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Do Multinationals Influence Labor Standards?
A Close Look at US Outward FDI

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Abstract

This paper investigates the effects of multinational corporations on labor standards. We argue that the previous literature has failed to distinguish the different motives that encourage firms to become multinational. Therefore, we build a stylized model of segmented labor markets with equilibrium unemployment where parts of the labor force are willing to accept reductions in their labor standards to attract job-creating horizontal foreign direct investment. By disentangling US FDI data for 34 advanced host countries throughout the period 1997 to 2002 into vertically and horizontally motivated FDI, we show that this disaggregation provides much more significant results. Concretely, we find a statistically significant and economically considerable negative impact of horizontal US FDI on labor right practices in industrialized host countries by using a static OLS model and qualitatively similar results with dynamic GMM estimation.

Our results do not imply that this effect leads to a decrease in welfare in the host economy but that in the welfare optimization process employment, income and job-quality serve as substitutes with an elasticity positively depending on equilibrium unemployment.

Keywords: Multinationals, FDI, Labor Rights, Labor Markets
JEL classification: F2, J81, C23, M14

1. Introduction

While the relevance of multinational corporations (MNCs) in a globalized economy is a stylized fact, their impact is lively discussed. Some see them as unscrupulous profit-maximizers exploiting cheap labor while the applied economic literature has rather found positive impacts of MNCs' activities on factors such as wages and employment (cf. e.g. Lipsey, 2002, for an overview).

Beyond doubt, the main objective of a MNC is the realization of profits and since labor standards entail costs, MNCs will try to keep them low. It should be noted though that this popular argument does not address the issue in how far multinational corporations are different from domestic firms. On the other hand, especially the efficiency wage literature highlights that it does not contradict the profit-maximization strategy of the firm to offer incentives that should attract the most productive workers and to tie them to the company. This is especially true for MNCs since they are highly interested in avoiding labor market churning and related diffusion of their proprietary asset. Given that multinationals operate on global markets and are increasingly subject to monitoring by the public, they may also be more sensitive to potential damage of their reputation caused by weak labor standards.

So far, the applied economic literature has failed to find a clear confirmation of any of these two opposite effects. In a series of papers, Neumeyer and de Soysa (2005, 2006 and 2007), for example, focused on the impact of foreign direct investment (FDI) on different aspects of labor right issues. In the first study on FDI and various measures of child labor, they find that countries that are more open to trade and FDI have a lower incidence of child labor. In their next study, they test the effect of globalization on a specific labor right, which forms part of what are commonly regarded as core or fundamental labor standards. Employing a new measure of free association and collective bargaining rights, they find that countries that are more open to trade have fewer rights violations than more closed ones in both global as well as developing country sub-samples. It is interesting that they fail to find any evidence of positive effects of FDI on labor rights and conclude that the process of globalization might not be beneficial for outcome-related labor standards, but it is likely to promote the process-related standard of a right to free association and collective bargaining. Similar findings are echoed in

their most recent study on globalization, women's rights and forced labor. Putting to test the competing claims on pro- and anti-globalization, they find that countries that are more open to trade provide better economic rights to women and have a lower incidence of forced labor. But they also find that the extent of an economy's penetration by FDI has no statistically significant impact either on women's rights or forced labor. Focusing on the effect on child labor, the results of Davies and Voy (2009) suggest that FDI and trade do not have any other impact on lowering child labor than through the increase in income they generate.

Similar concerns apply to the investigation of Mosley and Uno (2007) who address the issue with a new measure of labor rights capturing 37 aspects of *de facto* and *de jure* aspects of labor rights that we will also use in the present study. For a panel of 90 developing countries, they find support for "climb to the top" argument suggesting that FDI inflows are positively and statistically significant related to the rights of workers. However, as they use pooled OLS estimation (with panel-corrected standard errors), the results are likely to seriously suffer from an omitted variable bias and further problems (cf. Wilson and Butler, 2007).

In another study covering 132 countries, Busse and Braun (2003) reverse the identification channel and look where MNCs are investing. They find that MNCs are highly sensitive with respect to the location and prefer countries with lower levels of child labor. However, they also show that a higher level of child labor leads to a comparative advantage in labor-intensive goods which probably attracts labor-intensive FDI in these sectors. Busse et al. (2011) study the impact of fundamental labor rights using bilateral FDI flows from OECD countries to 82 developing countries. Their results indicate that investments by OECD firms are significantly higher in countries that adhere to labor rights, thereby refuting the hypothesis that repression of these rights fosters FDI.

In some studies on FDI and labor rights, attempts were made to go beyond aggregated analysis. Moran (2002) already stressed that distinctions should be made between low-wage, unskilled industries (such as apparel or footwear) and high-skilled industries (e.g. electronics, automobile sector). Blanton and Blanton (2009) find that the correlation between labor rights and FDI varies considerably across different sectors.

The main argument of our paper builds on this consideration. We argue that previous studies did not find a robust statistically significant impact of multinational corporations' activities on labor standards because they did not account for the differences in various forms of multinational activities. The recent literature on multinational firms has highlighted the complex nature of multinational profit-maximization (cf. e.g. Yeaple, 2003; Bergstrand and Egger, 2004; Davies, 2005; Ekholm et al., 2007; Baltagi et al., 2007; Baltagi et al., 2008; Badinger and Egger, 2010). Most importantly in our context, horizontal and vertical FDI of multinational firms is driven by different rationales: Vertical multinationals try to globally organize commodity chains according to absolute cost advantages (cf. Helpman, 1984; Feenstra and Hanson, 1996; Jones, 2000) while horizontal MNCs try to substitute trade costs by producing the same good in the host country as in the home country (cf. Markusen, 1984; Smith, 1987; Horstmann and Markusen, 1992; Brainard, 1997; Markusen and Venables, 1998, 2000). They will thus require different production factors and have divergent influences on labor markets and working conditions in the host economy. In section 2 we therefore derive a stylized model of an industrialized-country labor market in an open economy that corresponds to the main facts of economic reality and show that horizontally integrating MNCs would have a negative impact on labor standards because they are in a different bargaining position than vertically integrating firms due to their different organization of the production process and a different use in production factors.

In section 3 we introduce the data and methodology, especially our approach to disentangle FDI and how we measure labor rights. We use outward investment stock data of the worlds largest foreign direct investor, the United States, to measure the further.[1] The focus on only one investing economy has the advantage that the impact of FDI on labor rights may depend on the institutions in the home economy (cf. Locke et al., 2007; Harrison and Scorse, 2010; Busse et al., 2011). For the latter we focus on *de facto* labor rights in industrialized countries because our model in section 2 refers to the matching of employees and employers in market economies and is not a political economy model about institutions and corresponding

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[1]In 2000, the US accounted for more than one third of the global outward FDI stock, making it the world's most important foreign direct investor followed by France (11.6 % of global outward FDI), UK (11.3 %), and Germany (6.8 %). Source: UNCTADstat

de jure labor rights. Section 4 presents and discusses the empirical results, section 5 concludes.

