# Measuring Trade Union Rights Through Violations Recorded in Textual Sources: An Assessment*

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*The research for this paper benefited from the generous support of the George Washington University Center for International Business Education and Research. I thank David Kucera for sharing his dataset and for his comments on an earlier draft of the paper. I thank Eric Lawrence and Erik Voeten for acquainting me with Item Response Theory. I thank Jenny Orgill for her skilled research assistance. Finally, I thank three anonymous reviewers and the participants of Workshop 17, on the use of cross-national datasets in comparative politics, of the 2008 European Consortium for Political Research (ECPR) Joint Sessions in Rennes, France for their insightful comments and critiques. All remaining errors and omissions are my own.

Abstract: The author uses Item Response Theory to evaluate the increasingly prominent method of measuring labor rights developed by Kucera (2007). The analysis shows that most of the component items in the Kucera index relate to the same latent variable, which can be construed as 'the propensity to violate labor rights.' At the same time, individual country scores highlight the method's inability to distinguish between countries known to have excellent respect for worker rights and extremely repressive countries. The final section tests the robustness of Kucera's finding that there is no relationship between observed labor rights violations and foreign direct investment.

Keywords: labor standards; foreign direct investment; human rights

## Introduction

Despite a burgeoning literature on the relationship between labor standards and economic outcomes, there is little consensus on how to measure labor rights. The problem is acute for labor rights that apply to the most vulnerable workers. For example, it is notoriously difficult to measure levels of child labor and forced labor, since these practices occur in the shadows of the informal economy. But the problem also relates to rights that apply primarily to workers in the formal sector, such as freedom of association and collective bargaining (FACB) rights. As with measuring other labor standards, the central difficulty in measuring FACB rights lies in the dearth of available data. Specifically, there are few direct measures of the extent to which countries *practic*e, as opposed to preach, labor rights. Since good data on collective bargaining coverage, union density and strike activity are not available low- and middle-income countries, it is difficult to grasp the extent to which workers may actually benefit from legal protections.

In the field of political economy, FACB rights are of great theoretical importance because they facilitate collective action among workers and thus have implications for organized labor's ability to influence economic policy and competitiveness. Thus, in the absence of good data on the actual provision of FACB rights, it is important to explore alternative ways to measure them. One promising and increasingly influential approach has been developed by Kucera (2007), who measures the level of respect for FACB rights by coding violations of those rights reported in textual sources. Kucera uses his dataset to examine the impact of labor standards on foreign direct investment (FDI) (Kucera 2001) and trade (Kucera and Sarna 2006). Mosley and Uno (2007) use Kucera's method to analyze the impact of economic globalization on labor rights for 90 developing countries in a cross-section time-series framework. Caraway (2007) discusses

how Kucera's coding scheme might be utilized to develop a better *de jure* measure of labor standards.

In this paper, I employ statistical measurement models to assess the quality of Kucera's method and make a number of suggestions for improving the method. I use Item Response Theory (IRT) to test whether the various items in Kucera's index measure a single underlying concept of FACB rights. The analysis provides some good news for proponents of Kucera's method of measuring FACB rights. The IRT model demonstrates that the component items in the index relate to the same underlying concept and yields index scores that clearly distinguish groups of countries based on their respect for FACB rights. The new IRT-based index scores correlate better with known correlates of labor rights, such as democracy and levels of economic development, suggesting a higher degree of construct validity than Kucera's original index.

However, the IRT analysis also reveals some limitations of the method. Namely, the country scores raise the issue of whether Kucera's method of measuring rights purely based on observed violations is appropriate for countries that lack a robust union movement or, indeed, whether the concept of FACB rights is applicable to all countries. The problem is starkly illustrated by the fact that some countries score high on the index because underdevelopment entails the lack of an industrial sector and, therefore, a dearth of union activity. Even more problematic for the method is the fact that other countries score high because the government's lack of respect for human rights entails the total absence of a union movement.

I conclude that while these problems of conceptual equivalence may be intractable, the index may still be useful for analyzing questions pertaining to the overt violation of labor rights. In the final part of the paper, I expand the analysis in Kucera's original (2001) paper, which analyzes the effect of FACB rights on foreign direct investment (FDI), in a number of ways. The

analysis confirms Kucera's original finding that there is no statistically significant relationship between recorded violations of FACB rights and a variety of measures of levels of FDI. The finding is robust across alternative measures of FDI, the inclusion of new cases and controls, and the inclusion of alternative measures of FACB rights.

**Intellectual Context**

The paucity of good data on the provision of labor rights in developing countries has resulted in the use of a variety of creative alternative measures of these rights. Rodrik's (1996) seminal study relies on the total number of ratified ILO conventions, democracy scores and a child labor index that codes for the existence and enforcement of restrictions on child labor as measures of labor standards. Each of these measures has potential benefits and drawbacks.

While it is true that democracy generally correlates with better labor rights, democracy scores are likely only a crude approximation for labor rights. First, countries with similar levels of democracy vary in their respect for labor rights. The variations among OECD countries are well-known, with most countries in Northern and continental Europe providing a more supportive political and legal environment than their anti-union Anglo-American counterparts. Among developing democracies, some countries, like India, have demonstrated a consistent respect for labor rights, while many others, notably in Latin America, have actively undermined organized labor in the interest of accelerating economic reforms (Kurtz 2004). Further, there is an established view in political science that investors are attracted to some aspects of democracy, such as respect for property rights, greater transparency, and respect for the rule of law, but not the political contestation and political uncertainty that is characteristic of many democratic regimes (Li and Resnik 2003; Przeworski and Limongi 1993; Przeworski , Limongi and Cheibub

2000). Thus, while not orthogonal to democracy, there is reason to suspect that labor standards may have quite different effects on competitiveness and investment than democracy as a whole.

A number of authors have built upon Rodrik's early efforts by measuring labor rights based on *de jure* government respect for labor standards. These measures are based on expert assessments of domestic legislation and the ratification of International Labour Organization (ILO) core conventions and focus mostly on the provision, as opposed to violation, of labor rights. They typically involve dichotomous codings, based on whether a country has signed on to particular ILO conventions or counts of the number of conventions to which a country is signatory. More complex measures categorize domestic legislation and conventions and apply weighting schemes to arrive at an overall measure of *de jure* respect for labor rights (e.g. Block 2007; Cuyvers and Van Den Bulcke 2007).

