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The Adoption of International Labor Standards Conventions: Who, What, and Why?

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Abstract: The ratification of ILO Labor Standards Conventions is a key explanatory variable in the empirical literature linking labor standards to economic performance. The assumption is that ratification gives information on labor standards implemented in a country. This paper investigates the determinants of ratification directly and, indirectly, the determinants of labor standards. We find considerable variation across different Conventions, and across developing and developed countries. But there are some systematic and interesting patterns. While economic variables such as real per capita income do not explain ratification, legal systems do. Most interestingly, for some Conventions, even after controlling for basic economic characteristics and domestic legal institutions, we find that peer effects are in play – the probability of adopting an international standard depends on how many other countries in a peer group have already adopted that standard.

Non-Technical Summary

In the empirical economic literature on labor standards and economic performance, the adoption of international labor standards is measured by the ratification of ILO Conventions and is treated as an exogenous variable that explains labor costs, growth, exports or inward foreign direct investment. Thus the ratification of ILO Conventions is assumed to be correlated with higher labor standards in the ratifying country. But in popular discussions, the ILO is characterized as having no "teeth" to enforce standards, and ratification is often characterized as having no substantial meaning. Which view is nearer to the truth?

This paper develops a framework where a country's decision to ratify is made simultaneously with the decision on degree of implementation, taking into account the costs and benefits. Without an international standard, a country has a "natural" standard that it would adopt. A system of international standards changes the cost-benefit calculus since there may be costs of not adopting the international standard, costs which may differ depending on whether the country ratifies or does not ratify an ILO Convention. It is shown that if there were no difference at all in the costs of deviating from an international standard, for a country which ratifies compared to a country which does not, ratification should not have any systematic empirical determinants. On the other hand, if we do find systematic determinants of ratification, this suggests that ratification is not costless and, moreover, ratification is indeed correlated with higher domestic standards.

The rest of the paper is devoted to an empirical investigation of the time patterns of ratification for four core ILO Conventions - Right to Organize and Collective Bargaining; Abolition of Forced labor; Discrimination; and Minimum Age - using ratification and other data for 97 countries from 1950 to 1992. We estimate the probability of ratification for a country in any year, given that it has not so far ratified the Convention. In contrast to the emphasis put on them in the theoretical and some of the empirical literature, we find that basic economic variables - real income per capita, degree of openness to trade, education levels, degree of urbanization - do not explain the probability of ratification. Neither does

the political rights variable, which has been suggested by some theorists.

The two key variables which matter are legal systems and peer effects. Legal systems are classified according to their origins as belonging to one of five types - British common law, French civil law, German civil law, Scandinavian civil law and socialist law. Countries with Scandinavian civil law have higher probability of ratifying the Conventions, while countries whose legal systems have origins in socialist law have lower probability of ratification. It is argued that this may well be connected to the quality of enforcement and efficiency that is characteristic of these different systems.

For two of the four Conventions (Right to Organize and Abolition of Forced Labor), peer effects are important. The probability of ratification is higher the greater is the number of countries from a reference group who have already signed. We consider three reference groups in turn – export orientation (five categories), level of development (two categories) and geographical region (seven categories). Each specification yields statistically significant effects, even after we introduce a time variable to take into account the fact that ratifications have generally increased over time. Such peer effects suggest empirical support for the hypothesis of "strategic complementarity" in labor standards – the benefits to a country from adopting a standard increase with the number of countries who have already adopted that standard.

While there are variations across the Conventions in terms of their determinants, the basic fact is that for all the four Conventions considered we are able to find determinants which explain ratification. Returning to the theoretical framework, therefore, the empirical analysis suggests that ratification of an ILO Convention is not random and meaningless. There are costs to ratification, and countries which ratify are likely to have higher domestic standards.

1 Introduction

In the empirical literature on labor standards and economic performance, the adoption of international labor standards is measured by the ratification of ILO Conventions and is treated as an exogenous variable that explains labor costs, growth, exports or inward foreign direct investment. For example, OECD (1996) attempts to relate aggregate and labor intensive exports to the ratification of ILO Conventions. No relationship is found, which is interpreted by some as suggesting that there are no economic costs to the adoption of labor standards. But Mah (1997), who also investigates the role of labor standards on export performance, finds a negative association between the ratification of certain "core" ILO Conventions and performance. Rodrik (1996) tries to explain manufacturing labor costs and finds that the number of Conventions ratified is statistically significant. Palley (1999) finds a positive association between economic growth and the ratification of the Freedom of Association Convention. But Rama (1995) argues that the number of ILO Conventions ratified is not significant as a determinant of growth performance in Latin America.

Throughout this empirical literature, therefore, the ratification of ILO Conventions is assumed to provide information on labor standards adopted and implemented in a country. The object of this paper is to investigate the determinants of ratification directly and, indirectly, the determinants of labor standards. It presents an empirical analysis of the time patterns and determinants of ratification. Despite the relative lack of emphasis on enforcement and punishments associated with these Conventions, we find evidence suggesting a process of self-selection and matching in which the probability of ratification depends on country characteristics. For example, we find that peer effects are in play. For some Conventions, the probability of ratification depends on how many other countries in a peer group have already ratified that Convention.

The plan of the paper is as follows. Section 2 introduces the ILO Core Conventions that are the focus of interest, presents basic data on their ratification and begins the discussion on basic time patterns in ratification. Section 3 develops an analytical framework

for the empirical analysis by considering the ratification decision and its determinants. Section 4 presents the econometric results, and Section 5 concludes.

2 ILO Core Conventions: Who Ratifies and When

ILO Conventions are international treaties, subject to ratification by member states. There are now more than 180 Conventions on a wide array of subjects. But the ILO itself has established a set of "core" labor standards. These standards are laid out in the ILO Declaration on Fundamental Principles and Rights at Work (ILO 1998) under four main headings, as shown in Table 1. These constitute the eight fundamental Conventions of the ILO.

However, the decision to ratify any of these Conventions remains the right of each member nation, and it reflects willingness on the part of the ratifying country to enact legislation, and put in place mechanisms that facilitate implementation in practice. On the part of the ILO, three types of mechanisms are in place to ensure compliance. First, systems of supervision are in place to improve transparency and to oversee compliance.[2] A second component of ILO activities that facilitate improvements of labor standards takes the form of technical assistance and financial support, especially for the poorest countries. Finally, in cases of violation where recommendations are not responded to, Article 33 of the ILO constitution provides that members take "measures of an economic character" against the violating country.

