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

William W. Olney[1]

First Draft: November 2010

Revised: July 2012

Abstract

A common critique of globalization is that it leads to a race to the bottom. Specifically, it is assumed that multinationals invest in countries with lower regulatory standards and that countries competitively undercut each other's standards in response. This paper tests this hypothesis and finds empirical support for both propositions. First, a reduction in employment protection rules leads to an increase in foreign direct investment (FDI). Furthermore, changes in employment protection legislation have a larger impact on the relatively mobile types of FDI. Second, there is evidence that countries are competitively undercutting each other's labor market standards.

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

JEL Codes: F16; F23, J80

1 Introduction

A frequent critique of globalization is that it can lead to a race to the bottom, where countries lower their labor standards, environmental standards, or tax rates in order to attract foreign capital. More specifically, the race to the bottom hypothesis hinges on two important propositions.[2] 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 these are common fears associated with globalization, there is relatively little empirical evidence supporting either of these propositions. This analysis tests these predictions by examining the impact of employment protection legislation on inward FDI and by examining the impact of labor market standards in other countries on the employment protection legislation in the foreign host country. While this paper finds evidence of a race to the bottom, ultimately whether this is a undesirable outcome is a normative question that depends on one's view of labor market restrictions.

Anecdotal evidence suggests there is an important relationship between FDI and labor standards. For instant, in 1993, Hoover, an American multinational firm, relocated a vacuum cleaner plant from Dijon, France to Cambuslang, Scotland. At the time, Britain was encouraging inward investment by highlighting it's relatively flexible hiring and firing rules. In addition, William Foust, president of Hoover Europe, said that the significantly higher non-wage labor costs in France relative to Scotland was a factor in the company's decision to relocate.[3] The French government indicated that this was a case of "social dumping" in which the competitive undercutting of labor standards was used to attract foreign investment and asked the European Commission to investigate.[4] This and other highly publicized cases led to concern among European Union officials that countries were

---

[2]The origins of the phrase race to the bottom are often traced to U.S. Supreme Court Justice Louis Brandeis in his dissenting opinion in *Liggatt v Lee* where he describes how firms were formed in U.S. "states where the cost was lowest and the laws least restrictive" which led to a race "not of diligence but of laxity" (Louis K. Liggett CO v. Lee, 288 U.S. 517, 1933). William Cary was the first to use the term "race to the bottom" in 1974 in reference to the erosion of corporate standards in Delaware as a means to attract firms to the state (Cary 1974).

[3]"Social dumping - hardly an open and shut case: The arguments about switching jobs between countries are not so simple" by David Goodhart, Financial Times, February 4, 1993.

[4]"French promise to make Hoover pay dear" by David Buchan, Financial Times, February 4, 1993.

lowering labor standards in order to attract large multinational companies.[5] This paper examines whether this and other stories are indicative of a more general race to the bottom in employment protection rules.

A preliminary check of the data seems to support these anecdotes. Foreign direct investment has increased substantially in the last twenty five years. For instance, the share of U.S. direct investment in OECD countries relative to U.S. gross domestic product has increased from 4.3% in 1985 to 14.5% in 2007 (see Figure 1).[6] In addition, labor market regulations, such as hiring and firing restrictions, have decreased over the last twenty five years. For instance, employment protection rules in OECD countries have decreased from an average of 2.45 in 1985 to 2.04 in 2007 (see Figure 1). Certainly there are many other factors that can influence both FDI and labor standards and thus the goal of this paper is to examine to what extent these trends in the data are related.

According to the first proposition of the race to the bottom hypothesis, a reduction in labor market restrictions will increase FDI. As employment protection rules become less strict, the cost of doing business falls in that foreign country, and thus multinationals will shift production activities to that country. 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 and is thus less mobile.

The second key proposition 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 own 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

---

[5] "EU looks to extend laws on worker consultation," by Caroline Southey, Financial Times, September 23, 1996.

[6] If non-OECD countries are included, the increase is even larger.

straightforward, there is little empirical evidence to support either proposition.

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 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 propositions of the race to the bottom hypothesis.[7]

To test the first proposition, the impact of employment protection on FDI is estimated after controlling for time fixed effects, country fixed effects, and a wide variety of foreign country characteristics that are likely to influence FDI, including size, trade costs, skill level, corporate tax rates, institutional quality, and wages. This alleviates concerns that changes in employment protection rules could be inadvertently capturing other types of institutional or economic changes which are correlated with FDI. This relationship is estimated using ordinary least squares (OLS), instrumental variables (IV), and a dynamic panel generalized methods of moments (Arellano-Bond GMM). The results are remarkably robust to all of the estimation strategies and 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 a reduction in labor market restrictions will decrease the costs of production in the host country and thus increase 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

---

[7]The lack of employment protection data for other countries, such as China and India, restricts the sample. However, focusing on relatively similar OECD countries should, if anything, attenuate the results and it should limit unobserved factors that may be correlated with FDI and employment protection.

FDI). Finally, there is a large, negative, and significant impact of employment restrictions on affiliates sales back the U.S. (vertical FDI) in all specifications. These contrasting results, provide strong 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 proposition of the race to the bottom hypothesis and provides a motivation for countries to lower their employment protection rules.

The second key proposition 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 a weighted average of employment protection in other foreign countries. This average is calculated as an unweighted average, a weighted average based on distance, and a weighted average based on affiliate sales. In addition the results are estimated using three different estimation strategies, including OLS, IV, and Arellano-Bond GMM. The results indicate that employment restrictions in other foreign countries has a significant positive impact on host country employment protection legislation. As competitor's lower their labor standards, the foreign host country responds by lowering their own employment protection rules. This result is robust to all three weighting schemes and all three estimation strategies. Thus, this paper finds evidence supporting both propositions of the race to the bottom hypothesis.

A number of extensions and robustness checks are also pursued. Specifically, additional results show that both firing and hiring restriction have an important affect on FDI, with the former having a larger negative impact than the latter. In addition, the competitive undercutting of standards seems to be stronger with hiring restrictions. Both sets of results presented in the paper are also robust to restricting the sample to just European countries.

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, Markusen, and Maskus 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, 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 necessary to consider how employment restrictions will affect FDI.

Brown, Deardorff, and Stern (1996) and Martin and Maskus (2001) examine the theoretical implications of international labor standards on trade and are skeptical of the race to the bottom hypothesis. The few empirical studies that examine the race to the bottom hypothesis typically just estimate the link between employment protection and FDI. For instance, Rodrik (1996) and OECD (2000) find evidence that a decrease in labor standards actually reduces FDI, contrary to the predictions of the race to the bottom hypothesis. In surveys of the literature, Bhagwati (2007) and Brown, Deardorff, and Stern (2011) argue that there is no evidence that multinationals are attracted to countries with lower labor standards.

However, related studies, which are not explicit tests of the race to the bottom hypothesis, 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 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 IV and GMM 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 proposition is mixed. Tests of the second proposition of the race to the bottom hypothesis are even rarer. While admittedly this is more difficult to prove empirically, it is an important component of the race to the bottom hypothesis. 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 propositions 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   Proposition 1

The first proposition 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. Less strict labor standards will reduce operating costs for the MNE and make investing in that particular country more 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. The reduction of employment protection rules will lead the multinational to shift mobile types of FDI to that foreign host country. 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 depends 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 the goal of horizontal FDI is to access a foreign market, there is little reason for a MNE to shift production activities from one foreign country to another. Thus, 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 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 decrease, the MNE can relocate production activities from other foreign locations to that particular low cost 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 changes in labor restrictions in the foreign country. As employment protection decreases in a foreign country, multinational will be reluctant to shift horizontal FDI to that country from other foreign countries since that would defeat the main motivation of accessing foreign markets. However, with export-platform FDI, the multinational has the ability to shift production to the less restrictive foreign country and still access other foreign markets. Finally, with vertical FDI, the multinational has the ability to shift production from any other foreign country, regardless of location, to the less restrictive country. The empirical analysis that follows examines whether FDI responds to employment protection legislation in this manner.

2.2 Proposition 2

The second proposition 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 many countries. If, according to proposition 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 proposition 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 country's 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

To test proposition 1 and 2 of the race to the bottom hypothesis, this paper utilizes OLS, IV, and Arellano-Bond GMM estimation strategies. Each method has its benefits and drawbacks, however ideally the results will be consistent across each of these specifications.

3.1   Testing Proposition 1

The analysis begins by examining whether FDI is sensitive to changes in employment protection in the foreign host country. To test this first proposition 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, investment costs, and wages. These independent variables are lagged to account for the fact that multinationals cannot immediately adjust FDI in response to these host country characteristics.[8] The natural logarithm 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.