The obvious problem with *de jure* measures of the provision of labor rights is that countries frequently do not adhere to ILO conventions or their own protective domestic legislation. This realization has led to a push to develop more robust *de facto* measures of government respect for labor rights. Belser, de Cock and Mehran (2007) introduce a sampling methodology to detect concealed labor rights violations in developing countries. In their index, Cuyvers and Van Den Bulcke (2007) attempt to balance their codings of *de jure* respect for labor rights with expert assessments of a country's *de facto* respect for these rights. Böhning (2007) uses expert assessments to develop a measure of the compliance gap for countries that sign on to ILO agreements.

Another group of scholars have developed an approach that assesses the degree to which governments respect FACB rights by examining the violation, rather than the provision, of these rights. This approach involves coding textual sources for observed *de jure* and *de facto*

violations. The Cingranelli-Richards (CIRI) dataset provides a three point ordinal workers' rights score ranging from '0', for severe restrictions on labor rights, to '2', for no restrictions on workers' rights, for 195 countries annually from 1981 to 2006. The score is based on observed violations reported in *Country Reports on Human Rights Practices* (U.S. State Department). The benefit of this method is that it is simple and thus facilitates a high degree of coverage; but a potential drawback is that the three-point ordinal scale may not measure the full cross-national and temporal variation in government respect for FACB rights.

Kucera (2007) develops a more complex version of this technique, trading off coverage for the promise of higher validity. Kucera codes 170 countries for the period 1994-1997 according to 37 categories of potential rights violations, and adds the weighted values of these dichotomous codings to develop an index of FACB rights. In an effort to negate the obvious biases of the State Department reports, Kucera draws on two additional sources for his codings: the *Annual Survey of Violations of Trade Union Rights* (International Confederation of Free Trade Unions, ICFTU) and the *Report of the Committee of Freedom of Association* (ILO). Mosley and Uno (2007) use a similar method to produce annual measures of FACB rights in a smaller sample of 90 developing countries for the period 1986-2002.

The benefits of Kucera's method lie in its nuance and the reliance on multiple sources for its construction; but it is vulnerable to two criticisms. First, the weighting scheme is based entirely on the author's sense of the severity of each violation; yet the reasoning behind the weights never gets fleshed out. Second, no justification is presented for combining these 37 measures into a single index. Kucera divides the index into six subcategories of violations (the right to establish and join worker union organizations; other union activities; the right to collectively bargain; the right to strike; restrictions in export processing zones; and the violation

of civil liberties), but it is not obvious how these six categories of indicators relate to one another or whether they relate the same underlying concept of labor rights. For instance, it is at least conceivable that a government might allow workers to form unions and engage in collective bargaining but not respect the right to strike, or that governments might prevent workers in export processing zones from joining unions but not violate the rights of workers outside of those zones.

The application of a statistical measurement model can help to address these objections and to improve upon the index. In the next section, I discuss Kucera's method in more detail and introduce the IRT analysis of the dichotomous indicators that comprise the index. The IRT analysis helps to determine whether the items relate to the same latent concept and provides a more scientific basis and method for combining them into one overall index.

**Analysis of Kucera's Method**

*Kucera's FACB Index*

As outlined in Table 1, Kucera's index of FACB rights is based on thirty-seven potential labor rights violations that divide into six categories. The first two categories of violations-- the right to establish and join worker union organizations and "other union activities" deal primarily with freedom of association rights. Some the violations in these categories pertain to the harassment of workers for engaging in union activities, such as the dismissal workers for belonging to unions, or making employment conditional on not belonging to a union. Another group of violations in these two categories relates to state interference in the activities of independent unions, or similarly, requiring that workers belong to state-sponsored or employer-dominated unions, while a third group restricts unions from federating or engaging in political activity. The third category of violations deals exclusively with collective bargaining rights and

includes restrictions on the ability of workers to bargain, free of state interference, on their own behalf as well as the scope of collective bargaining. A fourth category of violations deals with restrictions on the right to strike, including requiring state approval for strikes and prohibiting strikes in certain sectors of the economy. A fifth category is comprised of a single violation—restrictions against union organizing in export processing zones, and a sixth category pertains to violations of civil liberties, such as the detention or murder of union members or leaders.

--table 1 about here--

An individual country receives a score of '1' (evidence of violation) or '0' (no evidence of violation) for each of these 37 potential violations. Kucera then uses these codings to construct an unweighted and a weighted 'raw' score. For the weighted version of the index, each potential violation is assigned a weight of 1, 1.25, 1.5, 1.75 or 2 based on Kucera's assessment of the severity of the violation, and the weighted scores for each violation are then summed to arrive at the overall score (see Table 1). For the unweighted version of the index, the dichotomous codings are simply summed. These raw scores are then scaled from 0 to 10 with 10 representing the maximum possible score. Finally, for the purpose of clarity in econometric analysis, the index is inverted so that high scores represent better labor rights. As discussed above, the codings are based on three textual sources: the *Annual Survey of Violations of Trade Union Rights* (ICFTU), the *Country Reports on Human Rights Practices* (U.S. State Department) and the *Reports of the Committee on Freedom of Association* (ILO). The period Kucera analyzes is 1993-1997, and the codings are for the entire period, not individual years.

*Item Response Theory (IRT) Analysis*

I use Item Response Theory (IRT), a method designed to model dichotomous indicators, to analyze Kucera's method of coding FACB rights. For the uninitiated, IRT models perform

similar functions for dichotomous and ordinal variables that factor analysis performs for continuous variables. IRT has a long history in educational testing and psychology, where it is used to determine whether questions on exams adequately measure the underlying concept of interest, such as 'intelligence', 'mathematical reasoning ability', or 'paranoia.' The use of IRT and related methods represents a recent but increasing trend in political science. Voeten and Rosenthal (2007) use mixed factor analysis to analyze the measurement of the concept of legal formalism used by development economists to test 'legal origins' theory. A number of studies have used IRT to analyze how voting behavior relates to partisan ideology (e.g. Poole 2005; Poole and Rosenthal 2007). Treir and Jackman (2008) use IRT to analyze how well the Polity democracy indicators measure the underlying concept of democracy.