2. A model of FDI and Labor Conditions

Considerable unemployment rates are a stylized fact in industrialized countries: 7.7 % of the total labor force in our sample of 35 countries were considered unemployed throughout the investigation period 1997-2002,[2] with South Africa reaching a maximum of 29.5 % in 2001. A model able to explain effects of FDI on labor markets should thus allow for unemployment in equilibrium (at least in the medium run). Furthermore, we build on the consideration that in practice the whole working-conditions package - including employment/unemployment, wage and working standards - is determined together (cf. Brown et. al, 2004: 297). Finally, the model should take into account that multinationals are different from comparable domestic firms and should shed light on the question in how far the MNC's profit maximization-behavior and its corresponding factor demand influences labor market outcomes.

We start in a situation where the labor market is segmented into a highly educated sector with virtually no unemployment and a sector with lower educated workers. Wages are generally (downward) sticky (cf. Dickens et al., 2007, for empirical evidence) but in the lower educated sector - the focus of our attention - a fixed wage, such as a minimum wage, is set above the theoretical equilibrium.[3] This situation is depicted in figure 1: $D1$ is the domestic demand curve for labor, S is the supply curve. Since the minimum wage m is above the intersection of $D1$ and S, only L1 workers are employed

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[2]Unweighted average over all years and countries, 121 observations, standard deviation 5.0 %

[3]An alternative interpretation is a situation where real frictions in the labor-market matching-process exist (Diamond, 1982; Mortensen, 1982; Pissarides, 1985, 1990). In these models one can think of a situation where either the minimum wage m is above the domestic employers' reservation wage (though the workers' reservation wage may be lower) or where the bargaining set between workers' and domestic employers' reservation wage is non-empty but search-costs do not pay off the difference between the two. An example is a decentralized labor market where firm face fixed costs to set up an establishment and workers face fixed costs to move (or variable commuting costs). However, we think the representation with a downward sticky wage is more intuitive and thus easier to follow.

(instead of L3). A multinational corporation starting business in the country acts like an exogenous shock since the investment decision of the firm is not driven by changes in the host economy but by events in other locations of the firm.[4] This shifts the demand curve for labor to the right (from $D1$ to $D2$):[5] Due to the higher productivity of multinational firms, they have a higher reservation wage than domestic firms and thus at any wage level, more laborers will be employed.[6] The new equilibrium employment rate is set at L2.

Now suppose that firms have to pay the minimum wage m but can bargain with laborers over their working conditions and labor standards. This can be the case because wages are easy to screen for the government but - especially in times of public budget restrictions - violations of labor standards are not, at least if they are very few. Thus, the domestic employment equilibrium may be somewhere between L1 and L3.[7] Focusing on the MNC-induced shift from L2 to L4 now, workers would have to accept a loss in working conditions that is equal to a because that would MNCs pay off the difference between their demand curve $D2$ and the (above lying) minimum wage. Workers are willing to do so because the resulting outcome would leave them still above their supply curve S. The area equal to b is to be bargained about. The area $a + b$ is the dead-weight loss in a situation where minimum wages are too high and both parties could not trade labor standards for jobs.

Now, what is a realistic outcome of such a bargain? The bargaining

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[4]In practice, this is a strong statement because the firm behavior will of course be influenced by events in the host country. It is sufficient, however, to note that the MNCs employment decision in the (potential) host economy may change even though conditions in the host country itself do not change. See the discussion in the FDI literature on push vs. pull factors, especially Calvo et al. (1993), Fernández-Arias (1996), di Giovanni (2005), and Albuqueque et al. (2005).

[5]The demand curve might also get flatter due to the fact that foreign firms - at least when driven horizontally - have a more elastic labor demand due to the fact that they have easier access to substitutes (cf. Rodrik, 1997; Richardson and Khripounova, 1998; Slaughter, 2001). This point is only sketched here because it is not essential to our model.

[6]Note that this would also happen if FDI simply crowds out domestic firms.

[7]It is reasonable to assume that intense violation of existing labor rights will not pay off because they become too obvious and may result in legal fines or consumer protests. The return on "saving" labor rights is thus highly concave and the equilibrium point L3 will not be reached. We disregard this negligibility here without loss of generality.

Figure 1: The labor market for lower educated workers
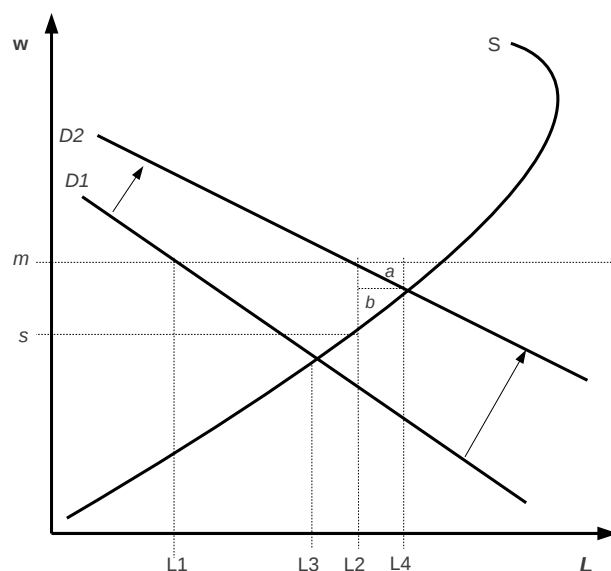
power of the workers obviously depend on their opportunity costs of not getting the job. In the case of lower educated workers, unemployment and thus opportunity costs are high, so they are in a weak bargaining position. For MNCs, the bargaining power will positively depend on the substitutability of the labor factor which is generally high in open economies for homogenous, relatively low-educated labor.

