A Race to the Bottom? Employment Protection and Foreign Direct Investment

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Abstract

A common critique of globalization is that it leads to a race to the bottom. This hypothesis assumes that multinationals invest in countries with lower regulatory standards and that countries competitively undercut each other's standards in response. This paper examines both assumptions and finds evidence of the first but no support for the second. Specifically, a reduction in employment protection rules leads to an increase in foreign direct investment (FDI). Not surprisingly, changes in employment protection legislation have a stronger impact on the relatively mobile types of FDI. However, there is no evidence that countries are competitively undercutting each other's labor market standards, despite the fact that doing so would attract FDI.

Keywords: foreign direct investment; employment protection; race to the bottom

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1   Introduction

The race to the bottom hypothesis hinges on two important assumptions. First, it is assumed that multinational enterprises (MNE) choose to invest in countries with less restrictive standards. Second, it is assumed that foreign countries competitively undercut each other's standards in order to attract FDI. While a common critique of globalization is that it can lead to a race to the bottom, there is relatively little evidence supporting either of these key assumptions. This paper tests these predictions by examining the impact of employment protection legislation on FDI and by examining the impact of labor market standards in other countries on the employment protection legislation in the foreign host country.

The mobility of capital, and in particular FDI, has increased substantially in the last twenty five years. U.S. direct investment abroad as a share of gross domestic product has increased from 6% in 1982 to 25% in 2009. Advances in transportation and communication have allowed different production activities to be relocated abroad. However, labor market regulations, such as hiring and firing restrictions, will increase the costs of doing business in a particular foreign country. As employment protection rules become stricter in one country, multinationals will shift production activities to another relatively less costly location. Thus, according to the first assumption of the race to the bottom hypothesis, labor market restrictions will reduce FDI. Furthermore, the response of multinationals to employment restrictions likely depends on the type of FDI. Relatively more mobile types of FDI will have a greater ability to respond to changes in labor market restrictions than FDI that is tied to a specific location. For instance, vertical FDI, which is motivated by the desire to take advantage of low foreign factor prices, can be relocated to less expensive locations relatively easily. However, horizontal FDI, which is motivated by the desire to access a foreign market, needs to be near the foreign consumers.

The second key assumption of the race to the bottom hypothesis is that countries lower their labor standards in order to undercut their competitors and attract FDI. As the average labor standards in other foreign countries decreases, the foreign host country will lower their labor standards in response. Thus, the average employment restrictions in other

foreign countries should have a positive impact on the employment protection rules in the host country. While the intuition of the race to the bottom hypothesis is relatively straightforward, there is little empirical evidence to support either assumption.

This paper examines these predictions using data on FDI by U.S. multinationals and data on employment restrictions in twenty six foreign countries which collectively account for over three quarters of U.S. outward FDI. Focusing on U.S. FDI is appealing because it fixes parent country characteristics that may influence FDI. In addition, using detailed data from the Bureau of Economic Analysis (BEA) on foreign affiliate sales of U.S. multinationals allows horizontal, export-platform, and vertical FDI to be separately identified. The measure of employment protection used in this analysis is a composite index of hiring and firing costs obtained from the Organisation for Economic Co-operation and Development (OECD). This provides a consistent and objective measure of differences in employment protection legislation across countries and over time. Spanning twenty six countries and twenty three years, the data set provides the scale and scope necessary to examine both assumptions of the race to the bottom hypothesis.

To test the first assumption, the empirical analysis controls for time and country fixed effects and estimates the relationship between employment protection and FDI using ordinary least squares (OLS), dynamic panel generalized methods of moments (GMM), and instrumental variables (IV). The results in all specifications indicate that employment protection has a significant, negative impact on the foreign affiliate sales of U.S. multinationals. This is consistent with the prediction that labor market restrictions will increase the costs of production in the host country and thus reduce U.S. FDI to that foreign country.

Even more compelling is that the impact of employment protection varies across different types of FDI in the manner predicted. There is relatively little impact of employment restrictions on affiliate sales to the local market (horizontal FDI) but a more significant impact of employment restrictions on affiliate sales to other foreign countries (export-platform FDI). Finally, there is a large, negative, and significant impact of employment restrictions on affiliates sales back the U.S. (vertical FDI). These contrasting results, provide compelling evidence that labor market restrictions have the largest effect on the relatively more mobile types of FDI. Thus, there is evidence that FDI responds to labor market restrictions and

that this response is strongest among the most footloose types of FDI. This verifies the first assumption of the race to the bottom hypothesis and provides a motivation for countries to lower their employment protection rules.

The second key assumption of the race to the bottom hypothesis is that countries competitively undercut each other's labor market standards in order to attract FDI. To test this proposition, this paper examines whether host country employment protection legislation depends on changes in labor market standards in other foreign countries. Competitor's labor market standards are quantified as the average of employment protection in other foreign countries, which is calculated as an unweighted average, a weighted average based on distance, or a weighted average based on vertical and export-platform FDI. OLS, GMM, and IV results indicate that host country employment protection legislation does not depend on the employment restrictions in other foreign countries regardless of which weighting system is used. There is no evidence that countries are competitively undercutting each other's labor market restrictions, despite the fact that doing so would attract foreign direct investment. Thus, this paper finds evidence supporting the first assumption of the race to the bottom hypothesis but no evidence of the second assumption.

Additional results examine the relationship between employment protection and vertical FDI in greater detail. Specifically, findings indicate that employment protection rules decrease sales to U.S. parents and to a lesser extent sales to unaffiliated U.S. parties. In addition, sales of goods, rather than sales of services, are more responsive to employment restrictions. There is also evidence that both firing and hiring restriction have an important affect on vertical FDI, with the former having a larger negative impact than the latter. Finally, an alternate maximum likelihood estimation strategy is used to examine the robustness of the results that test the second assumption of the race to the bottom.

Multinationals play a crucial role in the increasingly integrated global economy. For instance, forty percent of all U.S. trade occurs within the boundaries of the firm (U.S. Census 2010). Understanding how multinationals decide where to locate production facilities is crucial in explaining trade flows and understanding the implications of globalization more generally. The determinants of FDI have been studied extensively (Carr et al. 2001, Markusen and Maskus 2002, Blonigen et al. 2007). These studies have convincingly shown

that foreign country characteristics such as GDP, skill level, trade costs, investment costs, and distance are important determinants of FDI. While the idea that multinationals are attracted to foreign countries with less restrictive labor standards is intuitive and is gaining traction in the popular press, relatively little is actually known about whether this is an important determinant of FDI. The results in this paper provide clear evidence that labor market restrictions have a significant effect on FDI.

Research on labor market restrictions typically focuses on the implications for employment (Lazear 1990, Acemoglu and Angrist 2001, Di Tella and MacCulloch 2005, Boeri and Jimeno 2005) and for output (Besley and Burgess 2004). An important contribution of many of these studies, relative to earlier work, is to look at within country variation using panel data rather than simply making cross country comparisons. In this paper, I also control for unobserved country characteristics but look at the global ramifications of employment protection. Given the increasingly integrated world economy and the growing importance of multinationals, it is also important to consider how employment restrictions will affect FDI.

The few studies that examine the link between employment protection and FDI generate mixed results. For instance, Rodrik (1996) and OECD (2000) find evidence that a decrease in labor standards reduces FDI, contrary to the predictions of the race to the bottom hypothesis. Bhagwati (2007) also argues that there is no evidence that multinationals are attracted to countries with lower labor standards. However, other studies find that less restrictive employment protection rules increase FDI (Gorg 2005, Dewit et al. 2009, Javorcik and Spatareanu 2005, Benassy-Quere et al. 2007). While similar in spirit, these papers typically rely on more ad hoc and subjective measures of hiring and firing costs than the employment protection measured used in this analysis. Furthermore, none of these papers examine the impact of labor market restrictions on different types of FDI. An important contribution of this paper is the finding that the impact of labor market restrictions on FDI depends crucially on the type of FDI.

While Azemar and Desbordes (2010) also look at different types of FDI, their measure of employment protection has no annual variation. In contrast, this paper exploits changes in labor market restrictions within a country over time. The ability to control for country

and year fixed effects and the ability to identify a causal impact of employment protection on FDI using the GMM and IV estimation strategies represent important contributions of this paper.