Despite the inclusion of country and year fixed effects, the inclusion of a wide variety of control variables, and lagging all the independent variables, there may be lingering endo-

---

[8]The results that follow are robust to using longer lags.

geneity concerns.[9] In order to identify a causal impact of employment protection on FDI, this analysis will estimate equation (1) using an IV estimation strategy. This second empirical strategy uses the strength and political ideology of the ruling party and the unionization density as instruments for employment protection legislation in the foreign host country. A country that elects a relatively powerful liberal ruling party will be more likely to implement labor market restrictions. In addition, a country may respond to a declining union presence by implementing employment protection legislation.[10] These instruments will identify variation in employment protection rules which is driven by election cycles, political parties, and long run labor market characteristics that are plausibly exogenous to FDI. The results that follow indicate that both instruments are strong predictors of employment protection legislation. Furthermore, the exclusion restriction is satisfied which indicates that the instruments only affect FDI through their impact on employment protection legislation. The construction of both instrumental variables will be discussed in greater detail in section 4.4.

A third empirical strategy is to estimate a dynamic panel model, where current FDI also 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

---

[9]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.

[10]Besley and Burgess (2004) also use unionization rates as an IV for labor regulations.

using the Arellano-Bond GMM estimator (Holtz-Eakin, Newey, and Rosen 1988, Arellano and Bond 1991). The most general Arellano-Bond GMM specification possible is utilized, which instruments all right hand side variables with all their respective lagged levels.[11] This allows a causal impact of employment protection legislation on foreign direct investment to be identified.

Given the theoretical motivation discussed in section 2, we would expect $\alpha_1 < 0$ and $\beta_1 < 0$. As employment protection decreases, the costs of operating a foreign affiliate decrease, and thus FDI increases as the multinational shifts production activities to that foreign host country. In addition, the magnitude of α_1 and β_1 will depend crucially on the type of FDI. Thus, each empirical specification will be separately estimated using total FDI, horizontal FDI, export-platform FDI, and vertical FDI as the dependent variable. 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.

3.2   Testing Proposition 2

To test the second proposition of the race to the bottom hypothesis, this paper examines whether employment protection legislation depends on employment protection in other foreign countries. Specifically, the following equation is estimated using OLS:

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

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 not including country c. This variable is constructed using three different weighting techniques which will be discussed in greater detail in section 4.5. $X_{c,t-1}$ is the vector

---

[11]The results that follow are robust to a wide variety of alternate GMM specifications, including instrumenting for fewer right hand side variables, including fewer lagged levels as instruments, and using system GMM instead of difference GMM.

of host country characteristics discussed earlier. λ_c are country fixed effects and θ_d are decade fixed effects. Including year fixed effects is not possible in this analysis because they would subsume the $Competitor\_EP_{c,t-1}$ variable.[12] Thus, decade fixed effects are included instead, which will capture any long run trends in employment protection. Finally, all variables are in natural logarithms and the independent variables are lagged to account for the fact that changes in employment protection legislation take time to implement.[13]

Despite the controls, lags, and fixed effects in equation 3, endogeneity may still be a concern. For instance, as discussed in greater detail in section 6.2, perhaps there is a general shift towards greater labor market flexibility that has nothing to do with the competitive undercutting of labor standards. To account for these endogeneity concerns, an IV analysis identifies variation in competitor employment protection that is driven by factors in individual foreign countries and that is unrelated with more general trends in labor market regulations. Specifically, employment protection is first regressed on the ideology and union variables. The fitted values from this regression are kept and represent the change in employment protection that is due these exogenous country specific factors. Then the weighted averages of these fitted values are calculated and used as an instrument for the analogously weighted $Competitor\_EP$.

Finally, proposition two will also be tested using a dynamic panel estimation strategy, which accounts for the possibility that employment protection is persistent over time. Thus, the following equation is estimated using the Arellano-Bond GMM estimator:

$$(4) \quad \Delta EP_{c,t} = \gamma_1 \Delta Competitor\_EP_{c,t-1} + \Delta X_{c,t-1}\gamma_2 + \gamma_3 \Delta EP_{c,t-1} + \Delta \theta_d + \epsilon_{c,t}.$$

where $\Delta EP_{c,t-1}$ is the change in lagged employment protection in country c. Here the inclusion of year fixed effects would be even more problematic, since it would lead to perfect multicollinearity. Thus, decade fixed effects are included instead. Again, the Arellano-Bond

---

[12]Specifically, if year fixed effects were included, then the only variation left in $Competitor\_EP_{c,t-1}$ would come from the exclusion of the host country employment protection ($EP_{c,t-1}$) from the weighted average. Since EP is correlated over time, then $EP_{c,t}$ and $Competitor\_EP_{c,t-1}$ would be negatively correlated by construction.

[13]Again, the results that follow are robust to using longer lags.

GMM estimation strategy overcomes potentially inconsistent estimates and instruments the right hand side variables with all their lagged levels. This identifies a causal impact of competitor's employment protection rules on the host country's employment protection rules.

Given the discussion in section 2, the race to the bottom hypothesis predicts that $\phi_1 > 0$ and $\gamma_1 > 0$. 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. Ideally, the results will be consistent across all three weighting schemes and across all three empirical specifications.

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 affiliate sales measure of FDI used in this analysis 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.[14] 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 affiliate sales variables are converted into real dollars using the chain-type

---

[14]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.

price index for gross domestic investment.[15]

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.[16] The composite employment protection index is measured on a scale of zero to six with six representing the most restrictive rules.

This measure of employment protection has some important limitation that are worth noting. First, employment protection legislation is one component of what we think of more broadly as labor market standards. However, given the inclusion of country fixed effects, the estimation strategy identifies changes in employment protection rules within a country. As long as these changes in employment protection legislation are positively correlated with other types of changes in employment rules, which seems plausible, this will be a useful proxy for labor market standards more generally. Second, this employment protection measure is only available for OECD countries. While these countries account for over three quarters of US outward FDI, other less developed countries, where labor market standards may be important, are not included. However, using a sample of relatively similar, rich countries should, if anything, attenuate the results. The fact that this paper finds significant and plausible results among these OECD countries suggests that the relationships identified in the paper are important and perhaps would be larger with a more diverse set of countries

---

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

[16]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.

in the sample.

Despite these two issues, there are many aspects of this data that are especially appealing and that more than compensate for these drawbacks. First and foremost, this 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.[17] Second, 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.[18]

4.3   Control Variables

The estimation strategy implemented in this analysis controls for both country and time 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 country's 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

---

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

[18] 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.

and repatriation factor index. This will account for institutional changes that could influence FDI. Wages are measured using the unit labor cost index from the OECD. Wages are included to account for any potential compensating wage differentials in response to employment protection rules. Together, these control variables represent the factors that have been identified as important determinants of FDI. The inclusion of these important controls in the analysis that follows limits concerns that changes in employment protection rules are inadvertently capturing other institutional and economic changes that could be correlated with FDI.

4.4 Instruments

The IV analysis uses the political ideology and strength of the ruling party and unionization density as instruments for employment protection. Data used to construct the political ideology variable comes from the Political Constraint Index (POLCON) Dataset (Henisz 2002). First, I identified the ideology of the political party that controls the executive branch of the government. Each ruling political party is identified as liberal, neutral, or conservative.[19] 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.

Following Besley and Burgess (2004), I also instrument employment protection with the unionization rate. Data on the unionization rate in the foreign country comes from the OECD and is calculated as the share of total wage and salary earners that are trade union

---

[19]My definition of party ideology is virtually identical to those produced by the World Bank in their 2010 Database of Political Institutions. The results are robust to the use of either definition.

members. As discussed previously, a lower unionization density may increase the need for labor market regulations.

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. Thus, the employment protection legislation in countries that are closer in proximity to country c are weighted more heavily. The weights are normalized to one to account for the fact that the sample of countries changes over this period.[20]

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. Since 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.

Finally, the weighted average of the fitted values, obtained from first regressing employment protection on ideology and union, are also calculated using these three different methods. The weighted average of the fitted values is the instrument used for the analogously weighted $Competitor\_EP$.

---

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

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).[21] 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 late 1980s.

Figure 2 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 2. This is consistent with Figure 1, and indicates that over time there has been a downward trend in employment protection rules and an upward trend in U.S. foreign affiliate sales.

Figure 3 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. On the other hand, 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 4 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 U.S.

---

[21] The countries are 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.

FDI, Ireland and Switzerland have relatively large shares of export-platform U.S. FDI, and Mexico has a relatively large share of vertical U.S. FDI. Second, a negative relationship between employment protection and all three types of FDI is evident in Figure 4. However, the relationship between employment protection and vertical FDI is the most negative and significant, which is consistent with the intuition from section 2.

Figures 2-4 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 figures 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 2-4. The section that follows examines whether this relationship is robust to a more careful and rigorous analysis.

Finally, Figure 5 plots country specific employment protection rules over time. With the inclusion of country and year fixed effects in the analysis that follows, this is the variation that will be exploited. The top panel shows all twenty six countries over time, while the middle and bottom panel show the countries that implemented the largest decreases and largest increases in employment protection over the sample period. There has been a downward trend in employment protection rules, which is consistent with the race to the bottom hypothesis. However, Figure 5 illustrates substantial variation across countries and over time. For instance, Germany and Spain relaxed their employment protection rules while France and New Zealand implemented stricter rules during this period. In the bottom panel of Figure 5, we also see the large difference in employment protection rules between France and the UK, which Hoover indicated was one of the factors that led them to relocate their

production activities.