Our main argument concerns the fact that MNCs that follow a horizontal integration strategy differ in this respect from vertical multinationals. The latter go to the host country in order to produce an input there that is shipped back to the home economy (or other countries where it is processed). This may be the case because input costs are low in the host country, such as a MNC producing a labor-intensive input in a low-wage country. Another reason may be the fact that the input is more or less exclusively available in the host economy, for example oil or other natural resources. The main resource of industrialized countries is human capital and it is not very likely that US MNCs go to countries like France or Australia because they have wages so low that the MNC could realize cost advantages that are large enough to overcome trade and disintegration costs. It is rather realistic

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that most industrialized countries specialize in the production of specific high-tech products, e.g. certain chemical products in France or technical equipment in Germany, and MNCs use these as "inputs" in their home country in the sense of complex vertical FDI (cf. Davies, 2005; Baltagi et al., 2007). The production of these goods requires a highly educated labor force that does not suffer much from unemployment, so their bargaining position vis-a-vis employers will be high. Also, the domestic firms in this sector will be among the most competitive firms in the world economy so that the US multinational may not even be much more productive (in other words, the labor demand curve in figure 1 will not shift much to the right, thus the impact of FDI will be negligible).

The case is completely different for horizontal FDI. The main idea about this type of multinationals is that there is a "blue print" in the home economy that is copied in each of the host countries to avoid trade costs. Such a "copying process" usually does not need highly educated laborers. Of course, skill-intensity is relative here. One may think of craftsmen working in a TV-factory in Australia to serve the Australian market with TV-screens from a US MNC. Unemployment is usually higher for these workers than for the highly educated employees working for vertical MNCs. Furthermore, the horizontal multinational is in a favorable bargaining position: In case claim of Australian workers are too high, it could still serve the Australian markets by exports from the home country (or by export-platform FDI via New Zealand or Chile).

We would therefore expect that horizontal MNCs are in a much more favorable bargaining position vis-a-vis the local labor force and would thus be able to level down labor standards while vertical FDI is bound to the host country because of the availability of the hardly substitutable, highly specialized human capital.

3. Data and Methodology

3.1. FDI data

To approximate the relevance of multinational corporations in the host economies, we follow conventional rules (cf. Navaretti and Venables, 2004: 2) by using FDI data, in our case US direct investment abroad provided by the Bureau of Economic Analysis (BEA). The direct investment position consists of the investors' equity in, and net outstanding loans to, all

their affiliates. It is calculated on a historical-cost basis derived from the books of affiliates which generally reflects the acquisition costs of the investment, reinvested earnings, and asset depreciation. This may generally over-estimate older investments. Note, however, that we are concerned not so much about the productive capacity of the assets in the host economy but about management structures and labor relations. Therefore, historical cost data is highly appropriate. Furthermore, it will also weaken endogeneity concerns since past investment decisions will barely be driven by actually observed labor rights standards.

US FDI data allows disentangling horizontal from vertical FDI which is the main motivation of this paper. We have argued that vertical US FDI goes into industrialized countries to produce certain inputs, parts or components there which are then shipped to the US to either enter the final good or, which is basically the same, be part of the capital formation. Similar to other studies (e.g. Liu and Nunnenkamp, 2011) we therefore look at the share of total sales[8] of foreign affiliates of US firms that is re-imported into the US[9] and use it as a proxy for the share of vertical FDI in a country. On the other hand, the number of goods that is sold at the host country can be assumed to serve the host market (or neighboring countries in the case of export-platform FDI) itself and to be horizontal investment accordingly. Formally, for host country i:

$$\text{Vertical FDI} = \frac{\text{US Imports from affiliate}}{\text{Total Sales of affiliate}} \cdot \text{Total FDI} \qquad (1)$$

$$\text{Horizontal FDI} = \text{Total FDI} - \text{Vertical FDI}. \qquad (2)$$

For the sales data, we consider all foreign US affiliates rather than majority-owned foreign affiliates, since this corresponds to the definition used for the calculation of FDI data and furthermore there is no reason to expect the difference between the two to be too large (cf. Graham and

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[8]Total Sales is "The value of goods and services sold and, for financial firms, also includes investment income. It is net of returns, allowances, and discounts and excludes sale or consumption taxes levied directly on the consumer and excise taxes levied on manufacturers, wholesalers, and retailers" (BEA website).

[9]"U.S. imports of goods by foreign affiliates consists of U.S. imports shipped by foreign affiliates to U.S. parent companies and to unaffiliated U.S. persons. Imports are valued on an f.a.s. (free alongside ship) basis–they exclude transit costs, such as the costs of shipping and insurance" (BEA website).

Krugman, 1989: 10). Note, that after disentangling we take the logarithm of all FDI stocks.

Table 1 shows the average total US outward FDI stocks for all countries in our sample as well as the ratio of vertical FDI in these stocks. The UK, Netherlands and Switzerland were the main host countries of US outward FDI but as for most European countries (except Ireland and Sweden) the share of vertical investment is rather low (about 2 %). Since horizontal FDI is mainly driven by transportation costs which are increasing in distance, this is not surprising and corresponds to Markusen's (1995) stylized fact that most FDI is horizontal. Our data may however overestimate the degree of horizontal FDI since a sale from a French US affiliate to an Irish US affiliate that is then imported by the US parent enters the statistics once as a horizontal sale (France-Ireland) and once as a vertical one (Ireland-USA) although the whole production chain is mainly vertical in nature. However, this mainly leads to a potential inadequacy across country statistics while we only explore *within-country* variations by using country-fixed effects so that the issue is of minor importance.[10]

3.2. Labor Rights

In order to examine labor rights violations, we use Mosley and Uno's (2007) labor rights dataset with the extension of Greenhill et al. (2009).[11] The index is constructed annually from 1985 to 2002 for 135 countries. Because of the non-availability of detailed FDI measures, we have to restrict the sample to the period 1997-2002. This composite index, capturing "basic collective labor rights," follows the template of Kucera (2002) which covers

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[10]Badinger and Egger (2010) find that "motives of multinational activity and interdependence across host markets are at least as and even more strongly related to vertical than horizontal linkages" (753) but this does not conflict with our data since their findings only imply that vertical considerations of intermediate goods inputs do matter considerably for the exact location decisions of US MNCs in Europe, though the main motive of the activity is still horizontal. Furthermore, they also assume that the main determinants of horizontal and vertical interdependence between countries are time-invariant (747/748) and as mentioned above, fixed effects results will still be consistent in our case under this assumption as it only explores the within-country dimension.