Tests of the race to the bottom hypothesis tend to focus on whether multinationals invest in countries with lower regulatory standards. As mentioned, the evidence regarding this first assumption is far from conclusive. However, tests of the second assumption of the race to the bottom hypothesis are even rarer. To the best of my knowledge, this is the only paper to examine whether countries competitively undercut one another's labor standards. Thus, this is the first comprehensive empirical test of the race to the bottom hypothesis.

The remainder of the paper proceeds as follows. Section 2 discusses the assumptions of the race to the bottom hypothesis. The estimation strategy is described in Section 3, while the data and descriptive statistics are presented in Section 4. The results are discussed in Section 5 and extensions are presented in Section 6. Finally, Section 7 concludes.

2 Race to the Bottom

2.1 Assumption 1

The first assumption of the race to the bottom hypothesis is that multinationals choose where to invest based in part on the employment restrictions within the foreign country. Fundamentally, stricter labor restrictions will impose additional costs on MNE and make investing in that particular country less appealing. In addition, FDI that is relatively more mobile, in the sense that it can be equally effective in a variety of different countries, should be more responsive to labor restrictions. As the costs associated with FDI increase due to employment protection legislation, the multinational will simply shift FDI to other countries. Thus, the responsiveness of FDI to employment protection legislation will depend crucially on the type of FDI.

Horizontal FDI occurs when a multinational invests in a country in order to access that foreign market and avoid transport costs associated with exporting the good from home (Markusen 1984). The MNE shifts the entire production process to the foreign country and then sells the output to local consumers. Thus, the decision to pursue horizontal FDI de-

pends on a "proximity-concentration trade-off" between the home and foreign country in which the benefits associated with being close to the foreign market need to be weighed against the costs associated with setting up production activities abroad (Brainard 1997). With horizontal FDI, the choice set facing the multinational is producing at home or producing in the foreign country whose market they want to access. Since other foreign countries are not a viable destination for FDI, horizontal FDI will be the least sensitive to employment protection legislation in the foreign country.

Export-platform FDI occurs when a multinational accesses a foreign market by setting up an affiliate in a neighboring country and exporting to the desired country (Ekholm, Forslid, and Markusen 2003, Yeaple 2003). The motivation is still to access a foreign market but now one foreign affiliate can export to a variety of neighboring countries. Thus, the multinational can access multiple markets with one well placed foreign affiliate. Under export-platform FDI, the relevant choice set facing the MNE is to produce at home and export or to produce in one of many potential host countries and export to multiple markets within a region. Since there are more options available to the MNE, export-platform FDI will be more sensitive to employment protection legislation than horizontal FDI.

Finally, vertical FDI occurs when multinationals invest in a country in order to take advantage of low foreign factor prices and minimize costs (Helpman 1984). The MNE shifts a part of the production activities to the foreign affiliate and then ships the output back to the home country for further processing or for final sales. Unlike horizontal and export-platform FDI which need to be near a specific foreign market, vertical FDI can be located in any foreign country regardless of location. The MNE simply chooses to invest in the country that generates the greatest cost savings. If the costs associated with operating in one foreign country increase, the MNE can shift these production activities to any other foreign country. Given that the motivation for vertical FDI is to take advantage of low foreign factor prices, vertical FDI will be especially sensitive to changes in the cost of production. Thus, relative to horizontal and export-platform FDI, vertical FDI will be the most responsive to employment protection legislation.

The key prediction is that the more footloose the FDI, the more sensitive FDI will be to increases in labor restrictions in the foreign country. As employment protection increases in

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the foreign country, multinational will be reluctant to shift horizontal FDI elsewhere since that would defeat the main motivation of accessing that foreign market. However, with export-platform FDI the multinational has the ability to shift production to neighboring countries as labor restrictions increase. Finally, with vertical FDI the multinational has the ability to shift production to any other foreign country, regardless of location. The empirical analysis that follows examines whether FDI responds to employment protection legislation in this manner.

2.2 Assumption 2

The second assumption of the race to the bottom hypothesis is that countries competitively undercut each other's labor market standards in order to attract foreign investment. Given that FDI is often associated with increases in production, capital stock, infrastructure, and knowledge spillovers, attracting foreign investment is particularly appealing for foreign countries. If, according to assumption one, multinationals are attracted to countries with less restrictive labor standards, then each country has an incentive to lower their employment protection rules slightly below that of other countries. By undercutting the employment standards in other foreign countries, each host country has the ability to lure FDI away from its competitors. Thus, the second assumption of the race to the bottom hypothesis predicts that employment restrictions in a foreign country and the average labor standards in other countries are positively related. Specifically, as the weighted average of employment protection rules among a countries competitors falls the foreign country will reduce its own employment protections in response. The analysis that follows discusses how this weighted average is constructed and examines whether countries competitively undercut each other's labor standards.

3 Specification

3.1 Testing Assumption 1

The analysis begins by examining whether FDI is sensitive to changes in employment protection in the foreign host country. To test this first assumption of the race to the bottom

hypothesis, the following equation will be estimated using ordinary least squares (OLS):

$$(1) \qquad FDI_{c,t} = \alpha_1 EP_{c,t-1} + X_{c,t-1}\alpha_2 + \lambda_c + \theta_t + \epsilon_{c,t}.$$

where $FDI_{c,t}$ is U.S. foreign direct investment into country c in year t. The variable $EP_{c,t-1}$ is employment protection in foreign country c and $X_{c,t-1}$ is a vector of control variables that includes host country characteristics such as GDP, population, trade costs, skill level, tax rate, and investment costs. These variables are lagged to account for the fact that multinationals cannot immediately adjust FDI in response to these host country characteristics.[2] The natural log of all variables is used in the empirical analysis which allows for a more intuitive interpretation of the results. Finally, λ_c and θ_t are country and year fixed effects respectively.

A second empirical strategy is to estimate a dynamic panel model, where current FDI depends on the lagged value of FDI. This accounts for the possibility that FDI is persistent over time. Thus, adding lagged FDI to equation (1) and first differencing leads to the following estimation equation:

$$(2) \qquad \Delta FDI_{c,t} = \beta_1 \Delta EP_{c,t-1} + \Delta X_{c,t-1}\beta_2 + \beta_3 \Delta FDI_{c,t-1} + \Delta\theta_t + \Delta\epsilon_{c,t}.$$

where the country fixed effects are subsumed by the annual differences. The issue with estimating this equation is that the differenced residual, $\Delta\epsilon_{c,t}$, is by construction correlated with the lagged dependent variables, $\Delta FDI_{c,t-1}$, since both are functions of $\varepsilon_{c,t-1}$. Similarly, $\Delta EP_{c,t-1}$ and the control variables $\Delta X_{c,t-1}$ may also be correlated with $\Delta\epsilon_{c,t}$. Therefore, OLS regressions of equation (2) can produce inconsistent estimates. To avoid this problem and to address potential endogeneity concerns, equation (2) will be estimated using the Arellano-Bond GMM estimator. This estimation strategy instruments the differenced variables that are not exogenous with their respective lagged levels (Holtz-Eakin, Newey,

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[2]The results are similar if these variables are not lagged.

and Rosen 1988, Arellano and Bond 1991). This allows a causal impact of employment protection legislation on foreign direct investment to be identified.

Despite the inclusion of country and year fixed effects, lagging all the independent variables, and using the Arellano-Bond GMM estimation strategy, there may be lingering endogeneity concerns.[3] To address these concerns, it is possible to estimate equation (1) using the instrumental variable (IV) estimation strategy. This third empirical strategy uses the unionization density and the political ideology and strength of the ruling party as instruments for employment protection legislation in the foreign host country. A country with a declining union presence may, as a result, see an increase in governmental employment restrictions. Thus, changes in union density will be an important predictor of the employment protection legislation implemented in the foreign host country. In addition, a country with a more liberal ruling party will be more likely to implement labor market restrictions. Thus, changes in the ruling party and its relative strength will be an important predictor of employment protection. These instruments will identify an exogenous source of variation in labor market restrictions which is unrelated to FDI. This mitigates endogeneity concerns and allows the impact of employment protection on FDI to be identified. The construction of both instrumental variables will be discussed in greater detail in Section 4.4.