In a similar manner, IRT can help to understand whether the component indicators of Kucera's index relate to the same latent concept, and to generate a more rigorously scientific index. For the IRT analysis, I use gllamm (Rabe-Hesketh, Skrondal and Pickels 2002), a program in Stata that fits GLLAMMs (Generalized Linear Latent and Mixed Models) of which IRT models are a subset. I estimate two parameter logistic IRT models in which the probability of a positive response (in this case an observed rights violation) for item *i* by country *j* is modeled as a function of an item parameter, $\delta_i$, representing the item 'difficulty' and a level parameter, $\theta_j$, representing the country's magnitude of the latent trait (in this case FACB rights):

$$\Pr(x_{ij} = 1 \mid \theta_j) = \frac{\exp\{\lambda_i(\theta_j - \delta_i)\}}{1 + \exp\{\lambda_i(\theta_j - \delta_i)\}}$$

The slope parameter $\lambda_i$ is the discrimination parameter and determines how well an item discriminates among varying levels of the latent trait. The discrimination parameters are analogous to the factor loadings in factor analysis models, and in this paper I refer to them as 'loadings.'

The item loadings for the first IRT analysis, along with 95 percent confidence intervals, are displayed in Figure 1. The loading for the first item is fixed at one. To facilitate the interpretation of the results, it helps if the fixed item is representative of the underlying concept of interest, in this case respect for FACB rights. The 'dismissal or suspension of workers for union membership or union activity', is arguably the most common union-busting tactic, and so this item is designated as the fixed item. Figure 1 can be interpreted as follows. A loading greater than one suggests that the item in question is more strongly related to the latent concept than the representative or fixed item (the dismissal of a union for engaging in union activities), while a loading of less than one suggests that the item is less strongly related to the latent concept than the fixed item. Items with confidence intervals that include zero are not related to the concept of interest, and those with loadings less than zero are negatively related to the concept of interest.

--figure 1 about here—

The majority of the items appear to be related to the concept of interest. In this analysis, the civil liberties indicators (items 33-37 in Figure 1) bear an especially strong relationship to the underlying concept, with the loadings for four out of the five civil liberties violations (murder or disappearance of union member; other violence against a union member; arrest or detention of a union member; and interference with freedom of expression) lining up directly below one another and the fixed item. The confidence intervals of items 19-22, relating to collective

bargaining (a requirement of government approval for collective agreements; a requirement for compulsory binding arbitration in the event of a dispute; state-intervention in collective bargaining; restrictions on the scope of collective bargaining) include zero, indicating that the collective bargaining items may not be strongly related to the same underlying concept as the other items in the index. I explore this issue further in the analysis that follows.

The items of clear concern are those for which the point estimates are less than zero. These include items 12-14, 26 and 32 in Figure 1. Conceptually, these items are closely related, in that they serve as general prohibitions on various forms of union activity. Items 12-14 serve as general prohibitions on all union activity. Item 12 is coded for any overt, official government policy prohibiting unions, while item 13 is a coding for the absence of unions due to social or political instability. Item 14 is any government policy prohibiting all workers organizations aside from 'workers' councils.' Typically such councils are designed to replace free and independent unions and are heavily dominated by employers. Item 26 is a general prohibition on collective bargaining and item 31 is a general prohibition on striking.

The reason the five indicators do not relate to the latent concept is not hard to understand. Countries that enforce general prohibitions on all union activity will not experience violations of FACB rights because FACB rights are an irrelevant concept where unions cannot organize to exercise those rights. Or to look at it another way, by endorsing general prohibitions on union activity, the government automatically endorses narrower sets of restrictions on union activity. In cases where governments enforce prohibitions on collective bargaining or strike activity, the government would not be likely to engage in narrower prohibitions such as banning collective bargaining or strikes in specific sectors of the economy, because to do so would be redundant.

Kucera deals with this issue by giving these countries default scores of the lowest possible score on his index to countries imposing general prohibitions against union organizing, countries with socio-economic breakdown and countries with general prohibitions against collective bargaining. But ideally, our coding method should account for the effects of all five of the indicators that serve as general prohibitions against union activity, including prohibitions on striking and mandating workers' councils as the only form of worker representation. Further, the default scores should accurately reflect the restrictions that general prohibitions may impose.

I establish the following set of procedures to deal with general prohibitions in an IRT framework. First, I drop the five problematic indicators (those with loadings to the left of zero) from the index. Second, for countries that impose a general prohibition against all union activity (i.e. coded '1' on item 12 in Figure 1), I give a default score of '1' for all remaining violations comprising the index except the five civil liberties violations. The logic of this coding is as follows. If a country imposes a general ban on unions, we know that it very likely also supports restrictions on all types of independent worker organizations and their activities, including collective bargaining and strikes. It may be overly restrictive, however, to assume that countries banning unions would also endorse civil liberties violations, such as the disappearance of union leaders.

Second, countries that only permit workers councils receive a score of an automatic score of '1' on all remaining items pertaining to union activity. These include items 1-11 and 15-18 in Figure 1. The logic of this coding is that a requirement that only permitting workers councils constitutes a *de facto* ban on free and independent unions. At the same time, while it is unlikely that workers councils will defend worker interests in any meaningful way, it may be overly

restrictive to assume that workers councils could never engage in any collective bargaining or carry out a strike.

Third, I give default scores of '1' on the remaining seven items in the collective bargaining subcategory (items 19-25) if a country allows the existence of unions, but imposes a general prohibition on collective bargaining. Similarly, I give default scores of '1' on the four remaining items in the strike subcategory (items 27-30) if the government allows unions to function but does not allow them to strike.

Finally, to deal with the issue of a lack of union activity due to civil conflict or state breakdown, I simply drop from the analysis countries that experience state failure according to the Polity IV dataset. This results in the elimination of most, but not all, countries that Kucera identifies as suffering from a dearth of union activity due to 'societal breakdown.' Colombia is an example of a country that Kucera identifies as undergoing 'societal breakdown' but that is not identified as a failed state by the Polity index. The theoretical reasoning behind including Colombia and other countries that undergo civil conflict, but not state failure, is that the persecution of union organizers can continue so long as the government and economy continue to function. A full list of countries that are eliminated or given default scores is included in Appendix Table A.

The loadings and 95 percent confidence intervals for the analysis utilizing this new set of procedures for assigning default scores are presented in Figure 2. Overall, the revised analysis suggests that the remaining 32 indicators relate to the same underlying concept of FACB rights. We see that with this method the loadings line up fairly well, and while many of the bargaining indicators are less than one, their confidence intervals are relatively narrow and do not include zero.

--figure 2 about here—

The results also suggest that the underlying concept being measured by the method is more strongly related to the right to form unions than collective bargaining rights or the right to strike. Many of the right-to-organize indicators, such as making employment conditional upon not being a member of a union, only allowing workers to join state-sponsored unions, the restriction of unions in tradable sectors, and the requirement that unions seek government approval to establish or join a federation, are more strongly related to the underlying concept of interest than most indicators. The violations of civil liberties, which are more closely linked to the right to organize than collective bargaining issues, are also strongly related to the underlying concept. By contrast, the loadings of the indicators related to collective bargaining, as well as the right to strike, are all less than 1, and the confidence intervals of two of the strike-related items include 0.