[11]Accordingly, this subsection is mainly based on their variable description, especially in the data appendix of Mosley and Uno (2007).

country	FDI stock (Mio. $)	thereof vertical
Argentina	13,028.7	2.36 %
Australia	47,304.2	1.77 %
Austria	7,055.1	1.36 %
Belgium	32,381.4	2.48 %
Brazil	34,430.0	2.93 %
Chile	10,552.4	4.10 %
Czech Republic	2,136.8	0.95 %
Denmark	5,430.4	1.17 %
Finland	1,746.5	2.62 %
France	50,952.7	2.58 %
Germany	69,837.3	2.03 %
Greece	1,259.1	0.15 %
Hungary	2,955.4	5.71 %
Ireland	52,557.0	11.29 %
Israel	5,878.2	7.02 %
Italy	22,325.2	1.78 %
Japan	62,657.6	3.47 %
Korea (Rep. of)	13,957.6	2.28 %
Luxembourg	62,633.9	1.00 %
Malaysia	8,297.2	23.87 %
Mexico	54,908.2	29.79 %
Netherlands	185,353.9	1.78 %
New Zealand	5,057.5	0.87 %
Norway	7,339.5	1.52 %
Poland	6,192.2	1.04 %
Singapore	48,729.1	15.81 %
South Africa	3,542.3	0.41 %
Spain	34,847.0	1.16 %
Sweden	23,564.5	11.19 %
Switzerland	74,063.1	1.89 %
Turkey	2,305.3	1.19 %
United Arab Emirates	1,563.9	0.20 %
United Kingdom	277,542.6	2.36 %
Venezuela	8,925.5	2.25 %

Table 1: average US outward FDI stocks by countries

37 types of violations of labor rights under six different categories. These include (a) freedom of association and collective bargaining-related liberties, (b) right to establish and join worker and union organizations, (c) other union activities, (d) right to bargain collectively, (e) right to strike, and (f) rights in export processing zones. It is noteworthy, however, that the index does not capture aspects of labor standards such as minimum wages, employment benefits or direct working conditions. The exclusion of minimum wages is especially helpful in our case since our model treats labor rights as a bargain against (minimum) wages. In each of the above mentioned six categories, violation of labor rights by the government or employers (local or foreign firms) are identified as an absence of legal rights, limitations on legal rights and a violation of those legal rights, thus dealing separately with both the *de jure* (laws) and *de facto* (practices) aspects of labor rights prevailing in a country. The first component of the composite index consists of labor laws capturing whether the laws required to safeguard the collective rights of workers are in place or not, e.g., whether the industry is allowed to impose limits on workers' right to strike or bargain collectively. The second component, de facto labor practices, captures the actual number of violations observed in the labor rights prescribed in the laws. Extending the same example under practices component would be whether there are any registered acts of violation of such rights to strike or bargain collectively.

The source of information used for coding the violations of labor rights under each of these six categories is drawn from three different organizations. These include, first, the US State Department's annual country reports on human rights practices, which exclusively cover violations on labor rights in each country related to freedom of association, right to bargain collectively and strike, and export processing zones. Second, reports from both the Committee of Experts on the Application of Conventions and Recommendations (CEACR) and the Committee on Freedom of Association (CFA), which is associated with the International Labor Organization (ILO). Both CEACR and CFA provide annual reports, based on the information provided by the respective governments on complaints filed by unions, workers' organizations and other employee associations.[12] These reports are then reviewed by two independent experts appointed by the

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[12]The ILO mandates governments to submit these reports every year. The governments are also expected to present reports on how they have proceeded in addressing the grievances filed by respective unions.

ILO in the case of CEACR, and nine members with three representatives each from governments, employers and workers in the case of CFA (this helps to gain unbiased evaluations of governments' performance in terms of meeting international standards[13]). Finally, annual surveys on violations of trade union rights, published by the International Confederation of Free Trade Unions (ICFTU), provide information on legal barriers to unions, violations of rights, murders, disappearances and detention of members associated with labor unions. The information reported in these annual surveys comes from the labor union centers of their respective nations.[14]

The index is constructed using Kucera's (2002) methodology, which assigns weights to each of the six afore-mentioned categories, based on the recommendations of two experts. Table A.7 in the appendix displays the weights allotted by Kucera to each category. If the information from all the three sources displays violation of labor rights over the year, Mosley and Uno (2007) then assign a score of 1 for each of the 37 indicators for a country. If this is not the case a score of 0 is assigned.[15] These individual scores are then combined with the weights given for each category. The sum of these category scores is then the annual measure of labor rights violations, ranging from 0 (high violations) to 76.5 (no or very few violations).[16] Although the maximum value is 76.5, no country has a score above 37 in our sample. Overall, Mosley and Uno's (2007) comprehensive measure is a huge improvement on previous measurements, like Cingranelli and Richards (2006) and Bohning (2005), because of the multiple sources of information, sophisticated weighting methodology and reliability of the information (the annual reports mentioned earlier are evaluated by trained experts from ILO).

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[13]Upon receiving the complaints, the CFA engages directly with the respective governments in seeking reports on how the problem was resolved. In some instances, the CFA, through a process of dialogue, addresses the problem directly with government officials and social partners.

[14]In 2006, the ICFTU was officially scrapped and a new organization called the International Trade Union Confederation (ITUC) was established.

[15]If violation of labor rights in respective indicators is recorded more than once, in either one source or in multiple sources, the maximum value according to Mosley and Uno remains 1.

[16]For easy interpretation, the original score (in which 76.5 is high violation of labor rights and 0 being low violations) is reversed by Mosley and Uno.

As mentioned before, the labor rights index is further disaggregated into two components based on Greenhill et al. (2009), namely de jure labor rights laws index and a de facto labor rights practices index. While the afore-mentioned previous studies in the literature quantify both legal and practices using a single dimension measures, we disaggregate the labor rights into laws and practices sub-indices. Labor laws and labor practices sub-indices are derived from aggregate labor rights index, where the former refers to the extent which the laws are put in place safeguarding labor rights and the later gauges the actual violations of these laws in a country. The 37 aspects of the labor rights index are divided among these two sub-indices in which 21 items are reserved for laws and the rest of the 16 categories are associated with practices. As explained by Greenhill et al. (2009: 676), typical 'law' components of the scale include measures such as whether certain industrial sectors are allowed to impose limits on the right of workers to join unions or to strike (items 16 and 34), or whether workers need government approval in order to engage in collective bargaining in the first place (item 25). In contrast, representative 'practice' components of the scale include whether acts of violence are reported to have been carried out against union leaders (items 1 and 2), or whether some firms make employment conditional on nonmembership in a union (item 9). Table A.7 in the appendix provides a detailed classification of these categories between the two sub-components. Similar to the overall index, the de jure labor laws rights are coded on a scale of 0 - 28.5, while de facto labor practices rights range from 0 - 27.5 wherein highest value represents upholding respect for labor laws and practices.