Given the theoretical motivation discussed in Section 2, we would expect $\alpha_1 < 0$ and $\beta_1 < 0$. As employment protection increases, the costs of operating a foreign affiliate increase, and thus FDI decreases as the multinational shifts these production activities elsewhere. In addition, the magnitude of α_1 and β_1 will depend crucially on the type of FDI. Thus, all three empirical strategies will be separately estimated using total FDI, horizontal FDI, export-platform FDI, and vertical FDI as the dependent variables. The coefficients on employment protection should be more negative as the degree of mobility exhibited by each type of FDI increases. Specifically, α_1 and β_1 will be most negative in the vertical FDI regression, it will be least negative in the horizontal FDI regression, and it will fall between these extremes in the export-platform FDI regression.

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[3] The race to the bottom hypothesis assumes that country's employment protection legislation reponds to other countries standards not one's own level of FDI. Furthermore, it is not entirely clear how FDI would affect employment protection legislation. Perhaps an increase in FDI encourages host countries to increase employment restrictions to protect local workers from being exploited by foreign multinationals or maybe increases in FDI encourage host countries to decrease employment restrictions to attract more FDI.

3.2 Testing Assumption 2

To test the second assumption of the race to the bottom hypothesis, this paper examines whether employment protection legislation is a function of employment protection in other foreign countries. Specifically, the following equation is estimated:

$$(3) \qquad EP_{c,t} = \phi_1 Competitor\_EP_{c,t-1} + X_{c,t-1}\phi_2 + \phi_3 EP_{c,t-1} + \lambda_c + \theta_t + \epsilon_{c,t}.$$

where the dependent variable, $EP_{c,t}$, is employment protection in foreign country c. $Competitor\_EP_{c,t-1}$ is the weighted average of employment protection in other foreign countries. This variable is constructed using three different weighting techniques which will be discussed in greater detail in the section that follows. $X_{c,t-1}$ is a vector of control variables and the lagged value of employment protection is included as a regressor to account for the fact that employment protection rules are persistent over time. λ_c and θ_t are country and year fixed effects respectively. Finally, all variables are in natural logs and the independent variables are lagged to account for the fact that changes in employment protection legislation take time to implement.

Equation 3 will be estimated using the OLS, Arellano-Bond GMM, and IV estimation strategies. The weighted average of the unionization and political ideology variables will be used as instruments in the IV regressions. If the race to the bottom theory is important, then $\phi_1 > 0$. As other foreign countries lower their employment protection rules, country c will respond by reducing its own employment protections it order to undercut it's competitors.

4 Data

4.1 Foreign Direct Investment

Foreign direct investment is measured as U.S. direct investment abroad using data from the Bureau of Economic Analysis (BEA). Focusing on multinationals from one country is appealing because it minimizes parent country characteristics that may influence outward FDI. In addition, data on U.S. multinational companies is more comprehensive and detailed

than FDI data from other countries. There is little reason to believe that the determinants of U.S. FDI are fundamentally different from the decisions facing multinationals in other countries.

Another especially appealing aspect of the BEA data is that the measure of FDI used in this analysis (i.e. affiliate sales) allows for horizontal, export-platform, and vertical FDI to be separately examined. Specifically, the BEA identifies the ultimate destination of the sales by U.S. foreign affiliates. Affiliate sales to the local market measures horizontal FDI, affiliate sales to other foreign countries measures export-platform FDI, and affiliate sales back to the U.S. measures vertical FDI.[4] As mentioned before, the impact of employment protection on FDI should become more negative as the type of FDI becomes relatively more mobile. Finally, these FDI measures are converted into real dollars using the chain-type price index for gross domestic investment.[5]

4.2   Employment Protection

Data on employment protection comes from the Organisation for Economic Co-operation and Development (OECD). The OECD constructs a composite index of employment protection from seventeen individual measures of hiring and firing costs. These seventeen basic measures can be grouped into two broad categories, restrictions against firing workers and restrictions on hiring temporary workers. The firing restrictions include measures such as the notification process and timing of dismissals, the severance pay required, and the procedures for contesting an unfair dismissal. The hiring restrictions include measures such as the allowable number and duration of fixed term contracts, the type of work that temporary workers can do, and whether regular and temporary workers are treated equally.[6] The employment protection index is measured on a scale of zero to six with six representing the most restrictive rules.

While this composite index certainly does not capture all relevant factors that influence

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[4]There are many other types of 'complex' FDI that are variations of these three basic components (Yeaple 2003). While these three categories may include more complex types of FDI, this will not fundamentally change the basic ordering of these types of FDI from less-mobile to more-mobile.

[5]This price deflator is found in the Economic Report of the President (http://www.gpoaccess.gov/eop/tables10.html).

[6]For further details on the components of these measures and how they are calculated, see the methodology section of the OECD Indicators of Employment Protection website at www.oecd.org/employment/protection.

labor market flexibility, it does have some appealing aspects. First and foremost, it is an objective and consistent estimate of employment protection regulations in a wide variety of countries. Changes in this measure of employment protection represent legislative and policy changes in the host country that are more likely exogenous to foreign affiliate sales.[7] Second, while this measure may not explicitly include all relevant labor market restrictions, it represents a useful proxy for the overall employment conditions in the host country. Third, it is possible to separate this index into its hiring and firing sub-categories which proves useful in the analysis that follows. Finally, this employment protection measure is available for thirty countries and twenty four years (1985-2008). The scale and scope of this variable represents an important improvement over other measures.[8]

4.3 Control Variables

The estimation strategy implemented in this analysis controls for both country and year fixed effects. To account for factors that may vary within a country over time, a variety of additional control variables are included that are likely to influence the decision of a multinational to pursue FDI. Perhaps most important is the host countries real GDP which is obtained from the OECD. The population of the host country also comes from the OECD. Following Blonigen et al. (2007), I measure host country trade costs as the inverse of the openness measure reported by the Penn World Tables (PWT).

Data on the host country skill level is obtained from the Barro and Lee (2010) Educational Attainment Dataset. They report the average year of schooling for those over 25 years old every five years from 1950-2010. The intervening years are calculated using linear interpolation. Host country corporate income tax rates come from the OECD. Investment costs in the host country are measured using data from the Business Environment Risk Intelligence (BERI). Investment costs are calculated as the inverse of the composite index which includes the operations risk index, the political risk index, and the remittance and

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[7] While changes in employment protection legislation is infrequent in some countries, when these changes occur they represent an important shift in labor market restrictions.

[8] Other authors (Gorg 2005, Dewit et al. 2009, Di Tella and MacCulloch 2005) have used data from the Global Competitiveness Report (GCR) produced by the World Economic Forum. This measure of hiring and firing costs is obtained from surveying local business managers about the hiring and firing practices in their country. This is relatively subjective and noisy measure which may not necessarily reflect changes in labor market legislation in the foreign host country.

repatriation factor index. Together, these control variables represent the factors that have been generally identified as important determinants of FDI.

4.4 Instruments

The IV analysis uses the unionization density and the political ideology of the ruling party as instruments for employment protection. Data on the unionization rate in the foreign host country comes from the OECD and is calculated as the share of total wage and salary earners that are trade union members. As discussed previously, a lower unionization density increases the need for labor market regulations.

Data used to construct the political ideology variable comes from the Political Constraint Index (POLCON) Dataset (Henisz 2002). First, the political ideology of the political party that controls the executive branch of the government is identified. Each ruling political party is identified as liberal, neutral, or conservative. Then this ideology variable is interacted with a measure of political constraint which reflects the relative strength of the ruling party. Specifically, the political constraint variable takes into account the number of branches within the government that have veto power over policy changes, the party alignment across the branches of government, and the party heterogeneity within the legislative branches of government. This modified political ideology variable takes on values between one and three. Values close to three indicate that a relatively powerful liberal party is in control, values close to two indicate a relatively weak or neutral party is in control, and values close to one indicate that a relatively powerful conservative party is in control. A ruling party that is more liberal and powerful is more likely to implement employment protection legislation.

4.5 Competitor Employment Protection

The employment protection measure from the OECD is used to construct the average of employment protection in other foreign countries. Specifically, for country c the $Competitor\_EP$ variable is calculated as the weighted average of employment protection in all other foreign countries in the sample, not including country c itself. There are three different methods used to construct this average.

First, this variable is constructed as the unweighted average of employment protection in the other foreign countries. This method weights equally all other foreign countries. Second, $Competitor\_EP$ is constructed using the inverse of distance between country c and the other foreign host countries as weights. The weights are normalized to one to account for the fact that the sample of countries changes over this period.[9] The employment protection legislation in countries that are closer in proximity to country c are weighted more heavily. Using the inverse of distance as weights is a common method for calculating spatial variables.

