0.018)***	(0.016)***	(0.029)***
IC Variable	-0.090	0.014	0.023	-0.001
	(0.014)***	(0.003)***	(0.008)***	(0.012)
Observations	9468	13019	13491	4010
R2(p)	0.203	0.233	0.225	0.257

Robust standard errors clustered by country and sectors are in parentheses. In the regressions, I also control for sector, survey year, and country fixed effects. (I) controls for level of competition, (II) controls for management time spent with public officials, (III) controls if labor regulations are moderate or major obstacle, (IV) controls the log number of labor and social security inspections, *** p<0.01, ** p<0.05, * p<0.1.

Table 11 Tests with Sub-Samples

VARIABLES	I	II	III
NetJobCr	-0.262	-0.141	-0.213
	(0.149)*	(0.109)	(0.101)**
Log(labor)	0.078	0.064	0.052
	(0.010)***	(0.005)***	(0.004)***
Age	0.001	0.001	0.000
	(0.000)***	(0.000)**	(0.000)
Foreign	0.261	0.246	0.205
	(0.021)***	(0.021)***	(0.023)***
Observations	6579	9696	9696
R2(p)	0.210	0.230	0.210

Robust standard errors clustered by country, sector, year are in parentheses. In the regressions, I control for sector, survey year, and country fixed effects. (I) restricts the sample to medium and large firms, (II) excludes firms with temporary workers, (III) performs the same regression as in (II) but uses conservative definition of exporting. Coefficients for the probit regressions show the marginal effects at their mean values. *** p<0.01, ** p<0.05, * p<0.1.

Table 12 Panel Data Analysis

VARIABLES	I	II	III	IV
JobCr/Firm	-0.109	-0.200	-0.027	-0.049
	(0.056)*	(0.058)***	(0.033)	(0.027)*
Log(labor)	0.072		0.023	0.014
	(0.011)***		(0.006)***	(0.005)***
Foreign	0.233	0.305	0.033	0.061
	(0.040)***	(0.038)***	(0.033)	(0.032)*
Age	0.000	0.003	-0.000	-0.000
	(0.001)	(0.001)***	(0.001)	(0.000)
Growth		0.109		
		(0.033)***		
Observations	1501	1496	962	1006
R2(p)	0.267	0.237	0.135	0.141

Robust standard errors clustered by country and sector are in parentheses. In the regressions, I also control for sector, survey year, and country fixed effects. (I) uses firm level net job creation as dependent variable, (II) same as (I) but controls for employment growth, (III) same as (I) but restricts the set to firms that didn't export three years ago, (IV) sama as (III) but uses conservative definition of exporting. Coefficients for the probit regressions show the marginal effects at their mean values. *** p<0.01, ** p<0.05, * p<0.1.

Table 13 Regression Results for Manufacturing Industries

VARIABLES	I	II	III	IV	V	VI	VII	VIII	IX
NetJobCr	-0.323	-0.407	-0.309	-0.359	-0.312	-0.319	-0.313	-0.328	
	(0.174)*	(0.182)**	(0.174)*	(0.169)**	(0.178)*	(0.174)*	(0.173)*	(0.172)*	
Log(labor)	0.140		0.136	0.135	0.143	0.140	0.141	0.135	0.144
	(0.008)***		(0.008)***	(0.008)***	(0.009)***	(0.008)***	(0.008)***	(0.008)***	(0.008)***
Age	0.001	0.005	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)***	(0.001)*	(0.001)*	(0.001)	(0.001)	(0.000)	(0.001)**	(0.001)
Foreign	0.308	0.424	0.310	0.304	0.300	0.305	0.307	0.299	0.302
	(0.033)***	(0.029)***	(0.034)***	(0.033)***	(0.033)***	(0.034)***	(0.034)***	(0.034)***	(0.035)***
Growth		0.177							
		(0.058)***							
ExternalFin			0.001					0.001	
			(0.000)***					(0.000)***	
Innovate				0.124				0.112	
				(0.020)***				(0.020)***	
NonProdWorker					0.080			0.059	
					(0.046)*			(0.045)	
Capital City						0.011		-0.008	
						(0.030)		(0.029)	
>1Million						-0.000		-0.005	
						(0.043)		(0.043)	
250K-1Million						-0.033		-0.035	
						(0.025)		(0.025)	
50K-250K						-0.043		-0.043	
						(0.027)		(0.028)	
Multi-plant							-0.002	-0.010	
							(0.029)	(0.028)	
US*NetJobCr									-0.015
									(0.008)*
Observations	3804	3763	3804	3800	3759	3804	3795	3747	3676
R2(p)	0.280	0.183	0.284	0.290	0.281	0.281	0.280	0.295	0.281

Robust standard errors clustered by country and industry are in parentheses. In the regressions, I control for 2-digit industry, survey year, and country fixed effects. (I) main result for manufacturing industries, (II) uses employment growth as a control instead of employment level, (III) controls for use of external finance for investment, (IV) controls for past innovative experience of the firm, (V) controls for ratio of non-production workers to all workers,(VI) controls for population of the city that firm is located,(VII) controls for being part of a multi-plant enterprise, (VIII) includes all controls. Coefficients for the probit regressions show the marginal effects at their mean values, (IV) performs analysis relative to US industries. *** p<0.01, ** p<0.05, * p<0.1.

Table 14 Panel Data Analysis for Firms in Manufacturing Sector

VARIABLES	I	II	III
JobCr/Firm	-0.210	-0.366	-0.123
	(0.101)**	(0.096)***	(0.068)*
Log(labor)	0.165		0.055
	(0.017)***		(0.012)***
Foreign	0.183	0.330	0.130
	(0.059)***	(0.049)***	(0.077)*
Age	-0.002	0.003	-0.001
	(0.001)*	(0.001)***	(0.001)
Growth		0.134	
		(0.054)**	
Observations	922	916	446
R2(p)	0.308	0.221	0.175

Robust standard errors clustered by country, industry, year are in parentheses. In the regressions, I also control for industry, survey year, and country fixed effects. All regressions use net job creation at firm level instead of industry average. (I) main result (II) controls for past employment growth (III) restricts the set to firms that didn't export three years ago. Coefficients for the probit regressions show the marginal effects at their mean values. *** p<0.01, ** p<0.05, * p<0.1.