	Labor Rights Index	Labor Rights Laws	Labor Rights Practices
Labor Rights Index	1.0000		
Labor Rights Laws	0.8277	1.0000	
Labor Rights Practices	0.7197	0.2060	1.0000

Table 2: Bivariate correlations among the two components of labor rights

Unlike other indices, these two dimensions of the labor rights index are independent of each other. As seen in table 2, the two different components that make up the labor rights index are only moderately correlated with each other ($\rho = 0.21$), albeit they are both highly correlated ($\rho = 0.83$ and 0.72, respectively) with the aggregated labor rights index.

3.3. Other control variables

Our set of control variables (Ψ_{it}) first of all includes the *unemployment rate* because our model in section 2 suggests that unemployment might lead to a higher willingness to accept *de facto* repression of labor rights. We include other potential determinants of labor rights according to the extant literature on the subject. We follow the studies of Greenhill et al. (2009), Mosley and Uno (2007), Neumayer and de Soysa (2005, 2006, 2007), Busse (2004) and other comprehensive evaluations focusing on determinants of labor rights violations (Caraway, 2009; Arestoff and Granger, 2004; Brown, 2001). Accordingly, our models control for the effects of development by including (logged) *per capita GDP* in US-\$, using 2000 constant prices (ERS, 2010). Following Neumayer and de Soysa (2006), we also include two more control variables. The first is *manufacturing value added share in GDP*, which is included as it is difficult to identify the violation of labor rights in the primary sector. The second one is the total *labor force participation rate* taken from World Bank WDI. We also include political variables, namely, *democracy* measured by the Polity IV ranging from -10 (hereditary monarchy) to +10 (consolidated democracy), and ideology of the incumbent government (cf. Boockmann, 2006). The latter is taken from the database of political institutions (Beck et al., 2001) and convertet to a dummy variable *leftist* which equals 1 when a leftist government is in power and 0 otherwise. Additionally, we account for the basic human rights captured using *physical integrity rights* index constructed by Cingranelli and Richards (1999) ranging from 0 (no government respect for these four human rights) to 8 (full government respect for basic rights). For data sources and their means and standard deviations, see table A.6 in the appendix.

3.4. Econometric Model

The main statement we want to investigate is the hypothesis that the state of labor rights, y, in a country i at time t depends in some functional form $g(\cdot)$ on the degree of vertical and horizontal activities of multinational corporations (x^v and x^h, respectively) and a set of control variables Ψ:

$$\mathbb{E}(y_{it}|\Psi_{it}) = g(\beta_1 x^v, \beta_2 x^h). \tag{3}$$

We start our analysis by using a simple static OLS fixed effects (FE) model[17] in a log-log form:

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[17]A Hausman-test clearly allows to reject the null hypothesis that the difference be-

$$log(laborrights)_{it} = \hat{\alpha}_i + \hat{\beta}log(FDI)_{i,t-1} + \Psi_{i,t-1}\hat{\theta} + \hat{\gamma}_t + \varepsilon_{it}, \qquad (4)$$

where $i = 1, ..., N$ indicates a country, $t = 1, ..., T$ is a time period, $log(FDI)$ may either be one or more measures of the logarithm of FDI, Ψ includes the set of control variables, and $\varepsilon \overset{.}{\sim} N(0, \sigma^2)$ is the error term.[18] We compare the model using our disentangled FDI measure to a model with the overall FDI measure as it is usually used in the literature.

In a second step we then use a dynamic model that accounts for potential persistence in the dependent variable:

$$log(laborrights)_{it} = \hat{\alpha}_i + \hat{\phi}log(laborrights)_{i,t-1} + \hat{\beta}log(FDI)_{i,t-1} + \Psi_{i,t-1}\hat{\theta} + \hat{\gamma}_t + \varepsilon_{it}. \tag{5}$$

It is well-known that OLS estimation of a lagged dependent variable (LDV) model such as (5) is biased (Nickell, 1981), so we use the System GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998) as implemented by Roodman (2009a) and compare it to FE and pooled OLS estimation to assess the reliability of the former estimate. This framework uses suitably lagged first differences as instruments for the levels equation and also allows us to address potential endogeneity of FDI and to assess autocorrelation in the residuals due to the test statistic derived by Arellano and Bond (1991). In any specification we instrument the lagged dependent variable and the (lagged) FDI variables with lags 1 and 2 and we collapse our instrument set in order to prevent overfitting problems for the (potentially) endogenous variables as proposed by Roodman (2009b: 148f). Note that due to the low number of observations relative to the moment conditions we have to rely on one-step estimation of the VCV matrix which will lead to an overestimation of standard errors, i.e. conservative inference.

In both, the OLS and the System GMM framework we lag all covariables by one period since we would not expect an immediate response in most

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tween FE and random effects is not systematic in all specifications in table 3, thus we have to rely on the (consistent) FE estimator instead of the (efficient) random effects estimator.

[18]We control for heteroscedasticity and autocorrelation in the residuals in our estimation by using a Huber (1967) and White (1980) covariance estimator.

cases and this also helps to weaken endogeneity concerns. We include time dummies which is important to account for potential positive cross-country correlations due to "global" shocks. Furthermore, we will look at the aggregate overall labor rights index, *de facto* labor rights practices and *de jure* labor rights laws separately.

4. Empirical Results

4.1. Static Estimation

Table 3 shows the results for the static fixed effect estimation. In the first two columns, the (log of the) aggregated labor rights index is the dependent variable. We find that overall FDI (in model (2)) has a negative impact on aggregate labor rights that is weakly statistically significant.[19] If we look at model (1) where horizontal and vertical FDI are split up, we find horizontal FDI to be negatively and statistically significantly influencing labor rights but vertical FDI does not seem to matter. The significance of horizontal FDI is remarkable because the specification suffers from a collinearity between horizontal and vertical FDI ($\rho = 0.71$) that would increase standard errors (while still producing consistent estimates).[20] With an R^2 of about 1/3 within countries and of overall about 0.5, the model provides reasonable fit and we can easily reject the null hypothesis of the F-test that the whole set of covariates has no impact on labor rights on the 1 % level.

While standard model selection criteria such as BIC and AIC prefer model (2) over model (1) there is some evidence that we should rely on model (1) when we are interested in the impact of FDI on labor rights: The Wald-test (p-value reported in the last line of table 3) for the null hypothesis of equality of the coefficients for vertical and horizontal investment allows rejection at the 10 % level of statistical significance. Accordingly, which model is preferable depends on the purpose of the investigation. Note that AIC and BIC both try to incorporate the trade-off between errors due to approximation and due to estimation (cf. Zucchini, 2000) and that the second depends on the sample size, which is rather low in our case so that

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[19]If not stated otherwise, we rely on the 5 % level of statistical significance and refer to the 10 % level as "weak significance" and to the 1 % level as "strong significance".