*Predicted Scores*

A major benefit of measurement models like IRT is that they provide a more objective basis for predicted country scores than weighting schemes constructed by the analyst. The predicted country scores based on the IRT model discussed above are displayed in Figure 3. The polarity of the scores is reversed so that positive scores represent better FACB rights. The predicted scores vary from -6.7 to 4.9. The confidence intervals for the predicted scores are wider at the bottom and the top, and narrow in the middle, suggesting the difficulty of making meaningful distinctions between countries with very high and very low levels of FACB rights. Overall the index appears to make meaningful distinctions between countries based on Kucera's coding of FACB rights, with approximately three or four distinct groupings of countries emerging from the analysis.

--figure 3 about here—

*The Face Validity of the Index*

The relative ranking of countries based on the predicted scores may raise questions about the precision of the method and how well it distinguishes between countries with high and low levels of respect for FACB rights. One problem is that while the index appears to do a decent job of distinguishing among OECD countries based on their labor rights, its distinctions between OECD and non-OECD countries have less face validity. By and large, the social market economies of northern Europe outscore liberal Anglo-American economies on the index, and this comports with the standard consensus regarding northern Europe's superior traditions of collective bargaining and robust union movements. Yet countries with much lesser reputations outrank some of the most labor-friendly governments of Northern Europe. For example, Sweden scores just below Turkmenistan and Denmark scores just below Georgia and above Tajikistan. Similarly, while we expect the US and the UK to place below the more labor-friendly countries of continental and Northern Europe, common sense leads us to question whether they belong in the bottom third of the ranking, with the UK sandwiched between Hong Kong and Belarus and the US being outscored by Lebanon and Egypt, among others.

The fact that the index cannot distinguish between what we assume would be countries with exemplary records on human rights and chronic abusers of human rights raises concerns. This could be happening for a number of reasons. First, it could be that there is not enough information to distinguish between countries' labor rights practices based on observed violations. Violations may be concealed from public view or the international press, so that the sources Kucera uses to record these violations do not pick up on them. Alternatively, the sources may have understandable biases, such as the fact that chronic human rights abusers may receive more

attention than countries with good human rights records. The sources may also have a temporal bias, so that the coverage of right violations increases and becomes more robust as labor rights becomes a focal issue in the wake of economic globalization.

Another ironic possibility is that some countries are scoring high because they lack robust labor movements. In other words, there are two reasons why countries may not exhibit labor rights violations. One is that there is a robust labor movement and the government adequately safeguards the FACB rights of its workers. The other is that there is no labor movement to respect or repress, and thus there are no labor rights to measure. For this reason, countries with high levels of labor mobilization are penalized relative to countries that exhibit few violations by virtue of the fact that they are endowed with less vocal and less active union movements. Here, we face a problem of 'conceptual equivalence', meaning that the concept of labor rights may not be equally relevant across countries due to variations in the extent to which workers mobilize.[i]

These variations in mobilization may be due to exogenous factors such as the level of industrial development or social and political instability that erodes civil society. A lack of industrial development would explain why countries like Eritrea or Mozambique score high on the index. A more damaging possibility for the Kucera method is that labor violations are not recorded because the government represses society too well. In other words, it may be that in some countries the state instills fear so effectively and pervasively that formal decrees or overt repression of the sort that would be recorded in textual sources is not required. This would seem like a plausible way to explain, for example, why Turkmenistan and other '-stans' of central Asia score so high on the index relative to other countries.

The problem conceptual equivalence is difficult to correct. On the one hand, it is hard to imagine a non-arbitrary way to assign index scores for countries lacking active labor movements,

and we may feel compelled to conclude that we cannot measure labor rights in countries that do not have a functioning union movement on the same scale as those that do have substantial union activity. At the same time, with international strike union density statistics being as thin as they are, it may be difficult to devise a non-arbitrary way for excluding countries lacking substantial union activity. In the end, scholars who use the Kucera method may simply need to exercise caution and clarity with respect to what the index actually captures. The index does not measure the exercise of labor rights, but rather the propensity for governments to violate labor rights in an overt way. It provides but one way to measure levels of labor rights that may be relevant for answering some questions but not others.

*The Construct Validity of the Index*

As was suggested earlier in the paper, it seems reasonable to expect labor rights to be related to but distinct from democracy. Worker protest and institutionalized grievance resolution are more standard in democracies, and we would expect workers to have better protections for their rights in a democratic than in an authoritarian setting. We would also expect workers to understand their rights better the more educated they become. Thus, as a test of construct validity, it makes sense to see how well the index in this paper relates to democracy scores and literacy rates.

Table 2 presents the correlation matrix for scores from four measures of labor rights, including the IRT scores presented in Figure 3, the weighted and unweighted scores from Kucera's original study, and the Cingranelli and Richards (CIRI) scores, along with measures of democracy (polity2) and literacy. Table 2 demonstrates that Kucera's original indexes barely correlate with democracy and literacy scores. The IRT index does a better job of correlating with democracy and literacy but still correlates equally well with Kucera's original indices. This

is very satisfying to our intuition that labor rights constitute a distinct subset of political rights, which should be bolstered but not determined by higher levels of democracy.

--table 2 about here—

It is worth noting that in this basic test of construct validity, the CIRI index, which is based on a simple trichotomous coding of labor rights, does better than either the original Kucera index or the IRT index in terms of the degree to which it correlates with democracy scores and literacy. This may be due to the fact that a more simplistic coding scheme makes it easier to make qualitative judgments regarding the placement of individual countries. While it is beyond the scope of this paper to do so, it might be worth thinking about how we validate such judgments, and how the basic intuition behind them might be applied to a more complex coding scheme.

**The Effects of FACB Rights Violations on FDI**

Despite its flaws, Kucera's method of measuring FACB rights may be helpful in answering certain questions, namely those that pertain to the overt violation of labor rights. One such question is whether levels of foreign direct investment are substantially affected by government respect for FACB rights, or lack thereof. Kucera finds no relationship between FACB rights, as measured by his index, and levels of FDI. This finding presents a major challenge the conventional "race-to-the-bottom" hypothesis in political economy, which posits that, *ceteris paribus*, footloose capital will seek out countries that advertise low labor standards in an effort to maximize productivity and minimize costs. Thus, it is important to determine whether the finding is robust to alternative methods of compiling the index scores, as well as alternative specifications of the model.