Rather than weighting countries that are closer in proximity more heavily, the third method weights more heavily those countries that are likely competing with country c for FDI. Specifically, the average vertical and export-platform FDI sales in each foreign country is used as a weight. The weights are normalized so that employment protection in those countries that have a greater share of vertical and export platform FDI sales are weighted more heavily. If these types of FDI are more mobile, then country c will be more responsive to changes in employment protection rules in countries that have a larger share of this type of FDI. In other words, these foreign countries will be the ones that country c is competing against to attract these relatively mobile types of FDI.

4.6   Descriptive Statistics

Combining these various measures, generates an unbalanced panel data set that spans twenty six countries and twenty three years (1985-2007).[10] The twenty six countries in this sample accounted for 78% of U.S. FDI in 2000. Table 1 reports the summary statistics of the variables used in this analysis. While the sample includes only OECD countries, Table 1 indicates there is substantial variation in all of these measures. For instance, real affiliate sales varied from \$1,165 million in Turkey in 1985 to \$586,295 million in the United Kingdom in 2007. On a scale of zero to six with six being the most restrictive, employment protection ranges from 0.6 in the United Kingdom in the 1990s to 4.2 in Portugal in the

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[9]The results that follow are similar if the sample is restricted to countries that have data for the entire period.

[10]The countries include Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Mexico, New Zealand, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

late 1980s.

Figure 1 plots the annual average of employment protection against the annual average of real affiliate sales. A significant negative relationship between employment protection and affiliate sales is evident in Figure 1. Over time there has been a rough trend towards a decrease in employment protection rules and an increase in U.S. foreign affiliate sales.

Figure 2 plots the country average of employment protection against the country average of real affiliate sales. The U.K. and Canada have relatively lax employment protection rules and have high foreign affiliate sales. However, countries such as Portugal, Turkey and Greece have had strict employment protection rules and low levels of U.S. foreign affiliate sales. Perhaps not surprisingly, France and Germany have strict employment protection rules but high levels of affiliate sales. Again, there is a strong negative relationship between employment protection and affiliate sales. Countries that have strict employment protection rules typically have less U.S. foreign affiliate sales.

Figure 3 plots the country average of employment protection against the country average of different types of real affiliate sales. Two observations are worth noting. First, there is interesting variation across countries in terms of which type of FDI is most important. Not surprisingly, Japan and Australia have relatively large shares of horizontal FDI, Ireland and Switzerland have relatively large shares of export-platform FDI, and Mexico has a relatively large share of vertical FDI. Second, a negative relationship between employment protection and all three types of FDI is evident in Figure 3. However, it appears that the relationship between employment protection and vertical FDI is most negative, which is consistent with the intuition from Section 2.

Figures 1-3 provide insight into the dimensions and characteristics of the data set used in this analysis. It is interesting that such a strong negative relationship emerges in these basic scatter-plots. However, there are some important limitations of these scatter-plots which the empirical analysis that follows is able to overcome. First, the country and year fixed effects will capture much of the variation evident in these figures. The analysis that follows exploits country variation over time to examine the impact of employment protection on foreign affiliate sales. Second, these figure do not account for other factors that are changing over time and may be affecting both affiliate sales and employment protection.

As discussed previously, a wide array of control variables will be included in the empirical analysis. Third, this negative correlation does not imply causation. Fortunately, the GMM and IV estimation strategies will identify a causal impact of employment protection on foreign affiliate sales. With these caveats in mind, it is surprising that such a consistently negative relationship emerges in Figures 1-3. The section that follows examines whether this relationship is robust to a more careful and rigorous analysis.

Finally, Figure 4 reports the annual average of employment protection (solid line) and the 95% confidence intervals (dashed lines). The average employment protection in this sample of twenty six countries fell from 2.45 in 1985 to 2.00 in 2008, a reduction of 18%. In addition, the 95% confidence intervals converged over this time period which indicates that the variation in employment protection across countries decreased from 1985 to 2008. Both of these stylized facts are consistent with the second assumption of the race to the bottom hypothesis. However, this does not imply causation nor is it the only plausible explanation. The analysis that follows, identifies to what extent this reduction is driven by countries competitively undercutting each others labor standards.

5 Results

The goal of this analysis is to examine whether FDI responds to employment protection legislation and whether countries competitively undercut each other's labor standards. This section tests these two predictions of the race to the bottom hypothesis. First, the impact of employment protection restrictions on foreign affiliate sales to different locations is examined. Second, I examine whether countries competitively reduce their employment restrictions in response to changes in employment restrictions in other foreign countries.

5.1 Assumption 1 Results

The first assumption of the race to the bottom hypothesis is tested using the OLS, Arellano-Bond GMM, and IV estimation strategies. The OLS results obtained from estimating equation (1) are reported in Table 2. The results in column 1 indicate that more restrictive employment protection rules lead to a significant reduction in foreign affiliate sales. Given

the log-log specification, a 1 percent increase in employment protection leads to a 0.2 percent decrease in foreign affiliate sales. This is consistent with the idea that employment protection legislation increases the costs of operating in the host country and thus reduces U.S. FDI to that foreign country.

Columns 2-4 of Table 2 separate foreign affiliate sales by the ultimate destination of these sales. The results in column 2 indicate that employment protection reduces foreign affiliate sales to the local host country (horizontal FDI). The results in column 3 indicate that employment protection does not have a significant impact on foreign affiliate sales to other foreign countries (export-platform FDI). Finally, the results in column 4 indicate that employment protection has a large, negative impact on foreign affiliate sales back to the U.S. (vertical FDI). These findings provide preliminary support for the intuition discussed in section 2. Specifically, employment protection legislation has the strongest negative impact on the most mobile type of FDI. However, the GMM and IV estimation strategies will be better at identifying a causal impact of employment protection on FDI.

The coefficients on GDP, trade costs, skill, and investment costs are all significant and of the expected sign. Foreign direct investment increases with the size of the foreign economy, with reductions in trade costs, with reductions in the average skill level, and with reductions in investment costs. Consistent with other studies, GDP has a stronger positive impact on horizontal FDI while trade costs, skill, and investment costs have a stronger negative impact on vertical FDI. While the population and tax rate are typically thought to be important determinants of foreign direct investment, the coefficients on these variables are found to be insignificant. This may be because the country fixed effects and year fixed effects are capturing the variation in these control variable.

The Arellano-Bond GMM results obtained from estimating equation (2) are reported in Table 3. Employment protection has a negative impact on total foreign affiliate sales, but this relationship is only significant at the ten percent level (see column 1). More importantly, the impact of employment protection on different types of affiliate sales is consistent with the predictions from section 2. In column 2, employment protection does not have a significant impact on sales to the local market (horizontal FDI). This is consistent with the idea that horizontal FDI is not sensitive to host country employment protection restrictions. U.S.

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multinationals want to access this foreign market and are thus relatively unresponsive to changes in employment protections in the host country.

In column 3, employment protection has a negative and significant effect on affiliate sales to other foreign countries (export-platform FDI). With export-platform FDI, U.S. multinationals can access a foreign market through a variety of different neighboring countries. Thus, as the employment protections become stricter in one host country, U.S. multinationals shift their affiliate production to another foreign country in that region.

In column 4, employment protection has large, negative, and significant impact on affiliate sales back to the U.S. (vertical FDI). Specifically, a 1 percent increase in employment protection leads to a 0.6 percent decrease in foreign affiliate sales to the U.S. With vertical FDI, U.S. multinationals are not constrained geographically by the need to access a foreign market. Thus, if the costs of operating foreign affiliates increase due to employment protection restrictions, the U.S. multinational simply relocates affiliate production to another cheaper foreign location. Finally, the lagged sales coefficients in all regression in Table 3 are positive and significant which indicates that sales are persistent over time. The high p-values on the Hansen J and second order autocorrelation (AR2) tests indicate that the lags of the dependent variables are in fact exogenous and are thus good instruments.[11]

Finally, equation (1) is estimated using the IV estimation strategy. Table 4 reports the first stage IV results for all four sales regressions.[12] As expected, the unionization rate has a negative affect on employment protection. As the prevalence of unions decreases, there is more need to protect workers through government imposed labor market restrictions. Also consistent with expectations, the political ideology variable has a positive impact on employment protection. A strong liberal government is more likely to implement labor market restrictions. The F-stat on the excluded instruments is above 40 in all the regressions, which indicates relatively strong instruments.