Figure 5 also shows that while changes in employment protection rules can be infrequent in some countries, many implement substantial changes which occur at different years within the sample. For instance, Spain, in 1994, relaxed their procedural requirements for dismissals and permitted temporary work agencies. Then in 1997, they reduced the compensation for an unfair dismissals and also redefined the definition of a fair dismissal. However, in 2001 Spain tightened the rules governing when fixed term contracts can be used. In contrast, France saw an increase in employment protection rules over the sample despite the fact that they eliminated the administrative authorization necessary for dismissals in 1986. They limited the permissible use and duration of fixed term contracts and temporary work agencies in 1990 and then increased severance pay entitlements in 2001.[22] The analysis that follows examines the impact of these and other changes in employment protection rules on FDI, and identifies to what extent these changes are driven by countries competitively undercutting each others labor standards.

5 Results

The goal of this paper 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 using a variety of different estimation strategies. 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 Proposition 1 Results

The OLS results obtained from estimating equation (1) are reported in Table 2. The results in column 1 indicate that a reduction in employment protection rules leads to a significant increase in foreign affiliate sales. Given the log-log specification, a 1 percent decrease in

---

[22]See Table 2.A2.6 in Chapter 2 of the OECD Employment Outlook (2004) for additional details.

employment protection leads to a 0.2 percent increase in foreign affiliate sales. This is consistent with the first proposition which states that laxer employment protection rules decrease the costs of operating in the host country and thus increases 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, we would expect that the coefficient on export-platform FDI to be bounded by the coefficients on horizontal and vertical FDI, which is not the case in Table 2 but does occur in the IV and GMM results.

The coefficients on the control variables are 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. Also consistent with the theoretical predictions, horizontal FDI increases with wages but vertical FDI decreases with wages. The negative coefficient on the tax rate variable indicates that as corporate tax rates decline FDI increases. The results indicate that this negative relationship is larger for vertical FDI which is consistent with a race to the bottom in corporate tax rates. However, this finding is only significant at the ten percent level and is not robust to the other empirical specifications.

Next, equation (1) is estimated using the IV estimation strategy. Table 3 reports the first stage IV results for all four sales regressions.[23] As expected, the political ideology

---

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

variable has a positive impact on employment protection. A strong liberal government is more likely to implement labor market restrictions. Also consistent with expectations, 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. The F-stat on the excluded instruments is above 40 in all the regressions, which indicates relatively strong instruments.

The second stage IV results are reported in Table 4. Employment protection has a negative impact on total foreign affiliate sales, which is significant at the one percent level. In addition, the impact of employment protection on different types of affiliate sales is consistent with the predictions from section 2. In column 2, employment protection has a relatively small negative impact on sales to the local market (horizontal FDI). This is consistent with the prediction that horizontal FDI is not as sensitive to host country employment protection rules. U.S. multinationals want to access foreign markets and are thus relatively unresponsive to changes in employment restrictions 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 less strict, U.S. multinationals shift their affiliate production from other foreign countries in the region to that particular foreign host country.

In column 4, employment protection has a large, negative, and significant impact on affiliate sales back to the U.S. (vertical FDI). Specifically, a 1 percent decrease in employment protection leads to a 2.7 percent increase 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 decrease, due to less strict employment protection rules, the U.S. multinational relocates affiliate production to that relatively less expensive foreign host country. The results in Table 4 provide clear and convincing evidence that less restrictive employment protection legislation increases FDI.

Importantly, in all IV specifications, the exclusion restriction is satisfied. Specifically, the high Hansen J p-values in Table 4 demonstrate a failure to reject the null hypothesis that the instruments are uncorrelated with the error term in the second stage. This overidentification

22

test indicates that the instruments are valid and only affect affiliate sales through their impact on employment protection. There is no evidence that the instruments affect affiliate sales directly or through a channel other than the employment protection link.

For those unconvinced by the OLS or IV results, the Arellano-Bond GMM results obtained from estimating the dynamic panel model specified in equation (2) are reported in Table 5. The implied long-run elasticity on employment protection is reported under the estimated coefficients (Arellano and Bond 1991). Once again, 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 labor market restrictions on different types of FDI is consistent with expectations. Employment protection has an insignificant impact on horizontal FDI (column 2), a small negative impact on export platform FDI (column 3), and a large negative impact on vertical FDI (column 4). Specifically, a 1 percent decrease in employment protection leads to a 1.3% increase in foreign affiliate sales to the U.S. The lagged sales coefficients in all of the regression in Table 5 are positive and significant which indicates that affiliate 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 independent variables are in fact exogenous and are thus good instruments.[24]

Overall, the results in Tables 2-5 support the first proposition of the race to the bottom hypothesis. As employment protection legislation decreases, foreign direct investment increases. In addition, with more mobile types of FDI, 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 response of multinational firms to employment protection depends crucially on the type of FDI. Furthermore, despite very different estimation and identification strategies, these key results are remarkably robust across the OLS, IV, and GMM specifications.

---

[24]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 5 are not sensitive to reducing the number of lagged instruments used in the GMM estimation strategy.

5.2 Proposition 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 proposition of the race to the bottom hypothesis, I estimate the impact of employment protection rules in competing foreign countries on the host country's own employment protection rules.

Table 6 reports the OLS results from estimating equation 3. The dependent variable is host country employment protection and the key independent variable is $Competitor\_EP$ which is the average of employment protection in other foreign countries. As discussed previously, $Competitor\_EP$ is constructed as an unweighted average in column 1, a weighted average based on the inverse of distance in column 2, and a weighted average using affiliate sales in column 3. In all specifications, the coefficient on $Competitor\_EP$ is positive and significant at the one percent level. Specifically, in columns 2 and 3 a one percent reduction in the weighted average of other country's employment protection rules leads the host country to lower its own employment protection rules by 1% too. This supports proposition two of the race to the bottom hypothesis and indicates that a foreign country lowers their employment protection rules in response to other foreign countries lowering their labor standards. In other words, the results in Table 6 show that countries are competitively undercutting each other's labor standards.

Equation 3 is also estimated using an IV specification. Table 7 reports the results from this first stage IV regression. As discussed previously, $Competitor\_EP\_IV$ is constructed by first regressing employment protection on ideology and union. The fitted values from this regression are then averaged using the same three weighting methods used to construct $Competitor\_EP$. This instrument identifies variation in competitor's employment protection rules that is driven by country specific changes in ideology and unions. The results in Table 7 show that the instrument has a positive and significant impact on the analogously weighted $Competitor\_EP$. The first stage F-stat on the instrument is above 20 in all of these specifications, which indicates a relatively strong instrument.

The second stage IV results are reported in Table 8. The results indicate that competi-

tors' employment protection rules has a positive and significant impact on the host country's employment protection rules. This finding is robust to all three weighting measures. Interestingly, the coefficient on $Competitor\_EP$ is largest in the sales weighted regression which indicates employment protection rules are relatively more responsive to competitor's with more FDI. In addition, the coefficients on the control variables are significant and of the expected sign. Employment protection is increasing with GDP, population, tax rate, and ideology and is decreasing with trade costs, skill, investment costs, wages, and unions. Overall, these IV results provide strong support for the second proposition that countries are competitively undercutting each other's labor standards.

Finally, Table 9 reports the Arellano-Bond GMM results from estimating the dynamic panel model specified in equation 4. The implied long-run elasticity on the independent variable of interest, $Competitor\_EP$, is reported under the estimated coefficients. Once again, $Competitor\_EP$ has a positive and significant impact on the host country's employment protection rules. A 1 percent increase in $Competitor\_EP$, leads to between a 1.5 and a 3.1 percent increase in host country employment protection depending on which weighting method is used. In addition, the coefficients on lagged host country employment protection is positive and significant which indicates, as expected, that these labor market regulations 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.

Overall, the results in Tables 6-9 provide strong support for the second proposition of the race to the bottom hypothesis. The positive coefficients on $Competitor\_EP$ indicate that countries are competitively undercutting each other's labor standards. This key finding is robust to three different weighting schemes and to three different estimation strategies.

6 Extensions

The following extensions and robustness checks provide additional insight into the key relationships identified in this paper. Specifically, different components of employment protection rules are examined, the sample is restricted to European countries, and alternate

explanations for the observed relationships are discussed.

6.1 Employment Protection Components

The employment protection measure from the OECD is an average of firing and hiring costs. This section examines whether the predictions from the race to the bottom hypothesis holds for each of these components of employment protection. By definition these firing and hiring components have less variation than the composite index. However, by separating the two, it is possible to examine whether foreign affiliate sales respond differently to firing and hiring restrictions and whether the competitive undercutting of labor standards is more pronounced with one component relative to the other.