These mechanisms outline the extent to which there may be explicit costs and benefits associated with ratifying ILO Conventions. But what is repeatedly stressed in policy and popular writings is that sanctions against non-complying members have very rarely been invoked. And it is generally agreed that the ILO lacks "teeth" to enforce implementation of Conventions that have been ratified.[3] But if it was true that countries faced

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[2]See Elliot (2000) for an indepth discussion of the three basic tools – referred to therein as "sunshine", "carrots", and "sticks" – employed to enforce labor standards by the ILO.

[3]In a recent high profile case, the governing body of the ILO invoked Article 33 (Failure to carry out recommendation of Commission of Inquiry or International Court of Justice) in March 2000 for the

no costs whatsoever (explicit or implicit) of complying, one might expect all countries to ratify every Convention, assuming even a miniscule benefit of signing on. At least, we would not expect any systematic connection between ratification and actual domestic standards, in which case the common use of ratification data in the empirical literature on labor standards would be questioned.

This paper will show that there are indeed systematic determinants of ratification for some Conventions, and that for these Conventions there is evidence to suggest that ratification of an international standard is an indicator of the domestic level of that standard. But that will come in subsequent Sections. As a build up to that analysis we consider now the broad time patterns of ratification of four selected core Conventions – one from each category in Table 1. Of the eight core Conventions, the last one, on Worst Forms of Child Labor, 2000, (Convention 182, henceforth C182) is too recent to provide useful information on time patterns of ratification, so we choose C138 from the last category. The economic data used in Section 4 goes back to 1950 and cannot cover the early period of the Forced Labor Convention, 1932 (C29), so we choose C105 from the second category. Of the other two categories, we choose the later Conventions. This gives us C98 (Rights to Organize), C105 (Abolition of Forced Labor), C111 (Discrimination) and C138 (Minimum Age) as the four core Conventions that are the focus of this study.

Table 2 lists ratification dates for each Convention from the ILOLEX database (ILO 2001), and date of independence where relevant for the 97 countries in our data set. The Table shows up some interesting features. For example, the USA and Canada have not signed the Right to Organize Convention. In fact, the USA has only signed one of the four Conventions listed. European Countries were early signatories to the Right to Organize Convention, except Switzerland, which waited till 1999. In general, there seems to be a fair amount of variation in who ratified which convention and when.

very first time, and approved a resolution in condemnation of the government of Myanmar. The resolution condemned Myanmar's failure to comply with Convention No. 29 (forced labor convention), and her failure to take actions in response to the recommendation of the Commission of Inquiry regarding the use of forced labor. But the unusualness of this illustrates the lack of explicit enforcement of ILO Conventions.

Figures 1-4 plot frequency distributions of ratification by year of ratification. For C98, C105 and C111 the peak frequency comes near the start while for C138 the frequency is low and constant in the first two decades. For all four Conventions, there was clearly a surge of ratification from the second half of the 1990s onwards. As elaborated in ILO (2001), this might be attributed to the ILO campaign launched in May 1995 following the World Summit on Children. Another development since 1995 with a similarly "supply-side" orientation was the declaration of the WTO Ministerial Conference in Singapore in 1996, which underscored the commitment of participating member nations to observe internationally recognized core labor standards, and declared the ILO as the "competent body to set and deal with these standards" (WTO 1996). The break in the frequency of ratification dates would seem to be particularly acute for C138, the minimum age Convention. Between 1997 and 2001, 46 countries ratified this Convention, as compared to the 59 countries that ratified in all its previous 20 years of its existence. Our econometric analysis in Section 4 is restricted to the years 1950 to 1992 because of data limitations, but future analyses will have to consider and allow for this late surge in ratifications carefully.

For a typical Convention, let t_i denote the effective years between promulgation of a Convention by the ILO and its ratification by country i. If τ_0 is the year of promulgation, and T_i the year of independence of country i, define,

$$\tau_{i0} \equiv \max\{\tau_0, T_i\},$$

Then, if τ_i is the year of ratification by country i,

$$t_i = \tau_i - \tau_{i0}.$$

Let the probability that country i ratifies a convention no later than t_i years be given by:

$$F(t_i)$$

with an associated density function

$$f(t_i).$$

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The "survival rate", that is, the probability of not having ratified the Convention when time t_i has passed, is of course

$$S(t_i) = 1 - F(t_i).$$

Figures 5-8 summarize information on time elapsed to ratification for each of the four Conventions, in the form of estimates of the survival function $1 - F(t)$. The Kaplan-Meier estimate of the survival function (Neumann 1999), is given by:

$$\prod_{s=1}^{t}(1 - \frac{d_s}{n_s}).$$

where d_t is the number countries that ratifies the Convention between t and $t+1$ years after τ_{i0}, and n_t is the number of countries that have not yet ratified the Convention at time t. The survival curves estimated for each Convention, i.e. the probability that ratification does *not* take place after t years have elapsed, are plotted in Figures 5 - 8 for developing and developed countries separately.

The Figures show that developing countries were by and large late adopters of C98 (Right to Organize), C105 (Abolition of Forced Labor) and C138 (Minimum Age), but the survival probabilities for developed and developing countries appear to be similar for C111 (Discrimination). Moreover, the different Conventions took very different lengths of time to get ratified. The time elapsed for the survival probability for developing countries to fall to a half is about 3 years for C105, while it had not fallen to half after 20 years for C138. For C98 and C111 it was around 10 years. This variation across country groupings and across Conventions suggests that ratification is not simply a random occurrence, unrelated to underlying socio-economic determinants. The next section begins the detailed task of understanding the ratification decision.

3 The Decision to Ratify

How are we to think about the determinants of the adoption or otherwise of international labor standards? One way to approach this is in two steps. First, imagine a world in which there are no international labor standards. Then we can model a country's optimal choice

of standards as reflecting different costs and benefits of adopting the given standard. Second, superimpose on this a system and mechanism of international labor standards. The country decides whether or not to adopt them and enforce them depending on the costs and benefits of adoption and compliance. What we observe, namely the ratification of ILO Conventions, then has these two components intricately entwined.

Let

$$W = U(s) \tag{1}$$

be the welfare of a country that implements domestic standard s when there is no international standards regime.[4] Now suppose an international labor standards regime comes into being, requiring as standard $\hat{s}$. Should the country sign on? We suppose that when there is an international regime, the welfare of a country which does not ratify is given by:

$$W'(s, \hat{s}) = U(s) - V'(s, \hat{s}) \tag{2}$$

where $V'(\cdot)$ is a cost function dependent on s and $\hat{s}$. We suppose that $V'(\cdot)$ is positive for $\hat{s} > s$, and zero otherwise – in other words, there are no costs to deviating from the international standard in the upward direction.