[20]If we exclude horizontal FDI, vertical FDI is still not significant (t-statistic 0.05), when excluding vertical FDI, horizontal FDI is weakly significant (t-statistic -1.78).

models with less parameters are less volatile to random structures in the data and thus lead to more robust prediction performance, for example. In applied economic research, however, one is often more interested in the correct identification of the economic channels and the reported results suggest that the impact of horizontal FDI on labor rights might be different from the impact of vertical FDI.

To further investigate the economic channel at work, we look at *de facto* and *de jure* labor rights as the dependent variable in the other columns of table 3. We find that the impact of horizontal FDI on labor rights seems to work by undermining existing legal standards in practice because the impact is statistically significant in models (3) and (4) but not in models (5) and (6) that take *de jure* labor rights as the dependent variable. Note that overall model characteristics are also much worse for the latter ones (R^2 is only about half the size of the former models, in model (5) we would not reject the F-hypothesis that the whole set of covariates has no impact on labor rights on the 5 % level).

Again, in models (3) and (4), model selection criteria that look at the overall model fit prefer the reduced model (4) that only takes into account total FDI but again this might shadow the economic channels at work, i.e. the fact that the effect is mainly driven by horizontal investment. However, we could not statistically reject the null hypothesis of equality of parameters due to the imprecise estimation of the coefficient for vertical FDI.

Model	(1)	(2)	(3)	(4)	(5)	(6)	(10)
dep.var.	aggregate LR	aggregate LR	LR practices	LR practices	LR laws	LR laws	LR practices
vertical FDI	0.0320		-0.0225		0.0301		-0.0116
(-1)	(0.0544)		(0.0710)		(0.0265)		(0.0672)
horizontal FDI	-0.1434**		-0.1608**		-0.0050		-0.0444
(-1)	(0.0651)		(0.0790)		(0.0433)		(0.0950)
total FDI		-0.1246*		-0.1741**		0.0127	
(-1)		(0.0702)		(0.0843)		(0.0340)	
GDP p.c.	0.5177	0.4280	1.1046	1.1677*	-0.3253	-0.4097	0.8397
(-1)	(0.4685)	(0.4286)	(0.6549)	(0.5986)	(0.3504)	(0.3280)	(0.6527)
PIR	-0.0345*	-0.0327	-0.0064	-0.0077	-0.0266*	-0.0249*	-0.0111
(-1)	(0.0203)	(0.0199)	(0.0124)	(0.0136)	(0.0137)	(0.0132)	(0.0127)
leftist	0.0105	0.0140	0.0378	0.0353	-0.0150	-0.0117	0.0272
(-1)	(0.0181)	(0.0166)	(0.0305)	(0.0301)	(0.0230)	(0.0222)	(0.0347)
manufacturing/GDP	-0.0136	-0.0115	-0.0026	-0.0040	-0.0082	-0.0062	-0.0022
(-1)	(0.0118)	(0.0117)	(0.0117)	(0.0091)	(0.0059)	(0.0062)	(0.0112)
democracy	0.0326	0.0371	0.0457	0.0425	0.0012	0.0055	0.0377
(-1)	(0.0372)	(0.0321)	(0.0330)	(0.0338)	(0.0255)	(0.0238)	(0.0306)
unemployment rate	-0.0139	-0.0137	-0.0091	-0.0093	-0.0059	-0.0057	0.5121***
(-1)	(0.0108)	(0.0111)	(0.0147)	(0.0146)	(0.0092)	(0.0095)	(0.1823)
labor PR	-0.0133	-0.0110	-0.0045	-0.0061	-0.0133	-0.0111	0.0015
(-1)	(0.0125)	(0.0109)	(0.0125)	(0.0106)	(0.0119)	(0.0108)	(0.0109)
horiz. FDI * unempl.							-0.0225***
(-1)							(0.0080)
time dummies	yes	yes	yes	yes	yes	yes	yes
R^2 within	0.3382	0.3323	0.3600	0.3577	0.1764	0.1569	0.4110
AIC	-226.8	-227.8	-205.3	-206.9	-360.3	-359.4	-213.4
BIC	-190.5	-194.2	-169.0	-173.3	-323.9	-325.9	-174.2
Wald-test (p-val)	0.0501	-	0.2213	-	0.5616	-	-

Note: All equations estimated using fixed effects, cluster robust "sandwich" VCV matrices,
121 observations (N=34, average T=3.6)

Table 3: Fixed Effects Results

4.2. Dynamic Estimation

In table 4 we provide the results of the dynamic specification where we have a lagged dependent variable (LDV) as supplementary covariable on the right hand side. In model (7), where aggregated labor rights is the dependent variable, we still find a negative impact of horizontal FDI. It is significant now only at the 10 % level (t-statistic -1.71) but remember that standard-errors are overestimated. The size of the parameter (-0.1006) appears to be smaller than the one from the static estimation in model (1) but have in mind that this is only the short-run effect. After taking into account long-run effects via the lagged dependent variable[21], this would correspond to an impact of -0.19 and thus be somewhat higher than in the static estimation. Looking at key indicators of the overall model, we find support for the specification: The lagged dependent variable is highly significant and far from a random walk. We would expect it to lie between the generally downward-biased fixed effect and the generally upward-biased pooled-OLS estimate (cf. Bond, 2002: 4/5) which are reported in the last lines of table 4 and find this to be the case. As we would expect, we can reject no AR(1) serial correlation in the residuals but cannot reject no autocorrelation of order 2. Furthermore we cannot reject the null hypothesis of the Hansen test that the whole set of instruments is jointly valid.

When looking at the dynamic impact on labor rights practices in model (8) we find no significant effect of neither FDI measure. However, as outlined, inference is conservative and the estimate is at the borderline of weak significance for horizontal FDI (t-statistic -1.56). Also, the long-run coefficient of -0.21 is again similar and slightly higher than the static estimate in model (3). Conventional test statistics indicate that the model is well-specified.

Interestingly, when looking at labor laws, which we would expect to be highly persistent over time, we do not find the dynamic specification to be very appropriate: The LDV is insignificant and falls outside the interval spanned by FE and POLS estimation and both AR(1) and the Sargan test seem worrisome.