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[11]However, the Hansen J test can be weakened when, as a rule of thumb, the number of instruments exceeds the number of groups (i.e. countries). This is the case in this analysis because there are a relatively large number of years which increases the instrument matrix. However, this does not affect the coefficient estimates (Roodman 2006) and the results in Table 3 are not sensitive to reducing the number of lagged instruments used in the GMM estimation strategy.

[12]Although similar, the first stage results are not the same for the different IV regressions because the sample size changes depending on which foreign affiliate sales dependent variables is used in the second stage.

The second stage IV results are reported in Table 5. Once again, employment protection decreases foreign affiliate sales. Furthermore, consistent with expectations, employment protection has a progressively more negative impact on local sales, foreign sales, and U.S. sales. Not surprisingly, employment protection legislation has the most negative impact on the relatively more mobile types of FDI. In addition, the magnitudes are large. A 1 percent increase in employment protection leads to a 3 percent decrease in affiliates sales back to the U.S. Vertical FDI is most sensitive to labor costs in foreign countries and thus labor market restrictions have the largest impact on this type of FDI. Finally, the overidentification test (i.e. the Hansen J p-value) indicates that the instruments are uncorrelated with the error term and are thus valid instruments. The results in Table 5 provide clear and convincing evidence that FDI decreases with employment protection legislation in the foreign host country.

Overall, the results in Tables 2-5 support the first assumption of the race to the bottom hypothesis. As employment protection legislation decreases, foreign direct investment increases. In addition, as the type of FDI becomes more mobile, the relationship between employment protection and foreign affiliate sales becomes larger in magnitude and more significant. This is an important result and indicates that the multinational response to employment protection depends crucially on the type of FDI. Furthermore, these key results are robust across the OLS, GMM, and IV estimation strategies.

5.2 Assumption 2 Results

The results so far indicate that FDI, particularly export-platform and vertical FDI, increases as employment restrictions are relaxed. This provides a motivation for foreign host countries to competitively undercut each other's labor standards. To test this second key assumption of the race to the bottom hypothesis, equation 3 estimates the impact of employment protection rules in competing foreign countries on the host country's own employment protection legislation. The results of this analysis are reported in Tables 6, 7, and 8.

Table 6 reports the results when $Competitor\_EP$ is constructed as an unweighted average of other foreign country's employment protection rules. Column 1 reports the OLS results, column 2 reports the Arellano-Bond GMM results, and column 3 reports the

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IV results using the unweighted average of *union* and *ideology* as instruments.[13] In all regressions, the coefficient on lagged *Competitor_EP* is insignificant. If the race to the bottom theory was important we would expect this coefficient to be positive and significant. A reduction in their competitor's labor standards would lead to a reduction in the foreign host countries employment restrictions. The lack of significant findings casts doubt on the assumption that countries are competitively undercutting each other's labor standards.

Table 7 shows the estimation results when *Competitor_EP* is constructed as a weighted average using the inverse of distance between the two foreign countries as the weights. This places more emphasis on employment protection rules in foreign countries that are in close proximity to the foreign host country. The results in Table 7 once again indicate that, regardless of the estimation strategy used, *Competitor_EP* has no significant impact on employment protection in the host country. However, the strong positive impact of lagged host country employment protection on current employment protection indicates that these labor standards are persistent over time.[14]

As discussed in section 4.5, it is also possible to construct *Competitor_EP* using the share of average vertical and export-platform sales as weights. The first part of this paper finds that these types of FDI are most sensitive to changes in employment protection legislation. Rather than weighting countries based on geographic distance, this method weights more heavily employment protection in those foreign countries that have a larger share of these relatively mobile types of FDI. Presumably these are the foreign countries that the foreign host country is competing against for U.S. FDI. Table 8 reports the results using *Competitor_EP* constructed in this manner. Again, the coefficient on *Competitor_EP* is insignificant in the OLS and GMM specifications. However, it is significant and negative in the IV regression. This suggests that as the employment protection legislation in other foreign countries decreases, the employment protection rules in the host country increase. Thus, if anything, this finding works against the second assumption of the race to the bottom hypothesis.

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[13] The first stage F-stat and the overidentification test in this IV regression indicates that these instruments are relatively weak.

[14] In addition, it is important to include the lagged host country employment protection as an additional control because the host country's EP level is not included in the calculation of Competitor_EP.

Overall, there is no evidence that countries competitively undercut each other's labor standards, despite the fact that doing so would increase inward FDI. Perhaps changing economy wide labor standards is too blunt a tool to attract foreign investment. This key finding is robust to three different methods of constructing the competitor's employment protection variable and to three different estimation strategies. While there is evidence supporting the first assumption of the race to the bottom hypothesis, there is no evidence supporting the second assumption.

6   Extensions

The following extensions provide additional insight into the relationships between FDI, host country employment protection, and competitor's employment protection rules. Specifically, different components of affiliate sales to the U.S. and employment protection rules are examined. In addition, an alternate specification is used to test the second assumption of the race to the bottom hypothesis.

6.1   Affiliate Sales to the U.S.

Employment protection regulations have the strongest impact on foreign affiliate sales back the U.S. It is possible, given the BEA data, to take a closer look at the type of affiliate sales back to the U.S. most affected. Specifically, affiliate sales can be separated into those going to the U.S. parent and those going to unaffiliated U.S. parties. In addition, affiliate sales are separated into the sale of goods and the sale of services back to the U.S. The results using the IV estimation strategy are reported in Table 9.

The results using foreign affiliate sales to the U.S. parent as the independent variable are reported in column 2 and the results using foreign affiliate sales to unaffiliated U.S. parties as the independent variable are reported in column 3. The coefficients on employment protection are negative, significant, and similar in magnitude in both specifications. A 1 percent increase in employment protection leads to a 3.0 percent decrease in sales to the U.S. parent and a 2.6 percent decrease in sales to unaffiliated U.S. parties. If anything, employment protection has a slightly more negative impact on affiliate sales back to the

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U.S. parent. This suggests that FDI whose output is shipped back to the U.S. parent for further processing is more mobile than FDI whose output is sold to U.S. consumers.

Columns 4 and 5 of Table 6 compare affiliate sales of goods and services back to the U.S. The results indicate that the sale of goods decreases in response to employment protection but there is no significant impact on the sale of services. While this points to an interesting distinction between affiliate sales of goods and services, these results should be interpreted with caution since data on affiliate sales of services is notoriously difficult to measure.

6.2   Employment Protection Components

Having taken a closer look at the dependent variable of interest, we now turn to the key independent variable (employment protection). As discussed previously, the employment protection measure from the OECD is an average of firing and hiring costs assembled from seventeen individual components. It is possible to separately examine the impact of firing restrictions and hiring restrictions on the foreign affiliate sales to the U.S. By definition these firing and hiring components have less variation than the composite index. However, no change in these employment restriction measures within a country still represents an important source of variation or counterfactual in this analysis.

Table 10 reports the IV estimation results from regressing U.S. sales on the firing and hiring components of employment protection. The results in columns 2 and 3 indicate that both firing and hiring costs decrease vertical FDI. A 1 percent increase in firing restrictions decreases affiliate sales to the U.S. by 4.3% and a 1 percent increase in restrictions on hiring temporary workers decrease affiliate sales to the U.S. by 2.3%. The slight difference in the size of the coefficients suggests that firing restrictions are a greater deterrent for FDI than restrictions on hiring temporary workers. However, overall, the additional costs associated with both firing and hiring workers leads U.S. multinationals to relocate their affiliate production activities elsewhere.

6.3   Contemporaneous Competitor Employment Protection

The results reported in Tables 6-8 assumed that there is a lag in the response of host countries employment protection rules to changes in their competitor's employment protection

rules. It is assumed that it takes time for countries to respond to their competitor's actions and to implement these changes. However, if the host country can anticipate changes in labor standards in other foreign countries, then the host country can respond quickly by lowering its own standards within the given year. While somewhat less plausible, this section examines this possibility in greater detail.