Now consider what happens when a country ratifies the international standard. We suppose that there is a fixed gain of B at signing. This can be thought of in a number of different ways, including for poorer countries, access to technical assistance and other support which signing on makes possible. Moreover, B could also be negative if, for example, the domestic political economy views signing as "caving in" to international demands or as unnecessarily restricting room for future maneuver. However, signing on also intensifies the costs of deviating from the international standard, so that welfare after signing on is

$$W''(s, \hat{s}) = U(s) + B - V''(s, \hat{s}) \tag{3}$$

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[4]The actual form of this function may vary depending on the specific stanard and the context. For a specific form in the context of trade competition, see Chau and Kanbur (2000).

with V'' also having the property that it is positive for $\hat{s} > s$ and zero otherwise, and furthermore

$$V'' > V' \quad \text{for all } (s, \hat{s}).$$

The country's problem can now be characterized as follows. First of all, choose s to maximize (2) and (3). Then compare the maximized values of W' and W'' to decide on ratification. It will turn out that the value of s which maximizes (1) will also be relevant to this decision, so, in obvious notation, let $\tilde{s}$, $\tilde{s}'$ and $\tilde{s}''$ be the values of s which maximize (1), (2) and (3) respectively, and let $\tilde{W}$, $\tilde{W}'$ and $\tilde{W}''$ be the corresponding maximized values of welfare in the three regimes. Then clearly the choice of ratification depends on

$$\begin{aligned} \Delta W &= \tilde{W}'' - \tilde{W}' \\ &= B + [U(\tilde{s}'') - U(\tilde{s}')] + [V''(\tilde{s}'', \hat{s}) - V'(\tilde{s}', \hat{s})]. \end{aligned} \tag{4}$$

To get a sharper insight into the determinants of the ratification decision, consider the following highly specific functional forms:

$$U(s) = \beta s - \frac{1}{2}s^2 \tag{5}$$

$$V'(s, \hat{s}) = \begin{cases} \frac{1}{2}\theta'(\hat{s} - s)^2 & \text{if } s < \hat{s} \\ 0 & \text{if } s \geq \hat{s} \end{cases} \tag{6}$$

$$V''(s, \hat{s}) = \begin{cases} \frac{1}{2}\theta''(\hat{s} - s)^2 & \text{if } s < \hat{s} \\ 0 & \text{if } s \geq \hat{s}, \end{cases} \tag{7}$$

where β is positive and represents the country-specific marginal gains from implementing domestic standard s, and θ'' and θ' parameterize respectively the marginal costs of deviating from the international standard $\hat{s}$, depending on whether or not the country has ratified the standard.

With these functional forms, (5) implies that

$$\tilde{s} = \beta \tag{8}$$

and thus β gives the optimal standard in the absence of an international standards regime. We refer to this as the "natural" domestic standard. Restricting attention first to the case

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where $\beta < \hat{s}$, we get

$$\tilde{s}' = \frac{\beta + \theta'\hat{s}}{1 + \theta'} \tag{9}$$

$$\tilde{s}'' = \frac{\beta + \theta''\hat{s}}{1 + \theta''}. \tag{10}$$

It is straightforward to verify that $\tilde{s}' > \tilde{s}$ and $\tilde{s}'' > \tilde{s}$ whenever the marginal costs of deviating from the international standard θ' and θ'' are strictly positive. In addition, $\tilde{s}' < \hat{s}$ and $\tilde{s}'' < \hat{s}$ so long as θ' and θ'' are finite. If we further simplify θ' and θ'' to

$$\theta' = \bar{\theta} - \delta; \ \ \delta < \bar{\theta} \tag{11}$$

$$\theta'' = \bar{\theta} + \delta. \tag{12}$$

it follows that

$$\tilde{s}'' - \tilde{s}' = \left(\frac{2\delta}{(1+\bar{\theta})^2 - \delta^2} \right) (\hat{s} - \tilde{s}), \tag{13}$$

and the welfare of a country that ratifies the international standard changes by

$$\Delta W = B - \frac{\delta}{(1+\bar{\theta})^2 - \delta^2}(\hat{s} - \tilde{s})^2. \tag{14}$$

Finally, when $\beta \geq \hat{s}$, we get

$$\tilde{s}' = \tilde{s}'' = \beta; \ \ \Delta W = B. \tag{15}$$

From equation (14), the ratification decision is seen to depend not only upon the "natural standard" for a country, $\tilde{s}$, but also the relative marginal costs of not enforcing the international standard, as captured in δ. The higher is the natural standard in a country, the more likely it is to ratify, and the greater is the relative cost of not enforcing when it does ratify, the less likely it is to ratify. Equations (13), (14) and (15) together also tell us that provided $\delta \neq 0$, the standard in a ratifying country is no lower than the standard in a non-ratifying country.

In the empirical context, if we think of B as being an unobservable term not systematically related to labor standards, equations (13), (14) and (15) can help us to draw inferences from the econometric analysis of ratification. In particular, if we find no systematic determinants of ratification, it follows that $\tilde{s} \geq \hat{s}$, or $\delta = 0$. If $\hat{s} > \tilde{s}$, which seems

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a reasonable assumption for many countries, then an implication of the allegation that deviation from international standards is almost totally costless, is that we should not find systematic determinants of ratification. On the other hand, if we do find systematic determinants of ratification in the data, this implies both that $\delta \neq 0$, and that $\hat{s} > \tilde{s}$. In this case, using (13) and (14), it also implies that actual standards with ratification are higher than actual standards without, which of course is the implicit assumption in the empirical literature on labor standards and performance, and it justifies the use of ratification as a measure of labor standards.

The key issue is then whether we can in fact find systematic determinants of ratification in terms of systemtaic determinants of $\tilde{s}$ (the "natural" standard) and δ (the costs of deviating from an international standard). Taking $\tilde{s}$ first, the existing theoretical literature can be interpreted as providing at least five explanations for the choice of particular labor standards by a given country: (i) a by-product of the type of industrial and labor relations adopted in the development process; (ii) a consequence of greater openness to trade; (iii) a response to domestic political influences; (iv) a strategic response to labor standards set in peer countries; and (v) a legacy of a country's legal origin.