Table 10 reports the IV estimation results from regressing total affiliate sales on the firing and hiring components of employment protection. Column 1 replicates the earlier baseline results from Table 4, while columns 2 and 3 separately estimate the impact of firing and hiring restrictions on total affiliate sales. The results indicate that a one percent decrease in firing restrictions increases affiliate sales by 1.0% and a one percent decrease in restrictions on hiring temporary workers increases affiliate sales by 0.5%. Thus, multinationals respond to both types of labor market restrictions. However, the difference in the magnitude of the coefficients suggests that firing restrictions are a greater deterrent to FDI than restrictions on hiring temporary workers.

Table 11 reports the IV results from testing the second proposition of the race to the bottom hypothesis using the firing and hiring components. Column 1 reports the baseline distance weighted result from Table 8. Separate $Competitor\_EP$ variables and their analogous instruments are constructed using the firing and hiring components. The firing and hiring results are reported in columns 2 and 3 respectively. In column 2, $Competitor\_EP\_Firing$ has an insignificant impact on the host country's firing rules. This is because the first stage regression is weak with an F-stat of 0.04. However, in column 3, $Competitor\_EP\_Hiring$ has a significant positive impact on the host country's hiring rules and a first stage F-stat of 52. The difference between these results may indicate that the competitive undercutting is more of an issue with rules regarding hiring temporary workers. This is consistent with the fact that changes in restrictions on hiring temporary workers have been relatively more

26

common, especially in Europe. Or perhaps the difference in results is simply driven by the more technical issue regarding the power of the IV in the first stage.

6.2   European Sample

Given the concerns about pooling diverse countries into one sample (Blonigen et al. 2007), the sample is limited to just European countries in this robustness check. This addresses concerns that the response of FDI to employment protection or the spatial dependence of employment protection is sensitive to the sample used. For instance, maybe the results are driven by some unobserved factors associated with the fact that some countries in the sample join the EU while others do not. To address this concern, the sample is restricted to European countries only and the results are compared to the baseline findings.[25]

First, the implications of employment protection on FDI is examined. Specifically, Table 12 reports the IV results including just European countries. Like the baseline results in Table 4, employment protection has a negative and significant impact on total foreign affiliate sales. Furthermore, employment protection has an increasingly negative impact on horizontal, export-platform, and vertical FDI. Once again, the first stage F-stats and the overidentification tests indicate that the instruments are strong and exogenous. Thus, despite the reduced number of observations, the results including just European countries are consistent with the baseline results.

Next, the test of the second proposition of the race to the bottom hypothesis is estimated using just the European sample. Table 13 reports these IV results which are consistent with the baseline results from Table 8. The coefficient on $Competitor\_EP$ is positive and significant at the one percent level in all of the regressions. As competitor's labor standards are lowered, the foreign host country decreases their own employment protection rules in response. Overall, the results in Tables 12 and 13 indicate that the key findings of the paper are robust to restricting the sample to just European countries.

---

[25]There is not enough data to separately estimate the results using just the non-European countries.

6.3 Labor Market Flexibility

Could the results supporting the second proposition of the race to the bottom simply be an artifact of a more general shift towards greater labor market flexibility? While it is difficult to conclusively separate a general movement towards labor market flexibility from competitive undercutting, there are a number of components of this analysis that support this latter hypothesis.

First, there are a number of large important countries whose employment protection rules increased over the sample, including UK, France, Australia, Poland, Ireland, Hungary, and New Zealand (see Figure 4). While on average there has been a reduction in employment protection rules, there are many exceptions to this trend which are not consistent with a universal move towards greater labor market flexibility. Second, the timing of the changes in employment protection rules supports the race to the bottom hypothesis. As we see in Figure 5, the changes in country's rules are spread throughout the sample. A general movement towards greater labor market flexibility would generate a more coordinated reduction during a more concentrated time period. In addition, the empirical specification lags the independent variables which is consistent with country's responding to their competitors rather than a contemporaneous change in attitudes towards labor market restrictions.

Third, the empirical analysis includes decade fixed effects, which will control for trends in the data, including potential attitudes toward labor market restrictions. Fourth, the IV analysis specifically identifies variation in the surrounding employment protection variable that is driven by country specific changes in ideology and unions. Thus, a more general shift in labor market flexibility is eliminated from this empirical specification. Fifth, a general movement towards labor market flexibility may in fact be motivated by a desire to attract FDI as a way of stimulating growth and reducing domestic unemployment. Thus, these two hypothesis are not incompatible and if anything attracting foreign investment could be an underlying cause for a more general movement towards greater labor market flexibility, especially in light of the strong results supporting the first proposition of the race to the bottom hypothesis. Finally, the empirical results of this paper are consistent with anecdotal evidence in Europe, such as the Hoover case, that "social dumping" is occurring,

where countries lower social standards in an attempt to attract firms away from other countries. Thus, overall the results in this paper provide fairly compelling evidence that countries are undercutting each other's labor standards and these results are not simply due to a general shift towards more flexible labor markets.

7   Conclusion

There are two implicit assumptions in the race to the bottom hypothesis. The first is that multinationals will increase their foreign direct investment in response to reductions in employment protection in a foreign 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 are consistent with both proposition of the race to the bottom hypothesis. 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. These results are consistent across the OLS, IV, and GMM estimation strategies.

In addition, there is 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 or the estimation strategy, there is a significant positive impact on the host country's employment protection rules. Overall, this paper finds support for both proposition of the race to the bottom hypothesis. Multinationals invest in countries with lower labor standards and countries respond by competitively undercut one another's labor standards in order to attract FDI. At the very least, the results in this paper indicate that a race to the bottom in labor standards cannot be easily dismissed, as is often the case.

Whether a race to the bottom 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 these results are discouraging. Multinationals are investing in countries with the least restrictive regulatory standards and 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 competitively lowering employment restrictions is encouraging. Attracting foreign investment provides an incentive for countries to liberalize their labor markets. Regardless of ones perspective on labor market restrictions, this paper provides important new evidence that FDI does respond to regulatory standards and that countries are competitively lowering standards in response.

References

Acemoglu, Daron and Joshua D. Angrist. 2001. "Consequences of Employment Protection? The Case of the Americans with Disabilities Act." *Journal of Political Economy*, 109(5): 915-957.

Angrist, Joshua D. and Jorn-Steffen Pischke. 2009. "Mostly Harmless Econometrics: An Empiricist's Companion." Princeton University Press.

Arellano, Manuel and Stephen Bond. 1991. "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations." *The Review of Economic Studies*, 58(2): 277-297.

Azemar, Celine and Rodolphe Desbordes. 2010. "Short-Run Strategies for Attracting Foreign Direct Investment." *The World Economy*, 33(7): 928-957.

Barnard, Catherine. 1999. "Social Dumping Revisited: Some Lessons from Delaware?" mimeo, ECSA's Sixth Biennial International Conference, June 2-5 1999, Pittsburgh, USA.

Barro, Robert J. and Jong-Wha Lee. 2010. "A New Data Set of Educational Attainment in the World, 1950-2010." *NBER Working Paper No. 15902*.

Benassy-Quere, Agnes, Maylis Coupet, and Thierry Mayer. 2007. "Institutional Determinants of Foreign Direct Investment." *The World Economy*, 30(5): 764-782.

Besley, Timothy and Robin Burgess. 2004. "Can Labor Regulation Hinder Economic Performance? Evidence from India." *The Quarterly Journal of Economics*, 119(1): 91-134.

Bhawati, Jagdish N. 2007. "In Defense of Globalization." Oxford University Press.

Blonigen, Bruce A., Ronald B. Davies, Glen R. Waddell, and Helen T. Naughton. 2007. "FDI in Space: Spatial Autoregressive Relationships in Foreign Direct Investment." *European Economic Review*, 51: 1303-1325.

Blundell, Richard, and Stephen Bond. 1998. "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models." *Journal of Econometrics*, 87(1): 115-143.

Boeri, Tito and Juan F. Jimeno. 2005. "The Effects of Employment Protection: Learning from Variable Enforcement." *European Economic Review*, 49(8): 2057-2077.

Brainard, S. Lael. 1997. "An Empirical Assessment of the Proximity-Concentration Trade-Off Between Multinational Sales and Trade." *American Economic Review*, 87(4): 520-544.

Brown, Drusilla K., Alan V. Deardorff, and Robert M. Stern. 1996. "International Labor Standards and Trade: A Theoretical Analysis." in Jagdish N. Bhagwati and Robert E. Hudec, eds., *Fair Trade and Harmonization: Prerequisites for Free Trade?*, MIT Press, 227-280.

Brown, Drusilla K., Alan V. Deardorff, and Robert M. Stern. 2011. "Labor Standards and Human Rights: Implications for International Trade and Investment." mimeo.

Carr, David L., James R. Markusen, and Keith E. Maskus. 2001. "Estimating the Knowledge-Capital Model of the Multinational Enterprise." *American Economic Review*, 91(3): 693-708.