To test for this possibility, the following spatio-temporal model is estimated:

$$(4) \qquad EP_{c,t} = \rho \cdot W \cdot EP_{c,t} + X_{c,t-1}\phi_2 + \phi_3 EP_{c,t-1} + \lambda_c + \theta_t + \epsilon_{c,t}.$$

This is similar to equation 3 except now the components of the contemporaneous *Competitor_EP*, the spatial autoregressive term, is explicitly stated as the product of the spatial lag weighting matrix, W, and employment protection. As discussed before, W is constructed as the row normalized unweighted average, the row normalized weighted average using the inverse of distance, and the row normalized weighted average using average affiliate sales. Finally, ρ is the parameter to be estimated. While similar to equation 3, this notation is used here to be consistent with the spatial econometrics literature.

This equation is estimated using the maximum likelihood (ML) estimation strategy (Blonigen et al. 2007). OLS estimates of equation 4 are inconsistent because by construction the spatial autoregressive term and the error term are correlated. However, this is not a problem if the spatial autoregressive term is temporally lagged, as is the case in equation 3 (Franzese and Hays 2008).

The results from estimating equation 4 are reported in Table 11. *Competitor_EP* is now contemporaneous while all other control variables remain temporally lagged. The results indicate that changes in the competitor's employment protection rules has a negative and significant impact on the host country's employment protection rules. This result is not sensitive to the weighting method used to construct the W matrix. This is a somewhat surprising result and is at odds with the second assumption of the race to the bottom hypothesis which predicts a positive coefficient. Specifically, we would expect that reductions in competitor's labor standards would cause the host country to competitively lower

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their own labor standards in response. Instead, the results in Table 11 indicate the exact opposite. The host country raises their labor standards in response to lower competitor labor standards. This interesting result warrants further examination which is left to future research. For the purposes of this paper, these results confirm earlier findings and once again indicate that there is no evidence that countries are competitively undercutting one another's labor standards.

7   Conclusion

There are two implicit assumptions in the race to the bottom hypothesis. The first assumption is that multinationals will increase their foreign investment in response to reductions in employment protection in the host country. Furthermore, the relatively mobile types of FDI will be most responsive to employment protection rules. The second assumption is that countries competitively undercut each other's labor standards in order to attract FDI.

The empirical results presented in this paper confirm the first assumption. Specifically, there is a significant negative impact of employment protection on FDI. A reduction in employment protection rules leads to an increase in foreign affiliate sales. In addition, this negative relationship is strongest among the most mobile types of FDI. Employment protection legislation in the host country has limited impact on horizontal FDI, a more substantial negative impact on export-platform FDI, and a large, negative impact on vertical FDI.

Despite the fact that lowering employment restrictions increases FDI, there is no evidence that countries are competitively undercutting each other's labor standards to attract foreign investment. Specifically, this paper examines whether labor standards in other foreign countries affect the employment restrictions in the foreign host country. Regardless of the weighting method used to construct the foreign countries' labor standards or the estimation strategy, there is no significant impact on the host country's employment protection rules. Overall, this paper finds support for the first proposition of the race to the bottom hypothesis but no evidence of the second assumption.

Whether this is a desirable outcome depends on one's view of employment protection.

If labor market restrictions are necessary to protect the rights of workers, then this is a encouraging result. Although multinationals are investing in countries with the least restrictive regulatory conditions, there is no evidence that this is promoting a race to the bottom. However, if labor market restrictions are undesirable and hinder economic flexibility and growth, then the finding that countries are not competitively lowering employment restrictions is discouraging. Although attracting foreign investment provides an incentive for countries to liberalize their labor markets, to date countries are not competing with one another to do so. Regardless of ones perspective on labor market restrictions, this paper provides important evidence that FDI does respond to regulatory standards but that countries are not competitively lowering standards to attract FDI.

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TABLE 1

Summary Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Total Affiliate Sales ($m)	556	71,364	96,918	1,165	586,295
Employment Protection	560	2.204	0.971	0.600	4.190
GDP ($m)	582	627,057	709,352	43,425	3,618,565
Population (thousands)	598	31,543	31,937	3,272	127,787
Trade Costs	593	0.021	0.011	0.006	0.068
Skill	598	9.4	1.9	4.0	13.1
Tax Rate	549	33	10	9	56
Investment Costs	590	0.018	0.003	0.012	0.027
Union	558	35	20	7	84
Ideology	590	2.1	0.5	1.2	3.0

The sample includes 26 OECD countries and 23 years (1985-2007).

FIGURE 1

Employment Protection and Affiliate Sales (Annual Average)

FIGURE 2

Employment Protection and Affiliate Sales (Country Average)

FIGURE 3

Horizontal FDI (Country Average)

Export-Platform FDI (Country Average)

Vertical FDI (Country Average)