Taking the rapid growth of the East Asian newly industrialized economies and the subsequent improvement in labor standards in these countries as a backdrop, Fields (1990) distinguishes between direct and indirect promotion of labor standards. Direct promotion involves aggressive programs aimed at regulating labor standards in the work place. Indirect measures put emphasis on growth, and improvements in employment opportunities, wage income and other labor standards follow as by products of the growth process. Indeed, many newly industrialized economies underwent periods of wage repression policies (Fields and Wan 1989), wherein restrictions on union activities, strikes and collective bargaining in the name of export-oriented industrialization were employed.[5] In this view, then, an increase in per capita income (or labor productivity) increases the likelihood of

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[5]Also see Kuruvilla (1996) which documents the link between industrial growth and policies on labor standards in Singapore, Malaysia, the Philippines and India, and finds that export oriented policies were implemented alongside repression on labor rights.

stronger labor standards in that country.

Rodrik (1996) argues that opening to trade makes standards more costly to maintain. In particular, the producer cost of high standards can be passed on to consumers via higher prices in closed economies, but the entire burden of the costs of high standards may be borne by producers if prices are determined competitively in the world market. In contrast, Bagwell and Staiger (1999) show that import competition need not be an enemy of high labor standards. If openness to trade reduces the social costs of raising labor standards in import competing sectors, opening up an economy to trade can in fact enhance governments' incentive to adopt higher labor standards.

Brown (2000) discusses the role of a well-functioning democracy in government regulation of labor standards. In particular, if high labor standards also have the effect of improving worker-employer relations, the policy choice in democratic societies will likely be a revelation of these benefits of high labor standards. Political rights thus emerge as an important determinant. Cassella (1996) considers two democratic trading economies, where the median voter is decisive in the choice of labor standards. If free trade leads to factor price equalization, and if the median voter in one country is a skilled worker, there may be a higher preference for higher standards than for an increase in employment opportunities there, compared to the case where the median voter in the other country is an unskilled worker. The skill composition of the workforce, which we measure here in terms of schooling, thus emerges as another possible explanation for differing labor standards across countries.

Portes (1990) offers a different perspective on the globalization and labor standards linkage. Rather than reflecting workers' needs, labor standards in developing countries are influenced by ideas, values and institutional forms imported from abroad. But the segmentation of the workforce into those that are protected, and those that are not is a key factor underlying the emergence and growth of the informal sector. For example, Sabot (1990) documents the development strategy of Tanzania in the early 1960s, and argues that mas-

sive rural-urban migration was symptomatic of import substituting development policies in the post-independence period, favoring high wages and high standards in the unionized urban formal sector. Thus "urban bias", which might be measured ceteris paribus by the degree of urbanization, could also play a role in determining labor standards in a country.

In the theoretical literature, labor standards in a given country have also been examined as a strategic response to labor standards set in peer countries. In particular, Chau and Kanbur (2000) examine the possibility of a race to the bottom in labor standards in the context of export competition among developing economies. It is shown that whether labor standards are strategic complements or substitutes depends critically on the nature of the import demand curves. Strategic complementarity here is defined as whether the adoption of high labor standards in one country raises the net benefits of raising standards in another country. Basu and Chau (2000) and Basu, Chau and Grote (2000) examine the possibility of a race to the top in the context of product labeling. These papers which emphasize strategic interaction suggest that peer effects will be in play – the adoption of a standard in one country may be influenced, for example, by how many countries in its competitor group have also adopted that standard.

Finally, since the ratification of international labor standards is after all a government undertaking to uphold the rights of labor, one may also expect that institutional determinants such as legal origins to have a significant bearing on the desire to improve labor standards. In particular, countries with socialist laws may be characterized by the predominance of the State's intent to control the ownership and allocation of resources, rather than to protect property and individual freedom. Civil law countries are also characterized by the intent to build institutions to further the power of the state, although to a lesser degree as compared to the socialist tradition. Common law countries, in contrast, put emphasis on the private rights of individuals, and as such, the power of the state to intervene in the market place may be expected to be limited (David and Brierely 1978). Dividing the legal origins of countries into British common law, French civil law, German civil law, Scandinavian civil law and socialist law, La Porta et al. (1999) find that govern-

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ment performance in terms of public goods provision, bureaucratic efficiency, protection of property rights and the degree of market intervention vary significantly across countries with different legal origins. At one end of the spectrum, socialist countries are found to have less efficient and highly interventionist governments. Meanwhile, common law countries are found to be most market oriented. In addition, La Porta et al. (1998) find that Scandinavian legal origin ranks highest in terms of the efficiency of the judicial system and the rule of law. In the context of labor standards, legal origin may thus influence the natural labor standard (i) directly via the ideological bias it imposes on the relative importance of the State vis-à-vis the individual, and (ii) indirectly via its influence on the performance of government to protect the rights of individuals and government efficiency.

There is thus no single unifying theory of the determinants of domestic labor standards, and several diverse strands are present in the literature. A number of explanatory variables are suggested by this literature: per capita income and the level of development generally, the skill composition of the population, the degree of urbanization, political openness, openness to trade, labor standards in peer countries and legal systems. These variables would determine, in theory, the labor standard that a country would choose to put in place – the $\tilde{s}$ of equation (8).

Let us now turn to the determination of δ. The key here is to think about how constraining the signing of a Convention would be for a country, and for what sorts of countries these constraints would be lesser or greater. There is almost no detailed theorizing on this issue in the literature. However, we would a priori expect peer effects to be important. We have already identified peer effects as being important in determining the "natural" standard for a country. But the costs of deviation from a ratified convention are also plausibly subject to peer effects. Two opposing arguments come to mind. One says that the more countries that have signed on, the greater will be the peer groups inflicted sanctions (economic or otherwise) costs for a country that has signed on when it deviates from the international standard, relative to if it had not signed on at all. In other words, the more countries that have signed on, the higher we would expect δ to be and hence

peer effects would work to lower the likelihood of adoption of the international standard through this channel.

But there is a second argument. One may think of differences between θ' and θ'' in terms of the difference in the *expected* marginal cost of deviation. For any given cost of deviating from an international labor standard, the expected marginal cost of deviation depends on the probabilities of being discovered employing a standard $s \leq \hat{s}$. A natural assumption here would be that the probability of discovery is higher for countries that have ratified the convention. However, it can be argued that as more and more countries in a peer group sign on, the perceived likelihood that one among the entire pool of peer countries will be discovered violating the standard can reasonably be expected to be lower. We then have δ decreasing in the cumulative number of countries in the peer group.