In his analysis, Kucera uses inflows as a percentage of total global investment flows as his measure of investment. Kucera's baseline model includes controls for wealth (the natural logarithm of GDP per capita), exchange rate volatility (the natural logarithm of the standard deviation of exchange rate change), population (logged), urbanization (percentage of the population living in urban areas), trade openness (imports plus exports as a percentage of GDP), democracy (polity2) and literacy. Adding his measure of labor rights to this baseline model, Kucera does not find a robust relationship between labor rights and investment.

In my reanalysis, I added relevant controls and substitute the labor rights scores discussed above. The additional controls include a coding for government crisis, taken from the Banks dataset, a control for existing levels of investment (the natural logarithm of FDI stocks as a percentage of GDP), the ratio of natural resource rents to national income, which serves as a measure of the resource dependency of the national economy (Dunning 2008), and an OECD indicator variable to control for north-south differences.[ii] Since the dependent variable in the original analysis is somewhat unconventional, I also reran the regressions using the log of FDI flows as a percentage of GDP. Finally, I included all of the countries for which I had data, which is roughly double the number included in Kucera's original analysis. For my analysis, all economic data are taken from the *Penn World Table*, democracy scores from the *Polity IV* dataset, and data on population and urbanization from the *Development Indicators Dataset* (World Bank).

--table 3 about here—

Table 3 presents the results of the analysis. The first four models explore the effects of four measures of labor rights on the log of the percentage of global investment flows. Model (1) presents the results using scores from the initial IRT analysis, model (2) looks at the Kucera

unweighted scores, model (3) the Kucera weighted scores and model (4) the CIRI scores. Models (5) - (8) explore the relationship between the same four measures and log FDI as a percentage of GDP.

Confirming Kucera's results, none of the eight models demonstrate a statistically significant relationship between FDI flows and government FACB rights. In model (1), the negative relationship between the IRT index and share of global investment flows is almost statistically significant at the .1 level, but as demonstrated by model (5) the relationship is not robust to an alternative measure of FDI flows. When FDI as a percentage of GDP is used as the measure, the relationship is far from significant and the sign of the coefficient is positive.[iii] More than a government's demonstration of respect for FACB rights, or its overt repression of labor, the factors that systematically affect investment are those commonly noted in the econometric literature—levels of human capital (as measured by literacy), existing stocks of FDI, north-south differences (as captured by the OECD dummy), and country size (as measured by population). GDP per capita is correlated with a higher share of global FDI flows but, as one might expect, a lower level of investment per capita.

**Conclusion**

This paper used item response theory (IRT) to analyze a prominent method for measuring FACB rights developed by David Kucera (2007, 2001). The IRT analysis reveals mostly good news for proponents of the Kucera method. Aside from five general prohibitions against union activity, the items relate to the same latent concept, which I have argued should be construed as the government's propensity to violate labor rights. The items of the Kucera index pertaining to the right to organize and the civil liberties of union members relate more strongly to the latent concept than the items pertaining to the right to collective bargaining and the right to strike.

The IRT analysis also yields more rigorously scientific index scores, which reveal some problems with the method. Specifically, the index scores suggest that Kucera's method does a poor job of distinguishing between countries known to have superb FACB rights and countries known to have poor or non-existent FACB rights. The problem appears to be that countries with highly mobilized labor movements get penalized by the index, relative to countries with little or no labor mobilization. The lack of mobilization could be due to levels of industrialization or, ironically, to highly effective repression of civil society. I conclude that this poses a problem of conceptual equivalence that is perhaps insurmountable, but that the index is still useful as a measure of the overt violation of labor rights.

In the final part of the paper, I use the IRT index to analyze the relationship between FACB rights and foreign direct investment. I endeavor to improve upon Kucera's analysis by increasing the number of cases and the number of controls, and by analyzing an additional measure of foreign direct investment. My findings are consistent with those Kucera's original study, which finds no statistically significant relationship between labor rights and FDI, and thereby provide more evidence against the traditional 'race to the bottom' hypothesis. Investment is more likely to be influenced by levels of human capital, existing stocks of investment, north-south differences, and country size than by government repression of organized labor.

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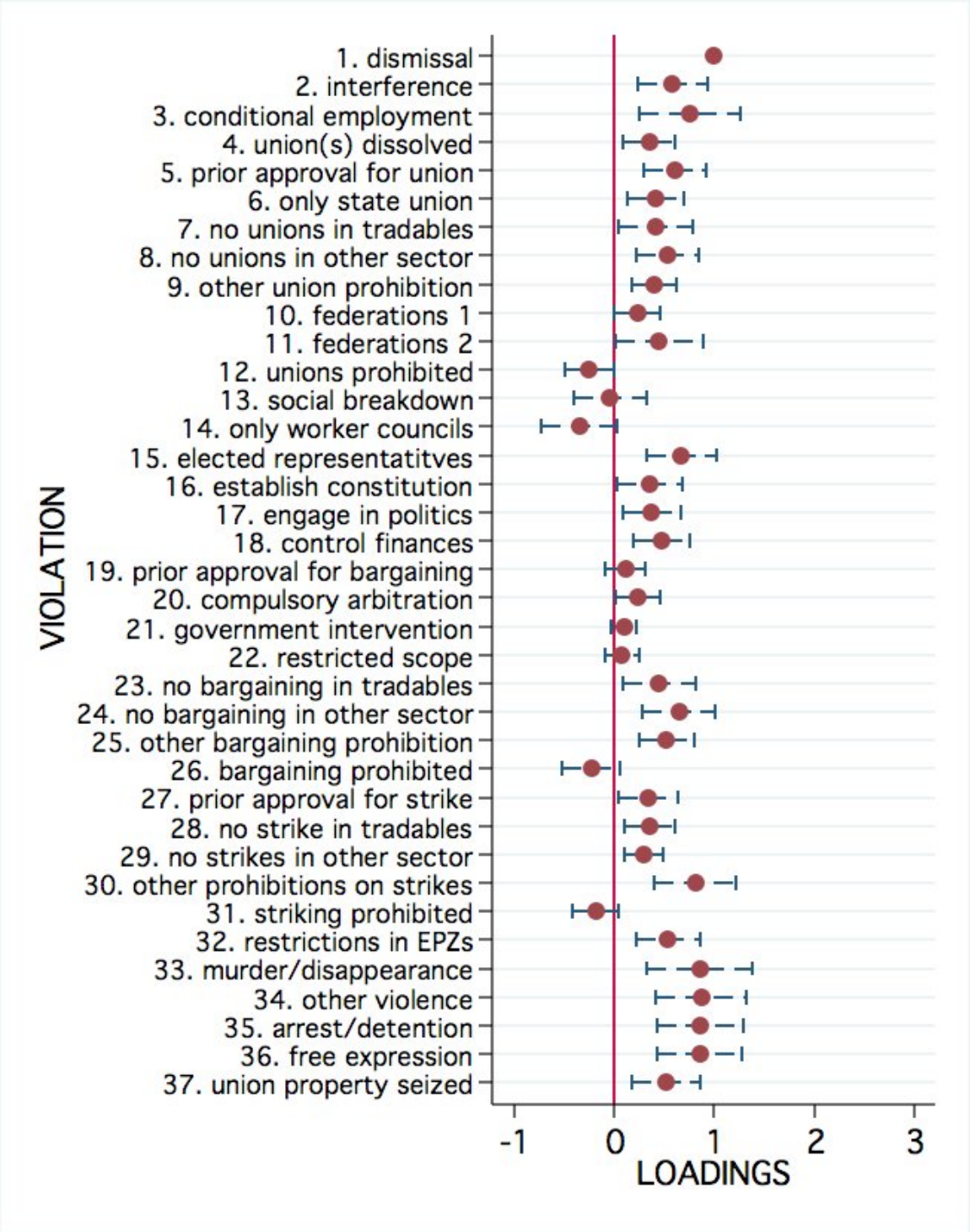