FIGURE 4

Average Employment Protection Over Time
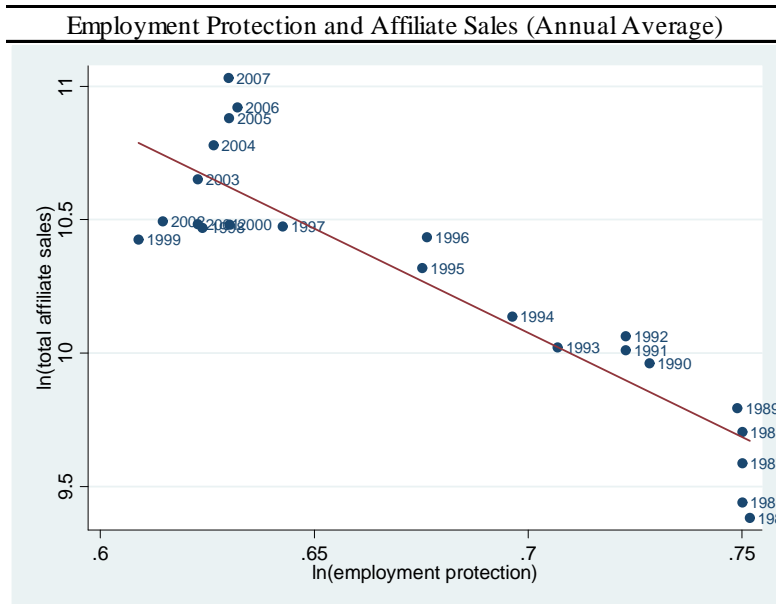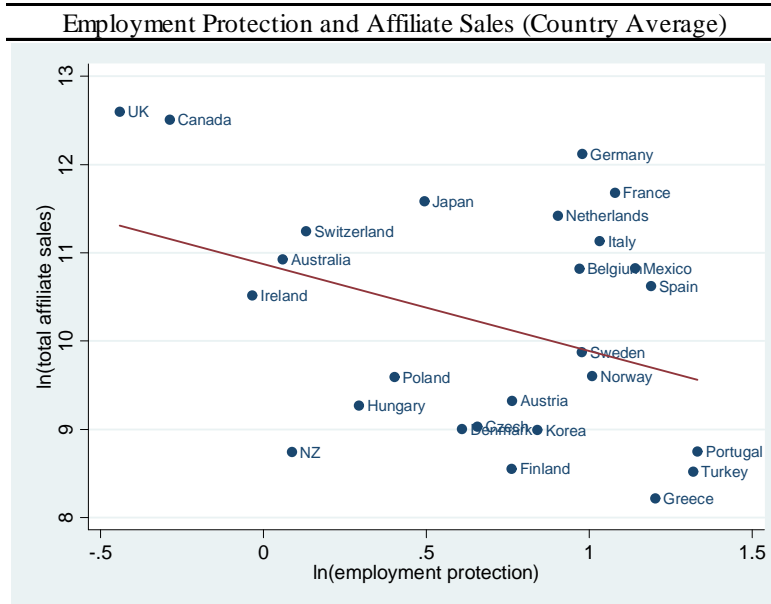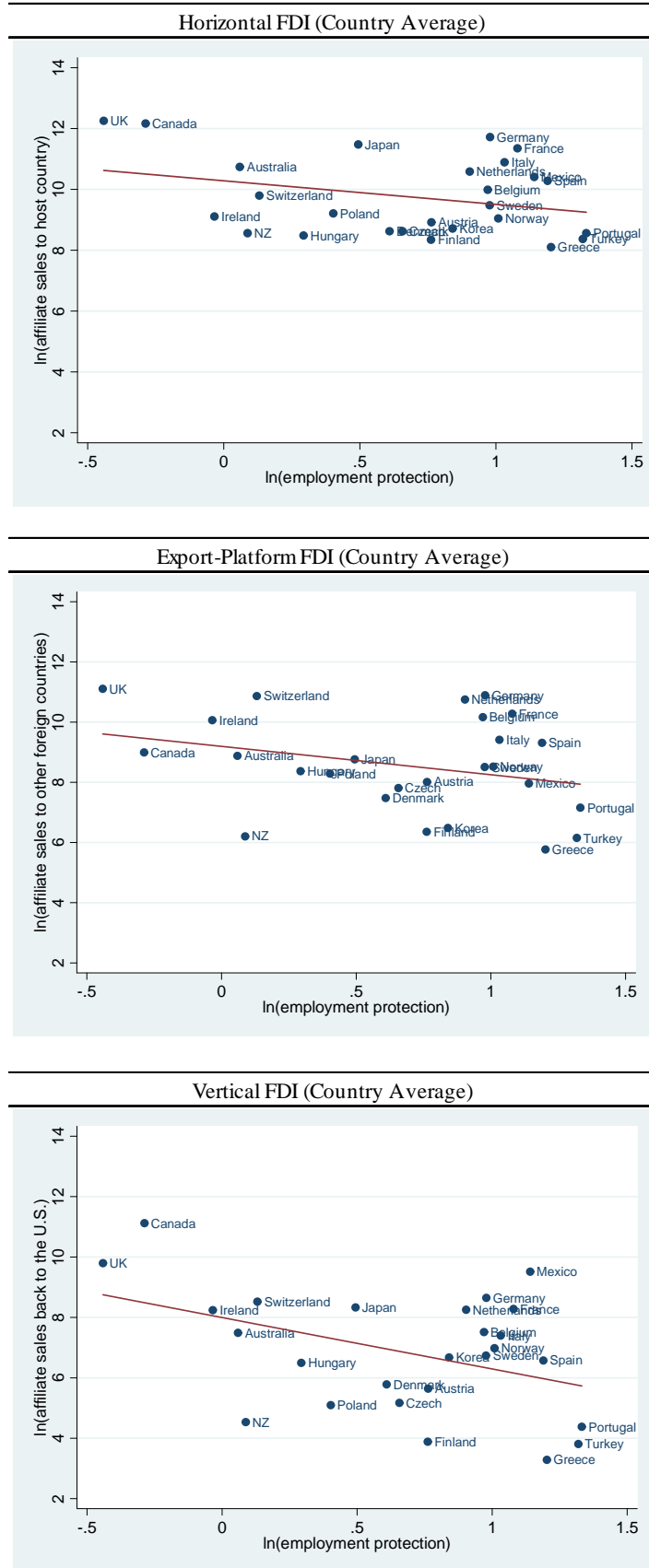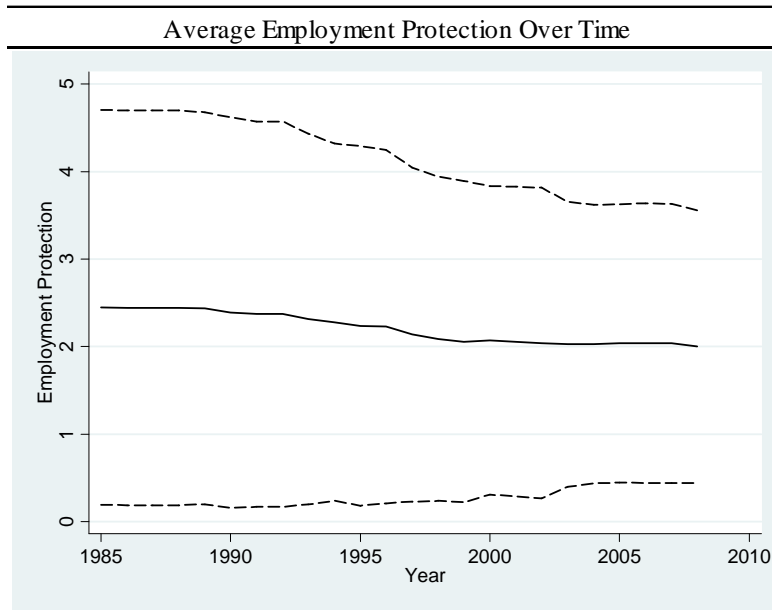

The solid line represents the mean of Employment Protection by year.
The 26 OECD countries are included in this mean, although not all
countries span the entire sample. The dotted lines represent the 95%
confidence intervals.

TABLE 2

Foreign Affiliate Sales by Destination (OLS)

Lagged Independent Variables	Total Sales	Local Sales	Foreign Sales	U.S. Sales
Employment Protection	-0.178***	-0.186***	-0.099	-0.638***
	[0.056]	[0.049]	[0.133]	[0.220]
GDP	1.567***	1.887***	-0.025	0.894
	[0.130]	[0.137]	[0.337]	[0.674]
Population	-0.284	0.015	1.083	-2.008
	[0.424]	[0.443]	[0.866]	[1.233]
Trade Costs	-0.838***	-0.500***	-2.350***	-2.278***
	[0.119]	[0.122]	[0.279]	[0.481]
Skill	-0.923***	-0.574***	-2.022***	-2.855***
	[0.136]	[0.122]	[0.356]	[0.696]
Tax Rate	-0.087	-0.046	-0.102	-0.591**
	[0.061]	[0.053]	[0.136]	[0.247]
Investment Costs	-0.397**	-0.331**	-1.846***	-3.747***
	[0.160]	[0.167]	[0.598]	[1.203]
Observations	490	472	482	464
R-squared	0.99	0.99	0.96	0.92

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. The independent variables are all lagged one period. Country and year fixed effects are included in all regressions. The dependent variable is U.S. foreign affiliates sales. Total Sales are affiliate sales to all locations, Local Sales are affiliate sales within the host country, Foreign Sales are affiliate sales to other foreign countries not including the U.S. or the host country, and U.S. sales are affiliate sales back to the U.S.

TABLE 3

Foreign Affiliate Sales by Destination (Arellano - Bond GMM)

Lagged Independent Variables	Total Sales	Local Sales	Foreign Sales	U.S. Sales
Employment Protection	-0.096*	-0.071	-0.202**	-0.565***
	[0.052]	[0.069]	[0.083]	[0.175]
GDP	0.323**	0.524***	0.304	1.334**
	[0.155]	[0.151]	[0.212]	[0.535]
Population	0.133	-0.059	0.985*	-1.288
	[0.320]	[0.306]	[0.533]	[0.941]
Trade Costs	-0.214*	-0.365***	-0.603***	-0.623**
	[0.117]	[0.102]	[0.196]	[0.253]
Skill	-0.411***	-0.453***	-0.531**	-0.933**
	[0.118]	[0.116]	[0.207]	[0.427]
Tax Rate	-0.004	-0.056	0.063	-0.084
	[0.048]	[0.049]	[0.078]	[0.148]
Investment Costs	0.087	0.078	0.156	-0.511
	[0.148]	[0.138]	[0.230]	[0.564]
Total sales	0.803***			
	[0.032]			
Local sales		0.698***		
		[0.044]		
Foreign sales			0.681***	
			[0.036]	
U.S. sales				0.561***
				[0.118]
Observations	461	420	437	400
Hansen J p-value	1	1	1	1
AR2 p-value	0.50	0.09	0.18	0.94

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. The independent variables are all lagged one period. Year fixed effects are included in all regressions. The dependent variable is U.S. foreign affiliates sales. Total Sales are affiliate sales to all locations, Local Sales are affiliate sales within the host country, Foreign Sales are affiliate sales to other foreign countries not including the U.S. or the host country, and U.S. sales are affiliate sales back to the U.S.

TABLE 4

First Stage IV Results (Dependent Variable: Employment Protection)

Lagged Independent Variables	Total Sales	Local Sales	Foreign Sales	U.S. Sales
Unions	-0.418***	-0.410***	-0.420***	-0.412***
	[0.045]	[0.046]	[0.047]	[0.047]
Ideology	0.070***	0.067***	0.070***	0.067***
	[0.023]	[0.023]	[0.023]	[0.023]
Observations	482	464	474	456
R-squared	0.97	0.97	0.97	0.97
Cragg-Donald F Stat, Instruments	44	43	43	42

Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All variables are in natural logs. The independent variables are all lagged one period. Country fixed effects, year fixed effects, and all control variables are included in all regressions. The dependent variable is employment protection in all regressions. These first stage results vary slightly depending on the sample size of the affiliate sales measure used in the second stage.