The impact of peer effects on ratification is thus ambiguous in theory and open to empirical testing. However, one interesting issue is the identification of the peer group. For the determination of the "natural" domestic standard, as discussed earlier, the peer group consists of countries that are competitors in export markets or in the attraction of foreign investment. For the costs and benefits of signing per se, it is perhaps a broader community of nations that is relevant as the peer group. Moreover, this type of peer effect may be very different for rich and poor countries. It might be argued that richer countries can better bear the costs of ostracization from not signing. We might expect, then, this type of peer effect to be more pronounced among developing countries than among developed ones.

The intricacy of the causal relationships induced by the two-stage process described above should now be clear. The same variables are in principle involved in both stages, and the effects through $\tilde{s}$ and through δ may be difficult to disentangle. However, we can draw the following additional conclusions from the reasoning: (i) peer effects will be present in both stages-the empirical key may lie in defining reference groups which pick up on the first stage or second stage effects; (ii) non-compliance peer effects may be stronger for poorer countries than for richer countries; (iii) higher income will induce higher "natural" stan-

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dards and will therefore increase the propensity to ratify high international standards, but this effect may be counteracted by the fact that the costs of non-compliance may be much lower for a rich country than for a poorer country, so overall the income effect may be weak.

This concludes our theoretical discussion of the incentives for ratifying an international labor standard. The theory has identified a number of variables as possible determinants of ratification. The next section tests the significance of these variables for our data set.

4   Empirical Framework and Results

In order to uncover the empirical determinants of the likelihood of ratification, we work with an empirical framework that allows us to analyze the data on ratification dates available from the ILOLEX (2001) data base. The interest here is to empirically ascertain the likelihood of ratification at a given point in time, and to discover in what ways economic, demographic and political factors influence the time to ratification. We thus estimate a hazard model, with parameter estimates that can be interpreted as the change in the likelihood of ratification at a given point in time, given that ratification has not occured in prior periods. We make use of a vector of time-varying explanatory variables $\mathbf{x}_{it}$ where t denotes the time after promulgation of the Convention or country independence, whichever is later, and t runs from 0 till t_i, when the country ratifies the Convention. Since only explanatory variables prior to t_i are to be used, the question of simultaneity does not arise. The vector $\mathbf{x}_{it}$ can be as comprehensive as theory requires and data allows. For example, in our case it includes information on how many other countries in country i's reference group have also ratified the Convention.

The hazard rate at t – the probability of ratification when t years have passed, given that ratification has not taken place – is simply

$$h(t_i|\mathbf{x}_{it}) = \frac{f(t_i|\mathbf{x}_{it}))}{1 - F(t_i|\mathbf{x}_{it}))}.$$

We assume a model with proportional hazard (Cox(1972)), and specify in addition that

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each of the J time-varying covariates enter into the determinant of the hazard rate as follows:

$$h(t_i|\mathbf{x}_{it}) = \hat{h}(t_i)e^{\sum_{j=1}^{J} \beta_j x_{ijt}}. \tag{16}$$

where $\hat{h}$ denotes the baseline hazard function. The hazard ratio for a unit change in x_{ijt} is thus simply

$$e^{\beta_j} \geq (<)1$$

Parameter estimates of β_j of the Cox proportional hazard model are obtained by maximizing a partial log-likelihood function (Kalfleisch and Prentice, 1980), and has the virtue that the estimation procedure places no restrictions on the unknown functional form of the baseline hazard function.

The variables required in the explanatory vector $\mathbf{x}_t$ are those suggested in the theoretical discussion. Our data set covers 97 countries. Real GDP per capita ($rgdpch$) is taken from the Penn World Table (Mark 5.6), and is available from 1950 through 1992. The variable $rgdpch$ measures output per capita in relation to a common set of international prices based on a chain index (base 1985, in constant dollars). We take this to be a proxy for the average productivity of labor. Educational attainment ($educ$), measured by the ratio of total primary school enrollment to primary school age population, is obtained from Alesina et. al. (1996) for 1950 to 1982, and from the Global Development Network Growth database of the World Bank (Easterly and Sewadeh, 2001) for 1983 to 1992. The extent of urbanization ($urban$) is also available from the World Bank database and from the World Urbanization Prospects (United Nations, 1995). The Polity IV database (Marshall and Jaggers, 2001) provides annual international ratings on political regimes, with scores ranging from 10 (high democracy) to minus 10 (high autocracy). Missing data points are assigned the polity score immediately prior to the missing point. For openness we use imports and exports as a share of GNP from the Penn World Table. Legal origins (British common law, German civil law, French civil law, Scandinavian civil law, socialist law) are available from the GDN Growth database.

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countries based on their export orientation (exporters of manufactures, primary products, fuel, services and diversified exporters).[6] A second classification divides countries into developed ($incdeveloping = 0$) and developing countries ($incdeveloping = 1$), where developing countries refer to low, lower-middle and upper-middle level income countries as in Easterly and Sewadeh (2001).[7] A final classification divides countries into seven geographic categories (East Asia and Pacific, South Asia, Sub Saharan African, Middle east and Northern African, Latin America and Carribean, Eastern Europen and Central Asia, Western Europe and North America). With these classifications, we can construct measures of peer effects in each case. Thus when t years have passed without ratification for a country, $cdev_t$ is the cumulative number of countries in the same development classification who have ratified the convention in the previous $t - 1$ years. Similarly export grouping peer effects, and regional grouping peer effects are captured by the cex_t and $creg_t$ variables e consider three types of peer effects. We first classify countries into groups of respectively.

For each Convention, we estimate the proportional hazard model first for the full sample of developed and developing countries. The results are reported in Tables 3-6 for each of the four Conventions. We present results for three specifications, each with the peer effects defined in one of the three ways discussed above. The variable t_i is included in all specifications with peer effects variables to control for the effect of the passage of time on ratification. The results are reported in terms of the proportional impact on the hazard rate of a unit increase in the explanatory variable – in other words, the estimate of $exp(\beta)$. The last line of the Table gives the probability at which the hypothesis that all coefficients are zero can be rejected.

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[6]Major exports are those that account for 50 percent or more of total exports of goods and services from one category, in the period 1988-92. The categories are: nonfuel primary (SITC 0,1,2,4, plus 68), fuels (SITC 3), manufactures (SITC 5 to 9, less 68), and services (factor and nonfactor service receipts plus workers' remittances). If no single category accounts for 50 percent or more of total exports, the economy is classified as diversified.