**Figure 1: Loadings for the Basic 2 Parameter IRT Model**

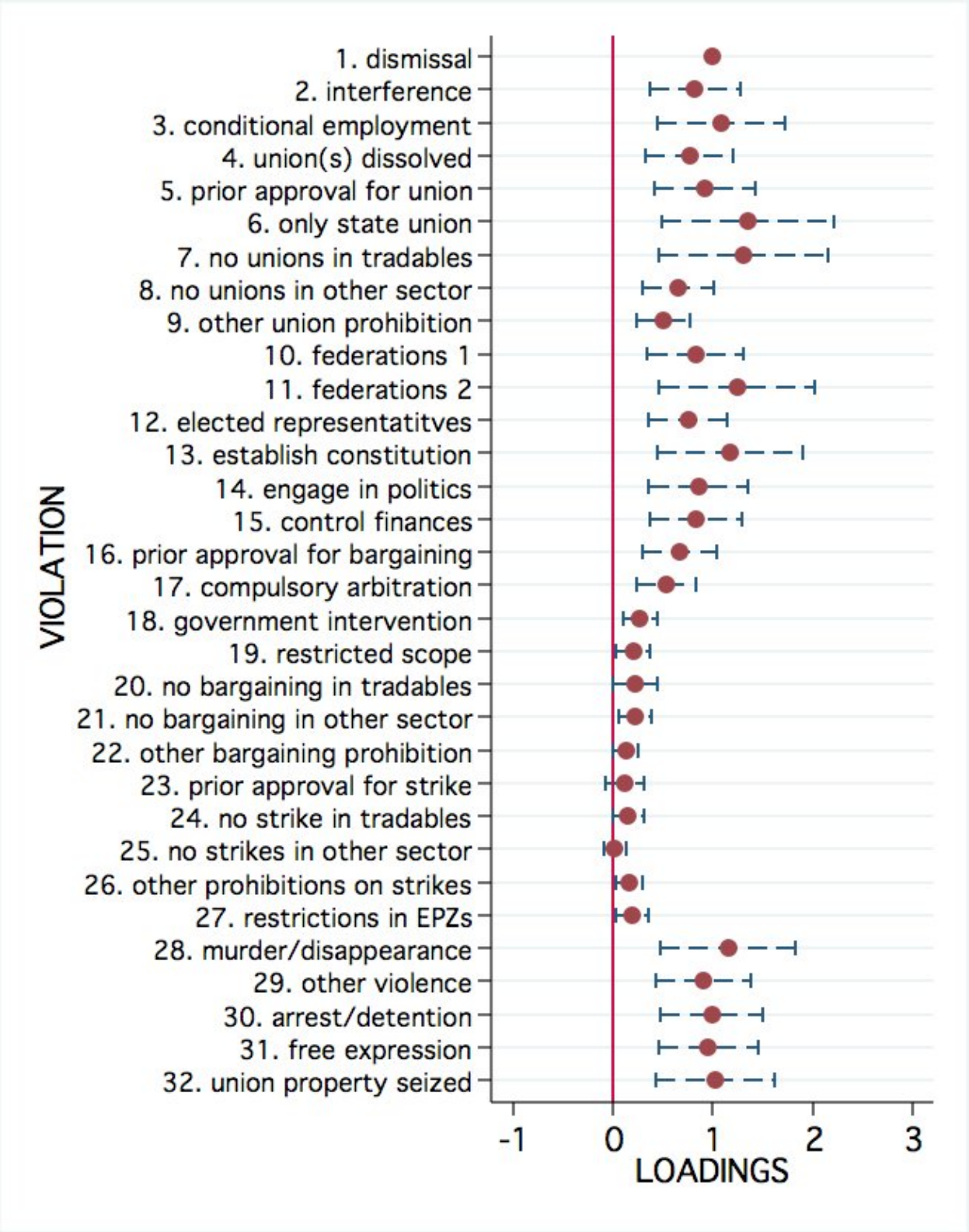


**Figure 2: Loadings for the IRT Model Using the 'Default Score' Method**

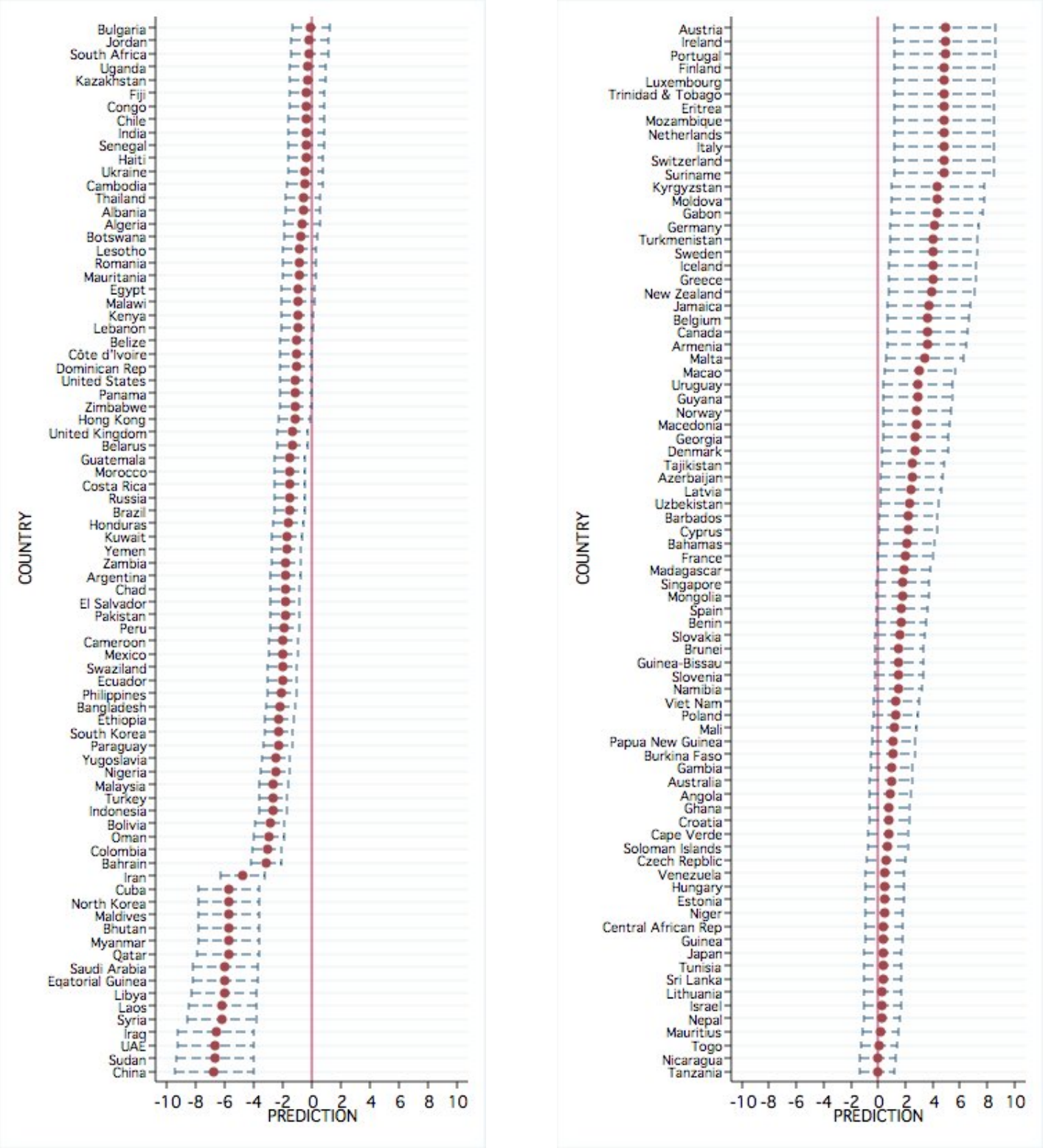


**Figure 3: Predicted Scores and 95% Confidence Intervals**

## Table 1: The Kucera Coding Method

| Item | Assigned Weight |
|---|---|
| **Right to establish and join unions or worker organizations** | |
| 1. Dismissal or suspension for union membership or engaging in union activities | 1.5 |
| 2. Interference of employers in union activities; attempts to dominate unions | 1.5 |
| 3. Employment conditional on worker not belonging to a union | 1.5 |
| 4. Unions dissolved or suspended by an administrative authority | 2 |
| 5. Previous authorization required to form a union | 1 |
| 6. Only state-sponsored or other single union permitted | 1.5 |
| 7. Workers in tradeable/industrial sectors prohibited from joining unions | 2 |
| 8. Workers in other sectors prohibited from joining unions | 2 |
| 9. Other specific problems or prohibitions with respect to union organizing | 1.5 |
| 10. Restrictions on right to establish or join union federations or confederations | 1.5 |
| 12. General prohibitions against union activity | If present, country receives default score |
| 13. General absence of union activity due to 'socio-economic breakdown' | If present, country receives default score |
| 14. Only workers' committees and labor councils permitted | 2 |
| **Other union activities** | |
| 15. Right to elect representatives in full freedom | 1.5 |
| 16. Right to establish constitutions and rules | 1.5 |
| 17. Unions and union federations prohibited from engaging in political activities | 1.5 |
| 18. Interference in union control of finances | 1.5 |
| **Right to collectively bargain** | |
| 19. Previous authorization required to enter into a collective bargaining agreement | 1.5 |
| 20. Compulsory binding arbitration | 1.5 |