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[21]long-run coefficient $= \hat{\beta}/(1 - \hat{\phi})$

Model	(7)	(8)	(9)
dep.var.	aggregate LR	LR practices	LR laws
LDV	0.4715***	0.6185***	-0.2659
	(0.1642)	(0.1480)	(0.3351)
vertical FDI	0.0412	0.0049	0.0843*
(-1)	(0.0389)	(0.0395)	(0.0463)
horizontal FDI	-0.1006*	-0.0807	-0.0969
(-1)	(0.0589)	(0.0518)	(0.0667)
GDP p.c.	0.2389***	0.1911***	0.1176
(-1)	(0.0583)	(0.0448)	(0.0722)
PIR	0.0001	-0.0098	0.0213
(-1)	(0.0182)	(0.0162)	(0.0191)
leftist	0.1013**	0.0516	0.0770
(-1)	(0.0440)	(0.0346)	(0.0563)
manufacturing/GDP	-0.0104*	-0.0054	-0.0135**
(-1)	(0.0053)	(0.0034)	(0.0062)
democracy	0.0171***	-0.0027	0.0424***
(-1)	(0.0050)	(0.0054)	(0.0141)
unemployment rate	0.0134**	-0.0007	0.0238***
(-1)	(0.0060)	(0.0046)	(0.0071)
labor PR	-0.0024	-0.0052	0.0045
(-1)	(0.0035)	(0.0036)	(0.0046)
time dummies	yes	yes	yes
# of instruments	21	21	21
AB AR(1) z-stat	-2.52	-2.63	-0.05
AB AR(2) z-stat	0.51	-0.12	-0.60
Sargan (p-val)	0.16	0.91	0.00
Hansen (p-val)	0.55	0.91	0.48
FE LDV	0.27	0.37	0.05
POLS LDV	0.82	0.67	0.74

Note: All equations estimated using one-step system GMM with
cluster robust "sandwich" VCV matrices and small-sample correction;
121 observations (N=34, average T=3.6); AB AR(l) is the
Arellano and Bond (1991) test for no autocorrelation of order l

Table 4: System GMM results

4.3. Other controls

Besides from the GMM specification in model (7) our control variables are barely significant which should not bother us because their identification is not the exercise of this paper and many cases are just on the boarderline of weak significance. As expected, we find a positive impact of GDP p.c. on labor rights in most specifications and a leftist government seems to be favorable for labor rights, especially their practices. Notwithstanding statistical insignificance, the impact of manufacturing ratio relative to GDP on labor rights and the democracy control variable show the expected sign. Interestingly, there is some evidence that the physical integrity rights index is negatively correlated to labor rights in most specifications.

When focusing on the dynamic model in table 4 we find all the aforementioned controls besides from the PIR index to be (at least weakly) significant and showing the expected sign in specification (7). The positive impact of democracy seems to operate via legislation. Somewhat surprising is the positive impact of unemployment on labor rights. However, it seems this impact operates via legislation too and we cannot totally exclude reversed causality or simultaneity in this case because although the unemployment rate is lagged by one year, this series is very persistent. Hence, strong de jure labor rights might have an adverse impact on employment, or governments may find a reduction of de jure labor rights a potential policy to generate more employment.

4.4. Identifying the Economic Channel

We have argued in section 2 that the negative effect of horizontal FDI on labor rights operates via the strong bargaining position of horizontal MNCs and the higher unemployment rate in the factors that are used intensively by horizontally integrating multinationals. To address the reliability of the latter channel we add an interaction term between horizontal FDI and the unemployment rate to the specification in model (1). Results are provided as model (10) in table 3 and show that the overall fit of the model, measured by R^2 considerably increases, although model selection criteria still prefer model (1) or (2) over (10).

The estimated coefficients can be interpreted from the results in table 5 that explicitly addresses labor rights practices and uses standardized variables, i.e. each variable (excluding the interaction) is transformed so that

their mean is 0 and the standard error is 1. We find a strong negative and statistically weakly significant impact of horizontal FDI on labor rights practices that becomes even stronger when unemployment rate is higher (indicated by the negative coefficient of the interaction). The impact of the unemployment rate, though not the focus of this investigation, is surprisingly positive but economically small and statistically far from being significant. An F-test allows rejection of the null hypothesis that horizontal FDI and its interaction with unemployment rate jointly have no impact on labor rights practices at the 10 % level of statistical significance. On the contrary, we cannot reject the null of joint insignificance of unemployment and its interaction with vertical FDI at conventional levels of significance. Since the F-test of joint significance of the single variable of interest and its interaction is the appropriate test statistic, this finding is support for our model introduced in section 2: the negative coefficient on horizontal FDI and its interaction with unemployment clearly suggests that the higher unemployment is, the more negative is the impact of horizontal FDI on labor rights practices.

dependent variable: log (labor rights practices)		
Variable (standardized)	**Coefficient**	**Std. Errors**
(1) horizontal FDI	-1.04*	0.564
(2) unemployment rate	0.029	0.429
(3) interaction of (1) & (2)	-0.683	0.428
other controls	7	
time dummies	yes	
p-value of joint F-test (1) & (3)	0.074	
p-value of joint F-test (2) & (3)	0.246	

Table 5: OLS results with interaction (and standardized variables)

4.5. Economic Relevance

Before concluding the paper we want to highlight the economic relevance of our results concerning the negative impact of horizontal FDI on labor rights. The standard deviation of horizontal FDI during the time period under investigation was 1.35, so a one standard deviation increase in horizontal FDI would ceteris paribus lead to a decrease of aggregate labor rights of about 20 % (using the estimate from model (1)). Throughout the same period, the log of horizontal FDI grew from 23.2 to 23.6 while

the log of aggregate labor rights fell from 3.38 to 3.27. This means that the increase in horizontal FDI was responsible for $\frac{-0.14 \times 0.4}{-0.11} = 56.6\%$ of the decrease in (aggregate) labor rights during the period under investigation. This is a very considerable magnitude but the effect may also capture (parts of) the impact of horizontal FDI from other countries that we could not measure due to non-availability of data. Maybe even more important, the increased presence of multinationals may not only lead to an erosion of labor standards, but to an increase in labor disputes. As mentioned in the introduction, multinationals arise from a certain home country context of industrial relations and may hence have expectations about labor practices and industrial relations that are not adequate for the host country. This could lead to a dispute in the first round that could be ironed out afterwards. The dataset used nevertheless would pick up the resulting struggles between multinationals and workers as an erosion of labor rights practices. Having this potential limitation - that certainly also apply to other studies based on the same data set - in mind, our estimated effect of multinational corporations on labor standards may tend to be too large.

5. Conclusion

In this paper we have argued that the previous applied economic literature has failed to find robust evidence of an impact of FDI on labor rights because it has not accounted for the different rationales between horizontal and vertical investment and the different factor intensities they employ. We derived an economic explanation why this should lead to different outcomes and showed that in this model horizontal FDI is expected to have a negative impact on de facto labor standards.