[7]These groupings are based on 1999 gross national income per capita. Gross national income per capita is US$755 or less for low income countries; US$756- US$2,995 of lower middle income countries; US$2,996-US$9,265 for upper middle income countries, and US$9,266 or more for high income countries.

From Tables 3-6, four features stand out as being common to all Conventions. First, the hypothesis that all coefficients are zero is rejected for all Conventions. We have therefore found empirical determinants of the ratification decision. As argued in the previous section, this implies both that $\delta > 0$, and that $\hat{s} > \tilde{s}$. In other words, for these Conventions, on average, the international standards are higher than the "natural" domestic standard, and there are real differential costs to a country from ratifying and not meeting the international standards, compared to not meeting standards when it has not ratified the Convention. Moreover, as established in the theory section, the combination of $\delta > 0$ and $\hat{s} > \tilde{s}$ also implies that actual standards with ratification are higher than actual standards without, a finding of some importance to those who would use ratification as a proxy for domestic standards.

Turning now to the detailed determinants of ratification, the second common feature across all four tables is that the time variable is significant – the probability of ratification increases with the lapse of time. More interestingly, the third common feature is that the legal system is a significant determinant of ratification probability. For all four Conventions, having a Scandinavian legal system increases the probability of ratification (with the exception of only one specification). A legal system with socialist origins, on the other hand, decreases the probability of ratification for all four Conventions. The French based legal system influences probability of ratification positively, but only for C111 and C138. British and German legal systems are not significantly related to ratification at all. It should be noted that these patterns for the influence of legal systems on ratification hold even for the third of our specifications, where regional peer effects are present – the legal system effects can thus be argued to be over and above regional effects.

The fourth common feature across Tables 3-6 is the insignificance of the basic "standard" variables (with very few exceptions). Real per capita GDP, Openness, Education, Political Freedom, Urbanization – none of these seem to affect the probability of ratification on average. On real per capita income, we identified conflicting forces in theory – as income increases, the natural standard might be higher, but the cost from not meeting

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ratified standards might be lower. The empirical result reflects this ambiguity. On the other variables, however, our empirical results suggest that some of the theories discussed in the previous section need to be reconsidered carefully.

Consider now the role of peer effects. We see a clear distinction between C98 and C105 on the one hand, and C111 and C138 on the other. In the latter case, no peer effects are significant at all. For these Conventions, all that matters for the probability of ratification is the legal system. For C98 and C105, peer effects are strongly significant and nonlinear – the likelihood of ratification increases with the number of countries in the reference group who have ratified, but at a decreasing rate. Notice that these effects are present even though the time variable has been introduced – this is not just case of a spurious correlation brought about by "everybody ratifying eventually". The fact that peer effects matter for C98 and C105 is a confirmation of the hypothesis of *strategic complementarity* in labor standards, as discussed and developed in Chau and Kanbur (2000). However, why peer effects should be important for some Conventions and not others is something that will bear a closer, more institutional, investigation.

This concludes the presentation of our results for the full sample estimation. We now turn to a closer look at two conventions, C98 and C105, in order to see if more can be said regarding whether our explanatory variables are indeed picking up the endogeneity of the natural labor standard $\tilde{s}$, or the relative costs of deviating from the international standard (δ). As a first pass, we explore this possibility by introducing a stage of development dummy (*incdeveloping*) into the estimation. One interpretation of this is that the stage of development dummy can be thought of as a rough guide as to whether a country's "natural" standard exceeds, or lie below that of the international standard.

To recall, *incdeveloping* is equal to one (zero) for developing (developed) countries. We also introduce interaction terms that allow the sign and size of development and regional peer effects to take on different values respectively for developed and developing countries. Specifically, the explanatory variable $devcdev_k = incdeveloping \times cdev_k$

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is equal to the development peer effect for developing countries, and zero for developed countries, and $devcdev_k sq$ denotes the corresponding interaction term with the nonlinear component of the development peer effect. The explanatory variable $ndevcdev_k = |1 - incdeveloping| \times cdev_k$ is equal to the development peer effect for developed countries, and zero for developing countries. In a similar fashion, we denote $devcreg_k$ and $ndevcreg_k$ as the regional peer effect respectively for developed and developing countries, and $devcreg_k sq$ and $ndevcreg_k sq$ as the corresponding nonlinear terms. The objective of this exercise is to determine if there are systematic differences in the roles of development and regional peer effects between high and low income countries.

Tables 7 and 8 present the results for C98 and C105 respectively.[8] In Table 7, the results for the first model – where only the stage of development dummy is introduced – suggest that developing countries are more likely to be late adopters of C98, although the estimated coefficient is insignificant at the 10 percent level. Consistent with the full sample analysis, real income per capita decreases the likelihood of early ratification. The rest of the economic explanatory variables are of the same sign as in the full sample estimation, but are insignificant. The results for legal origin variables likewise conform with the full sample estimation, with Scandinavian and Socialist countries at the extremes in terms of the likelihood of early ratification. For this specification, the hypothesis that the estimated coefficients are jointly different from zero cannot be rejected at the 1 percent level.

Introducing peer effects into the analysis yields interesting differences, and in particular, both development and regional peer effects are shown to be positive and significant only for the group of developing countries, but not for developed countries. Additionally, real income per capita continues to negatively affect the likelihood of early ratification. Our measure of urban bias is positive and significant. Overall, the model with peer effects is significant at the 1 percent level.

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[8]We did the same analysis for the Discrimination and Minimum Age Conventions. In each case, we find no model specifications that yield parameter estimates that are jointly different from zero at 15 percent significance.

Turning now to the Abolition of Forced Labor Convention in Table 8, we find that in all three models, developing countries are more likely to be late adopters of C105, although the estimated coefficients are insignificant in all three cases. Controlling for stage of development also does not appear to improve the significance of the rest of the economic variables, nor does it diminish the importance of legal origins in determining the likelihood of early ratification. However, as is the case with C98, development and regional peer effects are in play. The estimated hazard ratio is greater than one and significant only for the group of developing countries, but not for developed countries. A hazard ratio that is less than one for the nonlinear term indicates that development peer effects raises the likelihood of early ratification, but at a decreasing rate.

This analysis suggests that the "ostracization" and other peer effects (as captured by δ in our model) may indeed be an important determinant of the observed ratification patterns for these two conventions. Ideally, of course, in order to explore the ratification decisions of countries with natural labor standards that exceed, or lie below that of the international standard, one would need information on actual labor standards prior to the adoption of the relevant labor convention by the ILO. Recall, however, from equations (8), (9) and (10), that $\tilde{s}'' \geq (<)\hat{s}$ if and only if $\tilde{s} \geq (<)\hat{s}$. This suggests that an alternative approach would be to divide countries into two groups: (i) those whose labor standards are consistent with the ILO conventions after ratification, and (ii) those whose labor standards continue to be lower than the international standard.