| 21. Intervention of authorities in collective bargaining process | 1.5 |
| 22. Scope of bargaining restricted by non-state employers | 1.5 |
| 23. Workers in tradable/industrial sectors excluded from right to collectively bargain | 1.75 |
| 24. Workers in other sectors excluded from right to collectively bargain | 1.75 |
| 25. Other specific problems or prohibitions with respect to collective bargaining | 1.5 |
| 26. General prohibitions against collective bargaining | If present, country receives default score |
| **Right to strike** | |
| 27. Previous authorization required to go on strike | 1.5 |
| 28. Workers in tradable/industrial sectors excluded from right to strike | 1.5 |
| 29. Workers in other sectors excluded from right to strike | 1.5 |
| 30. Other specific problems or prohibitions with respect to the right to strike | 1.5 |
| 31. General prohibitions against the right to strike | 2 |
| **Export processing zone** | |
| 32. Restricted rights in EPZs | 2 |
| **Freedom of association/collective bargaining-related civil liberties** | |
| 33. Murder or disappearance of union members or organizers | 2 |
| 34. Other violence against union members or organizers | 2 |
| 35. Arrest, detention, imprisonment, or forced exile for union membership or activities | 2 |
| 36. Interference with union rights of assembly, demonstration, free opinion, free expression | 2 |
| 37. Seizure or destruction of union premises or property | 2 |

Note: Based on Kucera (2001), Appendix Table A

**Table 2: Correlation Matrix for Four Alternative Scoring Measures, Democracy Scores, and Literacy**

| | IRT Score | Kucera | Kucera Weighted | CIRI Score | Polity2 | Literacy |
|---|---|---|---|---|---|---|
| IRT Score | 1.0000 | | | | | |
| Kucera | 0.9167 | 1.0000 | | | | |
| Kucera Weighted | 0.9288 | 0.9887 | 1.0000 | | | |
| CIRI Score | 0.6536 | 0.5620 | 0.5740 | 1.0000 | | |
| Polity2 | 0.4501 | 0.3037 | 0.3368 | 0.6153 | 1.0000 | |
| Literacy | 0.2016 | 0.1331 | 0.1545 | 0.2842 | 0.3140 | 1.0000 |