Cary, William L. 1974. "Federalism and Corporate Law: Reflections upon Delaware." *The Yale Law Journal*, Vol. 83, No. 4: 663-705.

Dewit, Gerda, Holger Gorg, Catia Montagna. 2009. "Should I Stay or Should I Go? Foreign Direct Investment, Employment Protection and Domestic Anchorage." *Review of World Economics*, 145: 93-110.

Di Tella, Rafael and Robert MacCulloch. 2005. "The Consequences of Labor Market Flexibility: Panel Evidence Based on Survey Data." *European Economic Review*, 49(5): 1225-1259.

Drezner, Daniel W. 2006. "The Race to the Bottom Hypothesis: An Empirical and Theoretical Review." The Fletcher School, Tufts University, mimeo.

Ekholm, Karolina, Rikard Forslid, and James R. Markusen. 2007. "Export-Platform Foreign Direct Investment" *Journal of the European Economic Association*, 5(4): 776-795.

Gorg, Holger. 2005. "Fancy a Stay at the 'Hotel California'? The Role of Easy Entry and Exit for FDI." *Kyklos*, 58(4): 519-535.

Helpman, Elhanan. 1984. "A Simple Theory of International Trade with Multinational Corporations." *Journal of Political Economy*, 92(3): 451-471.

Henisz, Witold J. 2002. "The Institutional Environment for Infrastructure Investment." *Industrial and Corporate Change*, 11(2): 355-389.

Holtz-Eakin, Douglas, Whitney Newey, and Harvey S. Rosen. 1988. "Estimating Vector Autoregressions with Panel Data." *Econometrica*, 56: 1371-1395.

Javorcik, Beata Smarzynska and Mariana Spatareanu. 2005. "Do Foreign Investors Care about Labor Market Regulations?" *Review of World Economics*, 141(3): 375-403.

Keller, Wolfgang and Arik Levinson. 2002. "Pollution Abatement Costs and Foreign Direct Investment Inflows to U.S. States." *The Review of Economics and Statistics*, 84(4): 691-703.

Lazear, Edward P. 1990. "Job Security Provisions and Employment." *The Quarterly Journal of Economics*, 105(3): 699-726.

Markusen, James R. 1984. "Multinationals, Multiplant Economies, and the Gains from Trade." *Journal of International Economics*, 16(3-4): 205-226.

Markusen, James R. and Keith E. Maskus. 2002. "Discriminating Among Alternative Theories of the Multinational Enterprise." *Review of International Economics*, 10(4): 694-707.

Martin, Will and Keith E. Maskus. 2001. "Core Labor Standards and Competitiveness: Implications for Global Trade Policy." *Review of International Economics*, 9(2): 317-328.

Maskus, Keith E. 1997. "Should Core Labor Standards Be Imposed Through International Trade Policy." Policy Research Working Paper, The World Bank, Development Research Group.

Organisation for Economic Cooperation and Development. 2000. "International Trade and Core Labour Standards." Paris.

Organisation for Economic Cooperation and Development. 2004. "OECD Employment Outlook." Paris.

Rodrik, Dani. 1996. "Labor Standards in International Trade: Do They Matter and What Do We Do About Them?" In R.Z. Lawrence, D. Rodrik, & J. Whalley (Eds.) *Emerging Agenda for Global Trade: High Stakes for Developing Countries,* Overseas Development Council, Washington DC, Johns Hopkins University Press.

Roodman, David. 2006. "How to Do xtabond2: An Introduction to 'Difference' and 'System' GMM in Stata." Center for Global Development Working Paper Number 103.

U.S. Census. 2010. "U.S. Goods Trade: Imports & Exports by Related-Parties 2009." *U.S. Census Bureau News.* U.S. Department of Commerce.

Yeaple, Stephen R. 2003. "The Complex Integration Strategies of Multinationals and Cross Country Dependencies in the Structure of Foreign Direct Investment." *Journal of International Economics*, 60(2): 293-314.

FIGURE 1

U.S. Foreign Direct Investment and Employment Protection in OECD
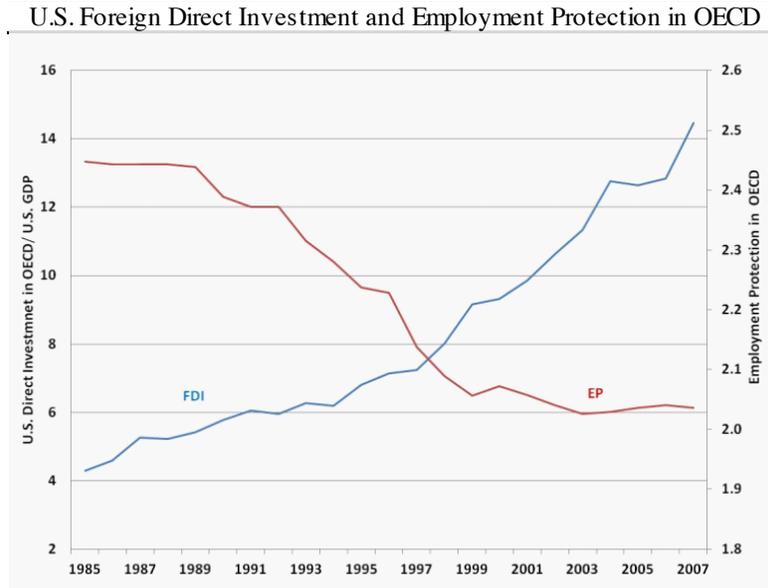
TABLE 1

Summary Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Total Affiliate Sales ($m)	556	71,364	96,918	1,165	586,295
Employment Protection	560	2.2	1.0	0.6	4.2
GDP ($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	33.4	9.7	8.5	56.0
Investment Costs	590	0.018	0.003	0.012	0.027
Wages (Index)	570	80.5	24.0	0.0	121.8
Union	558	35.2	20.0	6.6	83.9
Ideology	590	2.1	0.5	1.2	3.0

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

FIGURE 2

Employment Protection and Affiliate Sales (Annual Average)

FIGURE 3

Employment Protection and Affiliate Sales (Country Average)

FIGURE 4

Horizontal FDI (Country Average)

Export-Platform FDI (Country Average)

Vertical FDI (Country Average)