Focusing on FDI stocks from the world's largest investor, the USA, in 34 industrialized countries between 1997 and 2002, we have shown that the horizontal part of FDI indeed has a negative impact on labor rights that mainly operates through *de facto* labor rights practices. It is thus possible that statistical significance of the impact of FDI on labor rights in other studies is shadowed by opposing effects of horizontal and vertical FDI: By only capturing total FDI, researchers implicitly assume both parameters to be the same. In our study we show that this hypothesis can be rejected at the 10 % level of statistical significance (in model (1)).

Some of our results even suggest that the impact of vertical FDI on labor rights is positive; most related results are at the boarderline of weak statistical significance. Furthermore, these results indicate that the impact operates via de jure labor laws. One could think of a context of monopolistic competition in the vertical sector where foreign and home multinationals compete about the brightest laborers and influence policy to implement high labor standards to deter other firms from market entry. Future research might explore this possibility in more detail but it is beyond the scope of this paper.

Our research clearly supports attempts in the field to go beyond "one-size-fits-all" arguments. Furthermore, we see our focus on only one home country of FDI not as a limitation but as a potential strength: Investors come from different institutional backgrounds and assuming homogeneity in the impact of their investments in the host economy is often a strong assumption. Also, our researchs shows the distinction between the impact of *de facto* and *de jure* labor rights, as brought forward by Greenhill et al. (2009) to be fruitful.

Our results do not imply that horizontal FDI would decrease welfare in the host economy. In our model, the reduction in labor standards is an outcome of the bargaining process between employers and employees. Since the latter voluntarily prefer the (lower quality) job over unemployment (or previous employment), there cannot be negative welfare implications.

In terms of policy, our results imply that short-run reform approaches from labor's interest groups to create high-standard, high-income employment face the problem that income, labor standards and employment work as substitutes to some extent. This does not mean, however, that the creation of a full-employment society with decent work, such as aspired by the ILO's "Decent Work Agenda" (cf. also European Commission, 2008; Ocampo and Jomo, 2007; Parent-Thirion et al., 2007; Clark, 2009; G-20, 2009: 99) is impossible in a globalized economy. In our model the negative impact of horizontal FDI on labor standards emerges through the high bargaining power of these MNCs due to high unemployment in the segments of the labor market they use intensively and we find empirical support for this channel. A macro-policy that aims at lowering the equilibrium unemployment-rate(s) is thus the most promising starting-point for

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the aim of decent full employment.

Acknowledgments

Appendix A.

Countries covered (1997-2002):

Argentina, Australia, Austria, Belgium, Brazil, Chile, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Republic of Korea, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, UK, Venezuela

Variables	Data description	Data Sources	mean	sd
Labor Rights indices	measures 37 aspects of Labor rights (both Laws and Practices) on a scale of 0 - 74.5 (see section 3.2)	Mosley and Uno (2007)	28.08	7.89
GDP p.c.	log of per capita GDP in US-$ 2000 constant prices	Economic Research Service	9.46	0.78
total FDI	log of US direct investment abroad	Bureau of Economic Analysis	23.13	1.44
vertical FDI	vertical part of total FDI	own calculations	19.58	2.13
horizontal FDI	horizontal part of total FDI	own calculations	23.39	1.35
manufacturing / GDP	Share of industry value-added in total GDP	UNCTAD	30.58	7.95
labor PR	Labor Force Participation Rate (total, % of total population ages 15+)	Worldbank WDI	59.87	6.42
democracy	Polity IV ranging from -10 (hereditary monarchy) to +10 (consolidated democracy)	Polity IV Project	8.55	3.66
Leftist	dummy variable = 1 if left wing government in power	DPI by Beck et al. (2001)	0.43	0.50
PIR	physical integrity rights index (0 = no respect for human rights, 8 = full respect)	Cingranelli & Richards (1999)	6.24	1.95
unemployment rate	Unemployment, total (% of total labor force)	Worldbank WDI	8.05	5.00

Table A.6: Data sources and definitions

No.	Category Assigned	Description	Weights
Freedom of association/collective bargaining related liberties			
1	Practices	Murder or disappearance of union members or organizers	2
2	Practices	Other violence against union members or organizers	2
3	Practices	Arrest, detention, imprisonment, or forced exile for union membership or activities	2
4	Practices	Interference with union rights of assembly, demonstration, free opinion, free expression	2
5	Practices	Seizure or destruction of union premises or property	2
Right to establish and join union and worker organizations			
6	Laws	General prohibitions	10
7	Practices	General absence resulting from socio-economic breakdown	10
8	Laws	Previous authorization requirements	1.5
9	Practices	Employment conditional on non-membership in union	1.5
10	Practices	Dismissal or suspension for union membership or activities	1.5
11	Practices	Interference of employers (attempts to dominate unions)	1.5
12	Practices	Dissolution or suspension of union by administrative authority	2
13	Laws	Only workers' committees and labor councils permitted	2
14	Laws	Only state-sponsored or other single unions permitted	1.5
15	Laws	Exclusion of tradable/industrial sectors from union membership	2
16	Laws	Exclusion of other sectors or workers from union membership	2
17	Practices	Other specific de facto problems or acts of prohibition	1.5
18	Laws	(No) Right to establish and join federations or confederations of unions	1.5
19	Laws	Previous authorization requirements regarding above row	1
Other union activities			
20	Laws	(No) right to elect representatives in full freedom	1.5
21	Laws	(No) right to establish constitutions and rules	1.5
22	Laws	General prohibition of union/federation participation in political activities	1.5
23	Practices	(No) Union control of finances	1.5
Right to collectively bargain			
24	Laws	General prohibitions	10
25	Laws	Prior approval by authorities of collective agreements	1.5
26	Laws	Compulsory binding arbitration	1.5
27	Practices	Intervention of authorities	1.5
28	Practices	Scope of collective bargaining restricted by non-state employers	1.5
29	Laws	Exclusion of tradable/industrial sectors from right to collectively bargain	1.75
30	Laws	Exclusion of other sectors or workers from right to collectively bargain	1.75
31	Practices	Other specific de facto problems or acts of prohibition	1.5
Right to strike			
32	Laws	General prohibitions	2
33	Laws	Previous authorization required by authorities	1.5
34	Laws	Exclusion of tradable/industrial sectors from right to strike	1.5
35	Laws	Exclusion of other sectors or workers from right to strike	1.5
36	Practices	Other specific de facto problems or acts of prohibition	1.5
Export processing zones			
37	Laws	Restricted Rights in EPZs	2
TOTAL SCORE			

Table A.7: Mosley and Uno's (2007) Labor rights coding based on Kucera's (2002) template with the extention of Greenhill et al. (2009)

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