**Table 3: Labor Rights and FDI Flows**

| | Ln Flows as Percent of Global FDI Flows | | | | Ln Flows as Percent of GDP | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| IRT Score | -0.058 | | | | 0.021 | | | |
| | (0.037) | | | | (0.038) | | | |
| Kucera | | -0.04 | | | | 0.018 | | |
| Unweighted | | (0.030) | | | | (0.031) | | |
| Kucera Weighted | | | -0.046 | | | | 0.005 | |
| | | | (0.032) | | | | (0.033) | |
| CIRI Score | | | | 0.057 | | | | 0.202 |
| | | | | (0.159) | | | | (0.162) |
| Ln Per Capita | 0.744*** | 0.739*** | 0.742*** | 0.786*** | -0.372** | -0.371** | -0.368** | -0.347** |
| GDP | (0.161) | (0.161) | (0.161) | (0.164) | (0.165) | (0.165) | (0.165) | (0.168) |
| Ln SD Exchg | -0.007 | -0.008 | -0.008 | -0.021 | 0.009 | 0.008 | 0.013 | 0.018 |
| Rate Change | (0.055) | (0.056) | (0.055) | (0.055) | (0.057) | (0.057) | (0.057) | (0.056) |
| Ln Population | 0.891*** | 0.892*** | 0.890*** | 0.942*** | 0.02 | 0.023 | 0.012 | 0.037 |
| | (0.069) | (0.071) | (0.070) | (0.069) | (0.071) | (0.072) | (0.072) | (0.071) |
| % Population | 0.009 | 0.010* | 0.010* | 0.010* | 0.005 | 0.005 | 0.004 | 0.005 |
| Urban | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) |
| Trade | 0.001 | 0.002 | 0.002 | 0.001 | 0.004 | 0.004 | 0.004 | 0.004 |
| | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Polity2 Score | 0.025 | 0.023 | 0.023 | 0.02 | 0.009 | 0.01 | 0.01 | 0.003 |
| | (0.017) | (0.017) | (0.017) | (0.018) | (0.017) | (0.017) | (0.017) | (0.019) |
| Government Crisis | -0.335 | -0.329 | -0.327 | -0.382 | -0.267 | -0.271 | -0.264 | -0.242 |
| | (0.278) | (0.280) | (0.279) | (0.289) | (0.286) | (0.286) | (0.287) | (0.296) |
| % Literacy | 0.016*** | 0.016*** | 0.016*** | 0.014** | 0.020*** | 0.020*** | 0.020*** | 0.019*** |
| | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) |
| Ln Stocks/GDP | 0.733*** | 0.728*** | 0.728*** | 0.703*** | 0.666*** | 0.668*** | 0.669*** | 0.670*** |
| | (0.090) | (0.090) | (0.090) | (0.091) | (0.092) | (0.092) | (0.092) | (0.093) |
| Resource | -0.001 | -0.001 | -0.001 | -0.003 | -0.001 | -0.001 | -0.001 | -0.003 |
| Extraction | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) |
| OECD | 1.004*** | 0.954*** | 0.959*** | 0.705** | -0.061 | -0.058 | -0.007 | -0.125 |
| | (0.306) | (0.302) | (0.300) | (0.292) | (0.313) | (0.308) | (0.307) | (0.299) |
| Constant | -27.182*** | -26.903*** | -26.876*** | -28.119*** | -0.538 | -0.698 | -0.482 | -1.149 |
| | (1.467) | (1.527) | (1.521) | (1.514) | (1.506) | (1.563) | (1.561) | (1.550) |
| Observations | 123 | 123 | 123 | 120 | 124 | 124 | 124 | 121 |
| R-squared | 0.89 | 0.89 | 0.89 | 0.89 | 0.55 | 0.55 | 0.55 | 0.52 |

Notes: OLS regressions with standard errors in parentheses. *** significant at 1%; ** significant at 5%; * significant at 10%. Dependent variables are 1) the natural log of a country's share of global FDI flows and 2) the natural log of a country's FDI flows as a percentage of its GDP. Data for independent variables are taken as averages for the period 1994-1997. Data for dependent variables are taken as an average for 1994-1999.

**Appendix Table A: Countries With General Prohibitions on Union Activities**

| | General prohibition on Unions | Countries Experiencing State Failure | Only workers councils permitted | General prohibition on collective bargaining | General prohibition on strikes |
|---|---|---|---|---|---|
| Afghanistan | | 1 | | | |
| Bahrain | | | 1 | | |
| Bhutan | 1 | | | | 1 |
| Bolivia | | | | | 1 |
| Bosnia | | 1 | | | |
| Botswana | | | | | 1 |
| Burundi | | 1 | | | |
| Chad | | | | | 1 |
| China | 1 | | | 1 | |
| Colombia | | | | | |
| Comoros | | 1 | | | |
| Congo | | 1 | | | |
| Cuba | 1 | | | 1 | 1 |
| Egypt | | | | | 1 |
| Equatorial Guinea | 1 | | | | 1 |
| Iran | | | 1 | 1 | |
| Iraq | 1 | | | | |
| Laos | 1 | | | 1 | 1 |
| Liberia | | 1 | | | 1 |
| Libya | 1 | | | | |
| Maldives | 1 | | | | |
| Myanmar | 1 | | | 1 | 1 |
| North Korea | 1 | | 1 | 1 | 1 |
| Oman | | | 1 | | 1 |
| Qatar | 1 | | 1 | 1 | |
| Rwanda | | | | | |
| Saudi Arabia | 1 | | | 1 | 1 |
| Sierra Leone | | 1 | | | |
| Somalia | | 1 | | | |
| Sudan | 1 | | | | 1 |
| Syria | 1 | | | | |
| UAE | 1 | | 1 | 1 | 1 |
| Yugoslavia | | | | 1 | |

[i] For a discussion of conceptual equivalence, see Hui and Triandis (1985). I thank John Sides for calling my attention to this term.

[ii] Dropping OECD countries from the analysis produces similar results as those reported here.

[iii] Running the regressions using the natural log of FDI flows (with no denominator) as the dependent variable yields similar results.