TABLE 5

Foreign Affiliate Sales by Destination (IV)

Lagged Independent Variables	Total Sales	Local Sales	Foreign Sales	U.S. Sales
Employment Protection	-0.654***	-0.413***	-1.511***	-2.988***
	[0.140]	[0.136]	[0.492]	[1.155]
GDP	1.864***	2.045***	0.831***	2.123***
	[0.143]	[0.155]	[0.307]	[0.483]
Population	0.314	0.153	3.007**	1.978
	[0.461]	[0.483]	[1.266]	[2.596]
Trade Costs	-0.831***	-0.449***	-2.406***	-2.697***
	[0.120]	[0.126]	[0.311]	[0.574]
Skill	-1.153***	-0.698***	-2.680***	-3.889***
	[0.156]	[0.123]	[0.496]	[1.069]
Tax Rate	0.005	-0.012	0.19	-0.094
	[0.059]	[0.053]	[0.155]	[0.266]
Investment Costs	-0.384**	-0.405**	-1.503***	-2.773***
	[0.165]	[0.162]	[0.552]	[1.003]
Observations	482	464	474	456
R-squared	0.99	0.99	0.95	0.91
Cragg-Donald F Stat, Instruments	44	43	43	42
Hansen J p-value	0.63	0.31	0.59	0.42

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. The independent variables are all lagged one period. Country and year fixed effects are included in all regressions. The dependent variable is U.S. foreign affiliates sales. Total Sales are affiliate sales to all locations, Local Sales are affiliate sales within the host country, Foreign Sales are affiliate sales to other foreign countries not including the U.S. or the host country, and U.S. sales are affiliate sales back to the U.S.

TABLE 6

Host Employment Protection, Unweighted Average of Competitor's EP

Lagged Independent Variables	OLS	GMM	IV
Competitor's EP	-0.887	-0.831	-6.276
	[0.938]	[0.754]	[4.803]
Host EP	0.792***	0.792***	0.597***
	[0.070]	[0.034]	[0.192]
Observations	494	468	494
R-squared	0.99		0.99
Cragg-Donald F Stat, Instruments			7
Hansen J p-value		1	0.02
AR2 p-value		0.053	

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. The independent variables are all lagged one period. Country fixed effects, year fixed effects, and all control variables (including unions and ideology) are included in all regressions. The dependent variable is employment protection in the host country. The competitor's employment protection variable is the unweighted average of employment protection in other foreign countries.

TABLE 7

Host Employment Protection, Distance Weighted Average of Competitor's EP

Lagged Independent Variables	OLS	GMM	IV
Competitor's EP	-0.002	-0.01	-0.191
	[0.100]	[0.139]	[0.374]
Host EP	0.825***	0.821***	0.818***
	[0.051]	[0.030]	[0.052]
Observations	494	468	494
R-squared	0.99		0.99
Cragg-Donald F Stat, Instruments			19
Hansen J p-value		1	0.64
AR2 p-value		0.054	

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. The independent variables are all lagged one period. Country fixed effects, year fixed effects, and all control variables (including unions and ideology) are included in all regressions. The dependent variable is employment protection in the host country. The competitor's employment protection variable is the weighted average of employment protection in other foreign countries using the inverse of distance between the host and foreign country as weights.

TABLE 8

Host Employment Protection, Sales Weighted Average of Competitor's EP

Lagged Independent Variables	OLS	GMM	IV
Competitor's EP	-0.688	-0.676	-2.708**
	[0.556]	[0.416]	[1.326]
Host EP	0.796***	0.794***	0.712***
	[0.066]	[0.027]	[0.085]
Observations	494	468	494
R-squared	0.99		0.99
Cragg-Donald F Stat, Instruments			17
Hansen J p-value		1	0.31
AR2 p-value		0.059	

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. The independent variables are all lagged one period. Country fixed effects, year fixed effects, and all control variables (including unions and ideology) are included in all regressions. The dependent variable is employment protection in the host country. The competitor's employment protection variable is the weighted average of employment protection in other foreign countries using affiliate sales to the U.S. and to other foreign countries as weights.

TABLE 9

Foreign Affiliate Sales to the U.S. by Type (IV)

Lagged Independent Variables	Total U.S. Sales	U.S. Sales to:		U.S. Sales of:	
		Parent	Unaffiliate	Goods	Services
Employment Protection	-2.988***	-3.020***	-2.568**	-3.638**	-0.127
	[1.155]	[1.125]	[1.041]	[1.468]	[1.463]
GDP	2.123***	1.690***	2.731***	1.759***	7.634***
	[0.483]	[0.546]	[0.776]	[0.590]	[0.973]
Population	1.978	3.778	-5.077*	3.730	-13.883***
	[2.596]	[2.620]	[2.620]	[2.929]	[3.889]
Trade Costs	-2.697***	-2.475***	-3.299***	-2.935***	-1.770**
	[0.574]	[0.595]	[0.642]	[0.725]	[0.809]
Skill	-3.889***	-4.361***	-2.488***	-4.431***	-4.217***
	[1.069]	[1.046]	[0.951]	[1.502]	[1.215]
Tax Rate	-0.094	-0.214	0.199	-0.224	-0.003
	[0.266]	[0.283]	[0.395]	[0.333]	[0.443]
Investment Costs	-2.773***	-2.997***	-0.621	-3.325***	2.662**
	[1.003]	[1.058]	[1.075]	[1.239]	[1.254]
Observations	456	455	456	399	411
R-squared	0.91	0.91	0.86	0.91	0.89
Cragg-Donald F Stat	42	42	42	30	33
Hansen J p-value	0.42	0.48	0.36	0.46	0.83

Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All variables are in natural logs. The independent variables are all lagged one period. Country and year fixed effects are included in all regressions. The dependent variable is foreign affiliate sales back to the U.S. These are decomposed into sales to U.S. parents and sales to unaffiliated U.S. parties. U.S. sales are also broken down into sales of goods and sales of services.

TABLE 10

Impact of Different Types of Employment Protection on Foreign Affiliate Sales to the U.S. (IV)

Lagged Independent Variables	U.S. Sales		
EP Total	-2.988***		
	[1.155]		
EP Firing		-4.285***	
		[1.480]	
EP Hiring			-2.331**
			[1.100]
GDP	2.123***	0.837	3.776***
	[0.483]	[0.534]	[1.271]
Population	1.978	-0.507	2.112
	[2.596]	[1.748]	[3.196]
Trade Costs	-2.697***	-1.260***	-2.791***
	[0.574]	[0.434]	[0.706]
Skill	-3.889***	-3.840***	-3.850***
	[1.069]	[1.000]	[1.213]
Tax Rate	-0.094	-0.899***	0.004
	[0.266]	[0.245]	[0.374]
Investment Costs	-2.773***	-0.77	-3.675***
	[1.003]	[0.972]	[1.350]
Observations	456	456	456
R-squared	0.91	0.92	0.88
Cragg-Donald F Stat	42	58	11
Hansen J p-value	0.42	0.82	0.11

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. The independent variables are all lagged one period. Country and year fixed effects are included in all regressions. The dependent variable is foreign affiliate sales back to the U.S. Different regressions include different measures of employment protection. Total employment protection is an average of "firing" which includes restrictions on individual dismissals and "hiring" which includes restrictions on the hiring of temporary workers.

TABLE 11

Host Employment Protection, Contemporaneous Average of Competitor's EP (ML Estimation)

Lagged Independent Variables	Unweighted	Distance	Sales
Competitor's EP	-3.572***	-0.174***	-0.922***
	[0.421]	[0.056]	[0.160]
Host EP	0.704***	0.820***	0.791***
	[0.053]	[0.048]	[0.049]
Observations	494	494	494

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. All independent variables, expect Competitor's EP, are lagged one period. Country fixed effects, year fixed effects, and all control variables (including unions and ideology) are included in all regressions. The dependent variable is employment protection in the host country. The competitor's employment protection variable is the average of employment protection in other foreign countries, which is calculated as an unweighted average, a weighted average using distance, and a weighted average using affiliate sales.