Interestingly, OECD (2000) provides a classification of countries based on the extent to which the first category of rights in Table 1 are violated in the period 1989 - 1999. The country ranking is based on a four-point score, indicating increasing degrees of violation of the freedom of association and rights to organize, starting from a score of 1 indicating severe violations to a score of 4, in which protection is deemed adequate. We apply this information to our framework for estimating the probability of ratification of C98. Based on the information in OECD (2000), we construct interaction terms that allow the sign and size of development peer effects to take on different values for countries

with these four levels of enforcement violations. For example, the explanatory variable $en1cdev98 = en1 \times cdev98$ where $en1$ is a dummy variable indicating a country with a score of 1 according to the OECD (2000) study. $en1cdev98$ thus represents the development peer effect for countries for the severest level of violation. A dummy variable $endum$ is introduced to the estimation control for other unobserved characteristics of countries that are selected into the OECD study.[9]

Table 9 summarizes our findings. The results are broadly consistent with our discussion on the distinction between developed and developing countries above. In particular, peer effects are positive and significant only for first two groups of countries that are classified as not fully complying (1, and 2). Meanwhile, the estimated hazard ratio for the two groups of countries with highest levels of compliance are not significant in the 10 percent level. In addition to these findings, education is positive and statistically significant, and likewise are legal origins of the Scandinavian civil variety. As is the case with all of the rest of our specifications, socialist countries are late adopters.

5   Summary and Conclusion

The starting point for this paper was the issue of using the ratification of ILO Conventions as a labor standards variable explaining economic performance – a common practice in the empirical literature. The implicit assumption underlying this practice is of course that the ratification of ILO Conventions provides information on domestic labor standards. We developed a framework in which the decision to ratify a Convention is made simultaneously with the decision of how much to enforce it. The analysis suggested two key determinants of ratification – the factors determining the "natural" standard for a country, and those determining the costs of deviating from the international standard when the country did and did not ratify the Convention. Following on from this, we reasoned that if we did find systematic determinants of ratification empirically, this would be evidence that (i)

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[9]There are thus five groups of countries. The first four correspond to the OECD (2000) compliance classification, the fifth includes countries in our sample but whose enforcement record is not documented in OECD (2000). The dummy variable $endum$ is equal to 1 for the first four groups of countries, and 0 for the fifth.

there were costs to violation when countries ratified, and that on average countries were violating standards they had signed on to, and (ii) that countries that ratified did have higher domestic standards than those that did not. This last point is clearly of some importance to the large and growing empirical literature on labor standards and economic performance that uses the readily available ratification data.

The theoretical discussion suggested several variables as determinants of ratification: per capita income, openness, education, urbanization, political rights, peer effects and legal systems. The empirical analysis finds systematic determinants of ratification, thereby confirming, for these four Conventions, that there are costs to violating ratified standards, and that ratification is indeed an indicator of higher domestic standards. There is therefore some justification for using ratification as a proxy for higher domestic standards.

However, many empirical studies go further than this – they add up the number of Conventions ratified, implicitly assuming them to be perfect substitutes. But the empirical analysis shows varied patterns in the determinants for ratification, which suggests that these four Conventions are not substitutes in a simple way. The legal system variables explain ratification in all but one specification. The economic variables are not significant in all but a very few specifications. Peer effects are significant for two of the four Conventions. The fact that standard economic variables are not significant determinants of ratification should lead us to reconsider carefully many of the current theories of the determinants of labor standards. The significance of peer effects supports the hypothesis of "strategic complementarity" in the adoption of labor standards, the theoretical implications of which have been investigated in Chau and Kanbur (2000). The linkage between origins of the legal system and ratification will bear further investigation – countries with legal origins which are correlated with high government efficiency and rule of law, turn out to be favorably selected into the pool of early ratifiers.

This paper has merely begun the analysis of the ratification of ILO Conventions. The empirical investigation shows that the signing of these Conventions is not random and

meaningless. The evidence suggests that, on average, countries think about ratification, balance the costs and benefits, and, when they ratify, they have higher standards than when they do not. Further theoretical and empirical research is now needed to develop a deeper understanding of the detailed determinants of the ratification decision.