FIGURE 5

Country Employment Protection Over Time

Countries with Largest Declines in Employment Protection

Countries with Largest Increases in Employment Protection
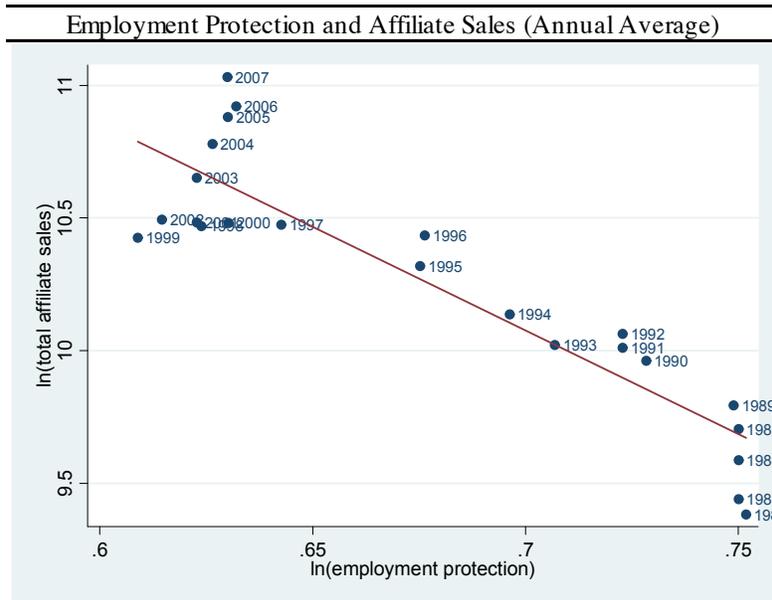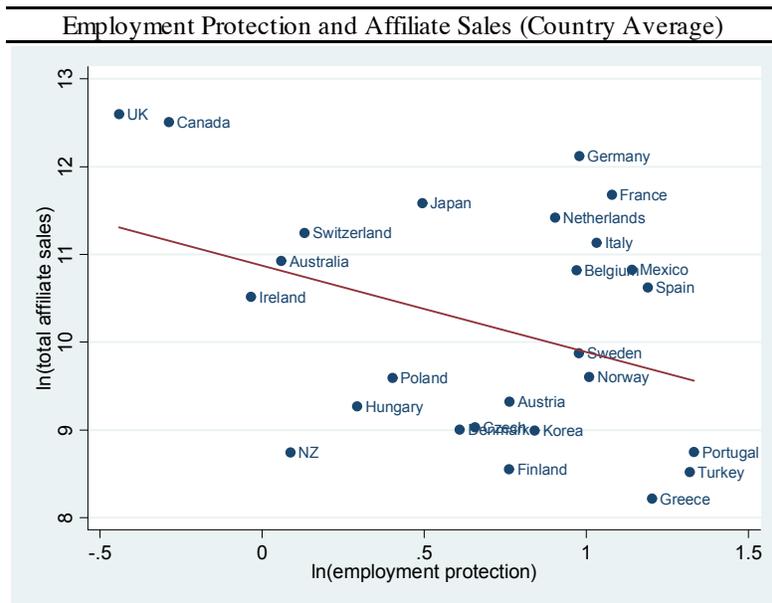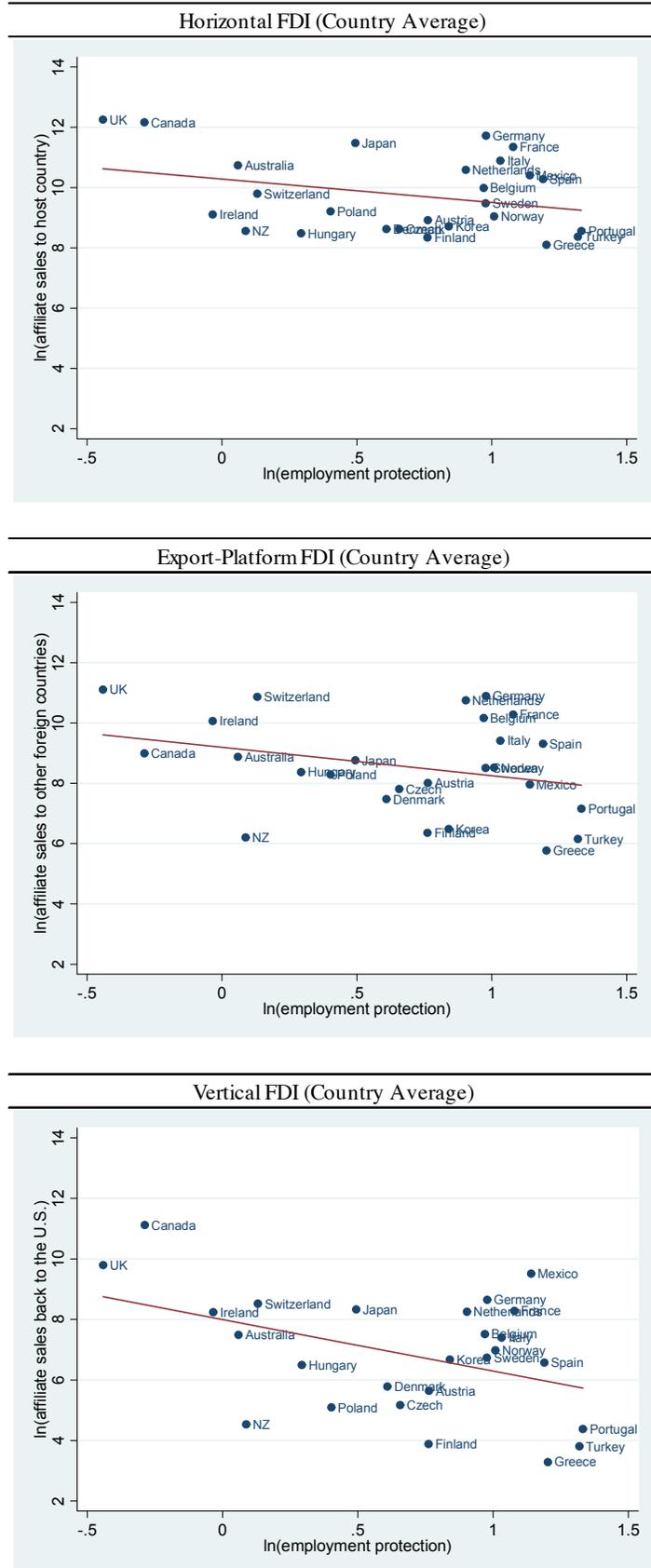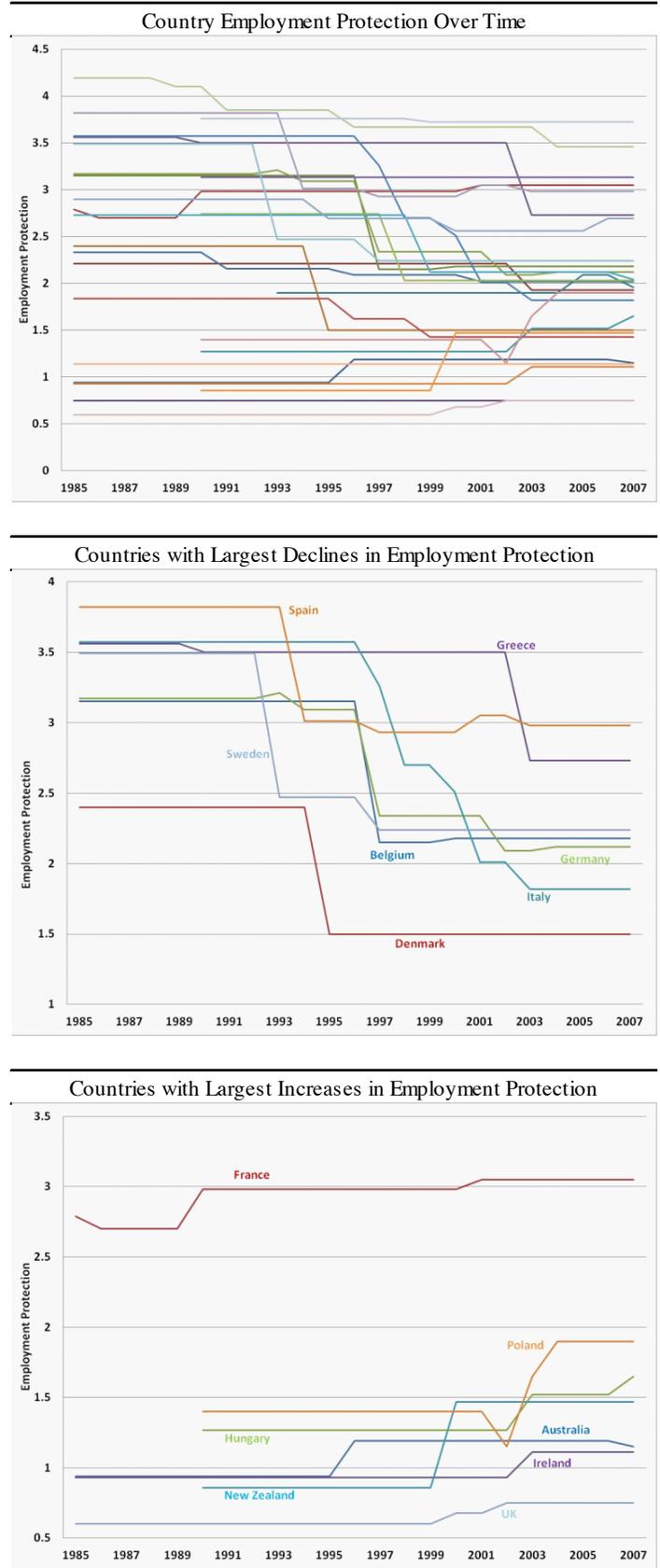
TABLE 2
Foreign Affiliate Sales by Destination (OLS)

	Total Sales	Local Sales	Foreign Sales	U.S. Sales
Employment Protection $_{t-1}$	-0.175***	-0.177***	-0.096	-0.670***
	[0.056]	[0.050]	[0.134]	[0.222]
GDP $_{t-1}$	1.625***	1.950***	-0.046	0.768
	[0.127]	[0.134]	[0.358]	[0.724]
Population $_{t-1}$	-0.676*	-0.575	1.089	-0.335
	[0.377]	[0.368]	[0.883]	[1.393]
Trade Costs $_{t-1}$	-0.779***	-0.397***	-2.337***	-2.614***
	[0.118]	[0.116]	[0.288]	[0.497]
Skill $_{t-1}$	-0.914***	-0.587***	-2.047***	-2.749***
	[0.132]	[0.116]	[0.368]	[0.714]
Tax Rate $_{t-1}$	-0.113*	-0.088*	-0.103	-0.467*
	[0.061]	[0.052]	[0.138]	[0.249]
Investment Costs $_{t-1}$	-0.388**	-0.330**	-1.865***	-3.721***
	[0.162]	[0.163]	[0.615]	[1.140]
Wages $_{t-1}$	0.116***	0.195***	0.021	-0.605***
	[0.044]	[0.042]	[0.110]	[0.207]
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	485	467	477	459
R-squared	0.990	0.991	0.963	0.926

Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All variables are in natural logs. 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
First Stage IV Results (Dependent Variable: Employment Protection $_{t-1}$)

	Total Sales	Local Sales	Foreign Sales	U.S. Sales
Ideology $_{t-1}$	0.066***	0.063***	0.066***	0.063***
	[0.022]	[0.022]	[0.022]	[0.022]
Union $_{t-1}$	-0.422***	-0.414***	-0.422***	-0.415***
	[0.044]	[0.044]	[0.045]	[0.045]
GDP $_{t-1}$	0.453***	0.436***	0.467***	0.450***
	[0.065]	[0.065]	[0.067]	[0.068]
Population $_{t-1}$	2.090***	2.042***	2.065***	2.014***
	[0.232]	[0.231]	[0.233]	[0.233]
Trade Costs $_{t-1}$	-0.166***	-0.162***	-0.165***	-0.160**
	[0.061]	[0.062]	[0.062]	[0.064]
Skill $_{t-1}$	-0.190**	-0.201**	-0.190**	-0.201**
	[0.085]	[0.084]	[0.085]	[0.084]
Tax Rate $_{t-1}$	0.284***	0.271***	0.293***	0.280***
	[0.035]	[0.036]	[0.037]	[0.038]
Investment Costs $_{t-1}$	-0.056	-0.101	-0.049	-0.095
	[0.105]	[0.108]	[0.106]	[0.109]
Wages $_{t-1}$	-0.087***	-0.083***	-0.084***	-0.080***
	[0.027]	[0.027]	[0.028]	[0.028]
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	477	459	469	451
R-squared	0.971	0.973	0.971	0.972
F-Stat, Instruments	52	50	51	48

Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All variables are in natural logs. 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 4

Impact of Employment Protection on Foreign Affiliate Sales by Destination (IV)

	Total Sales	Local Sales	Foreign Sales	U.S. Sales
Employment Protection $_{t-1}$	-0.631***	-0.444***	-1.393***	-2.745***
	[0.137]	[0.133]	[0.459]	[1.059]
GDP $_{t-1}$	1.921***	2.125***	0.779**	1.900***
	[0.141]	[0.153]	[0.316]	[0.486]
Population $_{t-1}$	0.031	-0.187	2.868**	2.517
	[0.443]	[0.442]	[1.299]	[2.642]
Trade Costs $_{t-1}$	-0.823***	-0.414***	-2.418***	-2.802***
	[0.119]	[0.117]	[0.320]	[0.596]
Skill $_{t-1}$	-1.087***	-0.686***	-2.605***	-3.764***
	[0.149]	[0.119]	[0.477]	[1.022]
Tax Rate $_{t-1}$	-0.015	-0.034	0.175	-0.065
	[0.059]	[0.053]	[0.156]	[0.263]
Investment Costs $_{t-1}$	-0.343**	-0.327**	-1.539***	-2.994***
	[0.163]	[0.158]	[0.560]	[0.989]
Wages $_{t-1}$	0.034	0.138**	-0.069	-0.433*
	[0.061]	[0.064]	[0.137]	[0.259]
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	477	459	469	451
R-squared	0.989	0.991	0.954	0.916
Hansen J p-value	0.26	0.16	0.86	0.15

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. The dependent variable is U.S. foreign affiliates sales in period t. '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 5

Impact of Employment Protection on Foreign Affiliate Sales by Destination (Arellano - Bond GMM)

	Total Sales	Local Sales	Foreign Sales	U.S. Sales
Employment Protection $_{t-1}$	-0.097*	-0.070	-0.184**	-0.570***
	[0.051]	[0.071]	[0.083]	[0.188]
GDP $_{t-1}$	0.337**	0.558***	0.372*	1.307**
	[0.159]	[0.170]	[0.200]	[0.539]
Population $_{t-1}$	0.100	-0.189	0.479	-1.054
	[0.318]	[0.422]	[0.503]	[1.156]
Trade Costs $_{t-1}$	-0.221*	-0.350***	-0.550***	-0.655**
	[0.126]	[0.111]	[0.187]	[0.318]
Skill $_{t-1}$	-0.376***	-0.469***	-0.551***	-0.860**
	[0.098]	[0.119]	[0.197]	[0.402]
Tax Rate $_{t-1}$	-0.005	-0.066	0.028	-0.100
	[0.053]	[0.051]	[0.081]	[0.177]
Investment Costs $_{t-1}$	0.137	0.087	0.133	-0.755
	[0.134]	[0.136]	[0.208]	[0.609]
Wages $_{t-1}$	-0.014	0.047	0.135*	-0.069
	[0.039]	[0.062]	[0.070]	[0.217]
Total sales $_{t-1}$	0.809***			
	[0.035]			
Local sales $_{t-1}$		0.683***		
		[0.053]		
Foreign sales $_{t-1}$			0.664***	
			[0.042]	
U.S. sales $_{t-1}$				0.567***
				[0.119]
Year FE	Yes	Yes	Yes	Yes
Observations	456	415	432	395
Hansen J p-value	1	1	1	1
AR2 p-value	0.549	0.086	0.188	0.991
Implied Long-Run Elasticity:				
Employment Protection $_{t-1}$	-0.511*	-0.222	-0.547*	-1.319**
	[0.296]	[0.226]	[0.267]	[0.617]

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. 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

Impact of Competitor Employment Protection on Host Employment Protection (OLS)

	Unweighted Average	Distance Weighted	Sales Weighted
Competitor EP $_{t-1}$	1.806***	1.036***	1.088***
	[0.193]	[0.122]	[0.199]
GDP $_{t-1}$	0.349***	0.284***	0.318***
	[0.073]	[0.072]	[0.078]
Population $_{t-1}$	1.689***	1.373***	1.239***
	[0.242]	[0.232]	[0.235]
Trade Costs $_{t-1}$	-0.088	-0.051	0.024
	[0.066]	[0.065]	[0.068]
Skill $_{t-1}$	-0.448***	-0.480***	-0.579***
	[0.087]	[0.085]	[0.092]
Tax Rate $_{t-1}$	0.284***	0.249***	0.277***
	[0.040]	[0.040]	[0.045]
Investment Costs $_{t-1}$	0.005	-0.015	0.004
	[0.120]	[0.122]	[0.126]
Wages $_{t-1}$	-0.083***	-0.077**	-0.060*
	[0.031]	[0.031]	[0.032]
Ideology $_{t-1}$	0.049**	0.036*	0.024
	[0.021]	[0.021]	[0.022]
Union $_{t-1}$	-0.415***	-0.384***	-0.396***
	[0.046]	[0.045]	[0.050]
Country FE	Yes	Yes	Yes
Decade FE	Yes	Yes	Yes
Observations	489	489	489
R-squared	0.962	0.961	0.959

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. 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 the inverse of distance, and a weighted average using affiliate sales.

TABLE 7
First Stage IV Results (Dependent Variable: Competitor EP $_{t-1}$)

	Unweighted Average	Distance Weighted	Sales Weighted
Competitor EP IV $_{t-1}$	0.836***	0.908***	1.034***
	[0.117]	[0.185]	[0.177]
GDP $_{t-1}$	-0.054***	-0.017	-0.045**
	[0.020]	[0.037]	[0.019]
Population $_{t-1}$	-0.423***	-0.443***	-0.266***
	[0.054]	[0.096]	[0.052]
Trade Costs $_{t-1}$	0.112***	0.161***	0.083***
	[0.014]	[0.023]	[0.014]
Skill $_{t-1}$	-0.073***	-0.089***	0.018
	[0.023]	[0.031]	[0.019]
Tax Rate $_{t-1}$	-0.024***	-0.014	-0.038***
	[0.008]	[0.014]	[0.008]
Investment Costs $_{t-1}$	0.054*	0.127***	0.099***
	[0.029]	[0.047]	[0.032]
Wages $_{t-1}$	0.018**	0.022*	0.010*
	[0.007]	[0.012]	[0.006]
Ideology $_{t-1}$	-0.019***	-0.024***	-0.009*
	[0.004]	[0.007]	[0.005]
Union $_{t-1}$	0.031***	0.029*	0.033***
	[0.009]	[0.016]	[0.009]
Country FE	Yes	Yes	Yes
Decade FE	Yes	Yes	Yes
Observations	489	489	489
R-squared	0.920	0.888	0.913
F-Stat, Instruments	51	24	34

Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All variables are in natural logs. The dependent variable is the average of employment protection in other foreign countries. The Competitor EP instrument is constructed by first regressing employment protection on ideology and union and capturing the fitted values. Then these fitted values are averaged using the three different methods used to construct Competitor EP.

TABLE 8
Impact of Competitor Employment Protection on Host Employment Protection (IV)

	Unweighted Average	Distance Weighted	Sales Weighted
Competitor EP $_{t-1}$	1.769**	2.119***	3.215***
	[0.763]	[0.600]	[0.768]
GDP $_{t-1}$	0.348***	0.284***	0.386***
	[0.077]	[0.076]	[0.085]
Population $_{t-1}$	1.673***	1.847***	1.863***
	[0.401]	[0.373]	[0.335]
Trade Costs $_{t-1}$	-0.084	-0.240*	-0.186*
	[0.106]	[0.123]	[0.099]
Skill $_{t-1}$	-0.450***	-0.394***	-0.613***
	[0.094]	[0.096]	[0.098]
Tax Rate $_{t-1}$	0.283***	0.267***	0.367***
	[0.043]	[0.038]	[0.055]
Investment Costs $_{t-1}$	0.008	-0.183	-0.271*
	[0.120]	[0.150]	[0.159]
Wages $_{t-1}$	-0.083***	-0.108***	-0.087**
	[0.032]	[0.036]	[0.035]
Ideology $_{t-1}$	0.048*	0.059**	0.044*
	[0.025]	[0.026]	[0.025]
Union $_{t-1}$	-0.413***	-0.408***	-0.463***
	[0.050]	[0.043]	[0.056]
Country FE	Yes	Yes	Yes
Decade FE	Yes	Yes	Yes
Observations	489	489	489
R-squared	0.962	0.956	0.949

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. 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 the inverse of distance, and a weighted average using affiliate sales.

TABLE 9
Impact of Competitor Employment Protection on Host Employment Protection (GMM)

	Unweighted Average	Distance Weighted	Sales Weighted
Competitor EP $_{t-1}$	0.445***	0.235***	0.181*
	[0.122]	[0.078]	[0.098]
GDP $_{t-1}$	0.058	0.039	0.042
	[0.041]	[0.041]	[0.041]
Population $_{t-1}$	0.196	0.104	0.035
	[0.133]	[0.109]	[0.118]
Trade Costs $_{t-1}$	-0.067*	-0.054	-0.033
	[0.038]	[0.036]	[0.035]
Skill $_{t-1}$	-0.115**	-0.120***	-0.137***
	[0.046]	[0.041]	[0.046]
Tax Rate $_{t-1}$	0.052**	0.042*	0.043
	[0.023]	[0.024]	[0.025]
Investment Costs $_{t-1}$	-0.010	-0.011	-0.002
	[0.067]	[0.068]	[0.071]
Wages $_{t-1}$	-0.028	-0.026	-0.021
	[0.017]	[0.017]	[0.017]
Ideology $_{t-1}$	-0.068***	-0.060***	-0.055**
	[0.020]	[0.020]	[0.020]
Union $_{t-1}$	0.002	-0.002	-0.006
	[0.012]	[0.012]	[0.013]
Host EP $_{t-1}$	0.856***	0.862***	0.876***
	[0.025]	[0.026]	[0.023]
Decade FE	Yes	Yes	Yes
Observations	463	463	463
Hansen J p-value	1	1	1
AR2 p-value	0.274	0.460	0.289
Implied Long-Run Elasticity:			
Competitor EP $_{t-1}$	3.090***	1.698***	1.463
	[0.837]	[0.555]	[0.872]

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. 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 the inverse of distance, and a weighted average using affiliate sales.

TABLE 10

Impact of Different Types of Employment Protection on Foreign Affiliate Sales (IV)

	Total Sales		
EP Total $_{t-1}$	-0.631***		
	[0.137]		
EP Firing $_{t-1}$		-0.977***	
		[0.216]	
EP Hiring $_{t-1}$			-0.470***
			[0.132]
GDP $_{t-1}$	1.921***	1.632***	2.258***
	[0.141]	[0.121]	[0.253]
Population $_{t-1}$	0.031	-0.407	-0.078
	[0.443]	[0.416]	[0.515]
Trade Costs $_{t-1}$	-0.823***	-0.493***	-0.838***
	[0.119]	[0.128]	[0.131]
Skill $_{t-1}$	-1.087***	-1.126***	-1.072***
	[0.149]	[0.167]	[0.172]
Tax Rate $_{t-1}$	-0.015	-0.185***	-0.001
	[0.059]	[0.058]	[0.074]
Investment Costs $_{t-1}$	-0.343**	0.089	-0.493***
	[0.163]	[0.190]	[0.182]
Wages $_{t-1}$	0.034	0.049	0.063
	[0.061]	[0.070]	[0.064]
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	477	477	477
R-squared	0.989	0.989	0.985
F-Stat, Instruments	52	54	13
Hansen J p-value	0.26	0.88	0.07

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. The dependent variable is total foreign affiliate sales. 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
Impact of Different Types of Competitor EP on Host EP (IV)

	Host EP Total	Host EP Firing	Host EP Hiring
Competitor EP Total $_{t-1}$	2.119***		
	[0.600]		
Competitor EP Firing $_{t-1}$		16.990	
		[85.986]	
Competitor EP Hiring $_{t-1}$			2.747***
			[0.532]
GDP $_{t-1}$	0.284***	-0.267	1.162***
	[0.076]	[1.262]	[0.217]
Population $_{t-1}$	1.847***	1.387	2.129***
	[0.373]	[2.249]	[0.774]
Trade Costs $_{t-1}$	-0.240*	-0.062	-0.643**
	[0.123]	[1.510]	[0.253]
Skill $_{t-1}$	-0.394***	-0.837	-0.461*
	[0.096]	[3.636]	[0.266]
Tax Rate $_{t-1}$	0.267***	-0.106	0.411***
	[0.038]	[0.637]	[0.103]
Investment Costs $_{t-1}$	-0.183	0.472	-0.619*
	[0.150]	[0.903]	[0.336]
Wages $_{t-1}$	-0.108***	0.582	-0.229**
	[0.036]	[3.225]	[0.107]
Ideology $_{t-1}$	0.059**	0.061	0.099*
	[0.026]	[0.157]	[0.058]
Union $_{t-1}$	-0.408***	-0.140	-0.522***
	[0.043]	[0.779]	[0.113]
Country FE	Yes	Yes	Yes
Decade FE	Yes	Yes	Yes
Observations	489	489	489
R-squared	0.956	0.261	0.919
F-Stat, Instruments	24.12	0.04	52.30

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logs. Different regressions include different measures of competitor employment protection. The competitor's employment protection variable is the weighted average, using the inverse of distance, of employment protection in other foreign countries. Total competitor 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 12

Impact of Employment Protection on Foreign Affiliate Sales by Destination (IV), European Sample

	Total Sales	Local Sales	Foreign Sales	U.S. Sales
Employment Protection $_{t-1}$	-0.336***	-0.060	-1.568***	-2.377**
	[0.120]	[0.109]	[0.447]	[1.074]
GDP $_{t-1}$	1.735***	2.038***	0.848**	1.222**
	[0.140]	[0.140]	[0.347]	[0.596]
Population $_{t-1}$	1.286**	0.739	3.294*	4.180
	[0.642]	[0.538]	[1.844]	[3.459]
Trade Costs $_{t-1}$	-0.705***	-0.148	-2.451***	-3.287***
	[0.130]	[0.123]	[0.393]	[0.810]
Skill $_{t-1}$	-1.159***	-0.662***	-2.853***	-4.278***
	[0.147]	[0.114]	[0.521]	[1.120]
Tax Rate $_{t-1}$	-0.036	-0.066	0.212	-0.120
	[0.051]	[0.043]	[0.149]	[0.248]
Investment Costs $_{t-1}$	-0.508***	-0.513***	-1.584***	-2.836***
	[0.173]	[0.152]	[0.615]	[0.989]
Wages $_{t-1}$	-0.098	0.010	-0.496***	-0.915**
	[0.079]	[0.075]	[0.174]	[0.358]
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	376	361	368	353
R-squared	0.991	0.993	0.959	0.9
F-Stat, Instruments	43	41	42	40
Hansen J p-value	0.34	0.07	0.45	0.51

Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All variables are in natural logs. The dependent variable is U.S. foreign affiliates sales. The sample is restricted to European countries. '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 13

Impact of Competitor Employment Protection on Host Employment Protection (IV), European Sample

	Unweighted Average	Distance Weighted	Sales Weighted
Competitor EP $_{t-1}$	2.069***	1.274***	3.960***
	[0.801]	[0.491]	[1.015]
GDP $_{t-1}$	0.365***	0.273***	0.422***
	[0.083]	[0.090]	[0.104]
Population $_{t-1}$	1.638**	1.682**	2.168***
	[0.720]	[0.718]	[0.742]
Trade Costs $_{t-1}$	-0.220*	-0.178*	-0.341***
	[0.114]	[0.100]	[0.124]
Skill $_{t-1}$	-0.442***	-0.474***	-0.663***
	[0.095]	[0.090]	[0.123]
Tax Rate $_{t-1}$	0.274***	0.254***	0.386***
	[0.046]	[0.042]	[0.068]
Investment Costs $_{t-1}$	-0.045	-0.082	-0.386*
	[0.152]	[0.158]	[0.222]
Wages $_{t-1}$	-0.139***	-0.152***	-0.150***
	[0.040]	[0.038]	[0.048]
Ideology $_{t-1}$	0.035	0.029	0.036
	[0.028]	[0.027]	[0.033]
Union $_{t-1}$	-0.438***	-0.447***	-0.510***
	[0.054]	[0.054]	[0.069]
Country FE	Yes	Yes	Yes
Decade FE	Yes	Yes	Yes
Observations	388	388	388
R-squared	0.957	0.956	0.931
F Stat, Instruments	46	40	24

Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All variables are in natural logs. The dependent variable is employment protection in the host country. The sample is restricted to European countries. 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 the inverse of distance, and a weighted average using affiliate sales.