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Figure 1. Right to Organize and Collective Bargaining (c98)
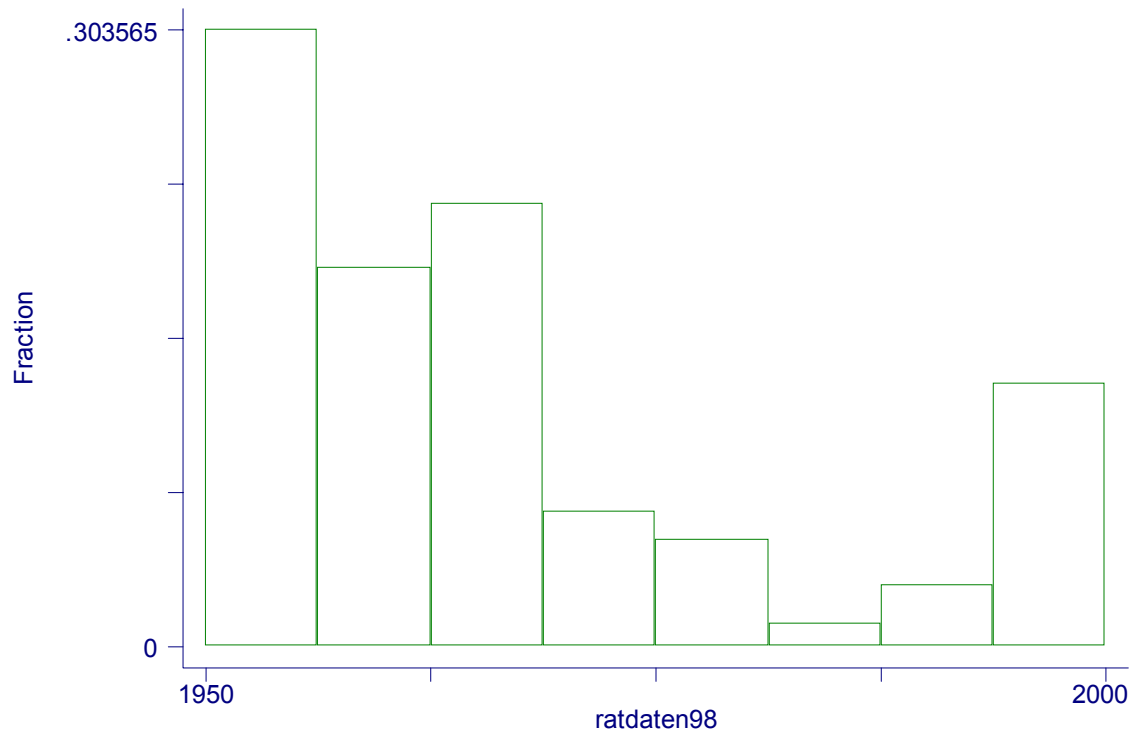
Figure 2. Abolition of Forced Labor (c105)
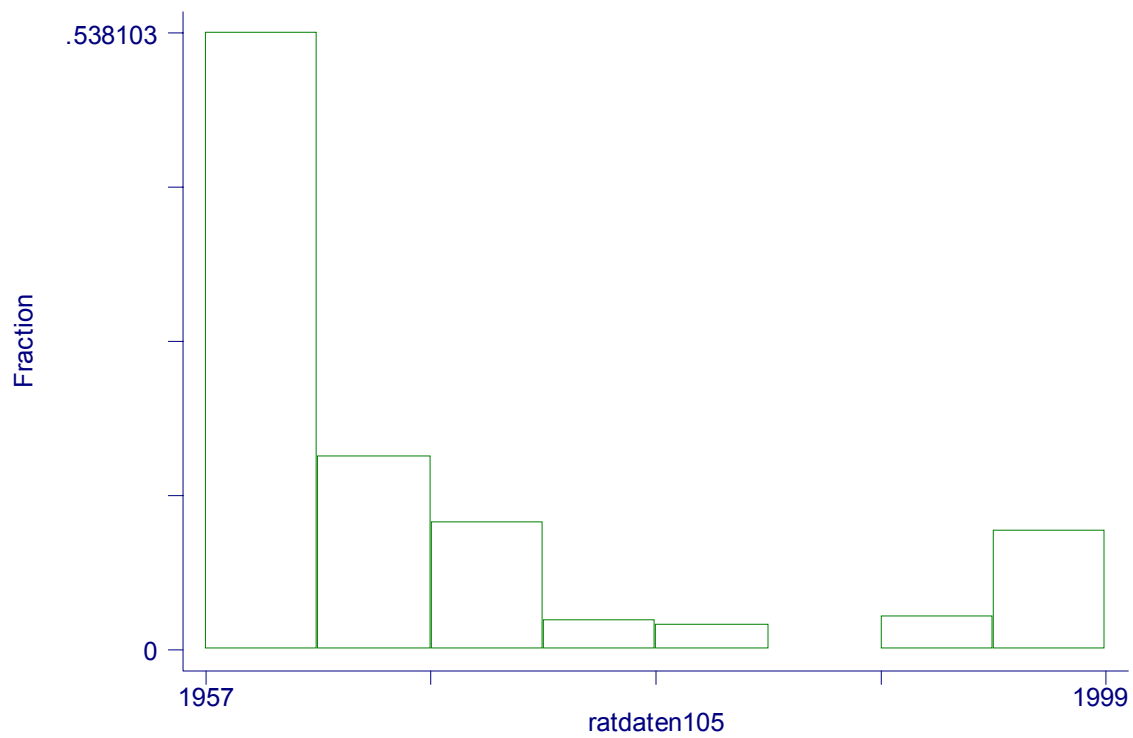
Figure 3. Discrimination (c111)
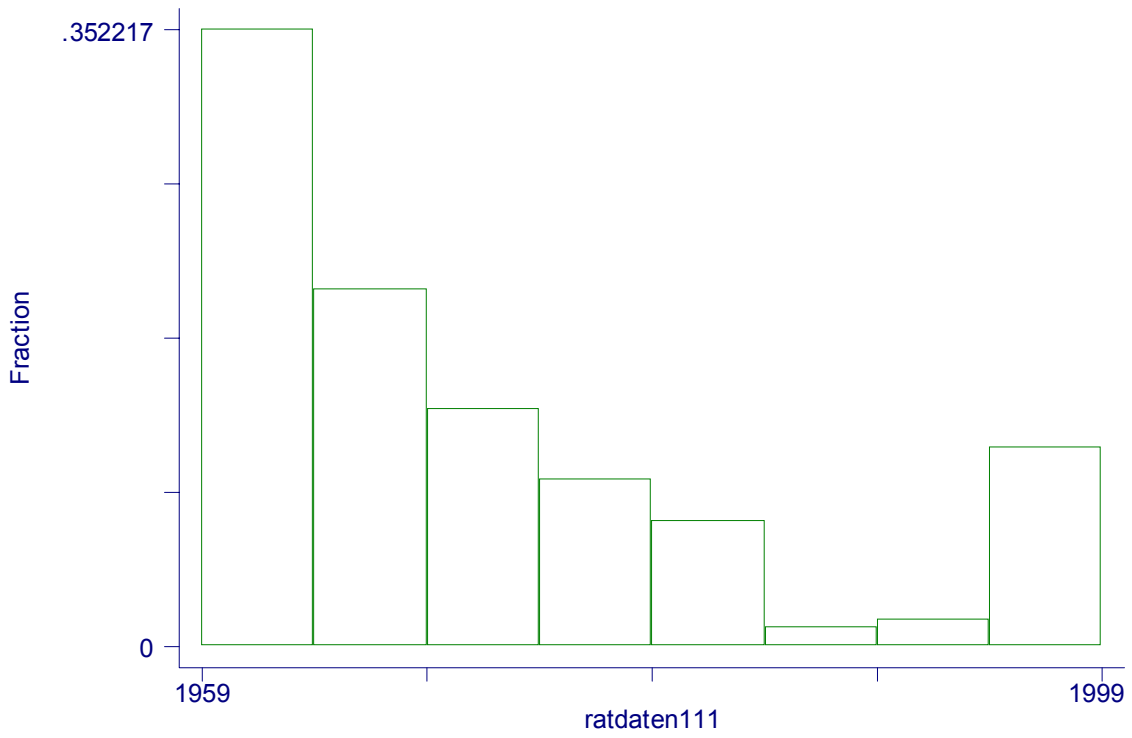
Figure 4. Minimum Age (c138)
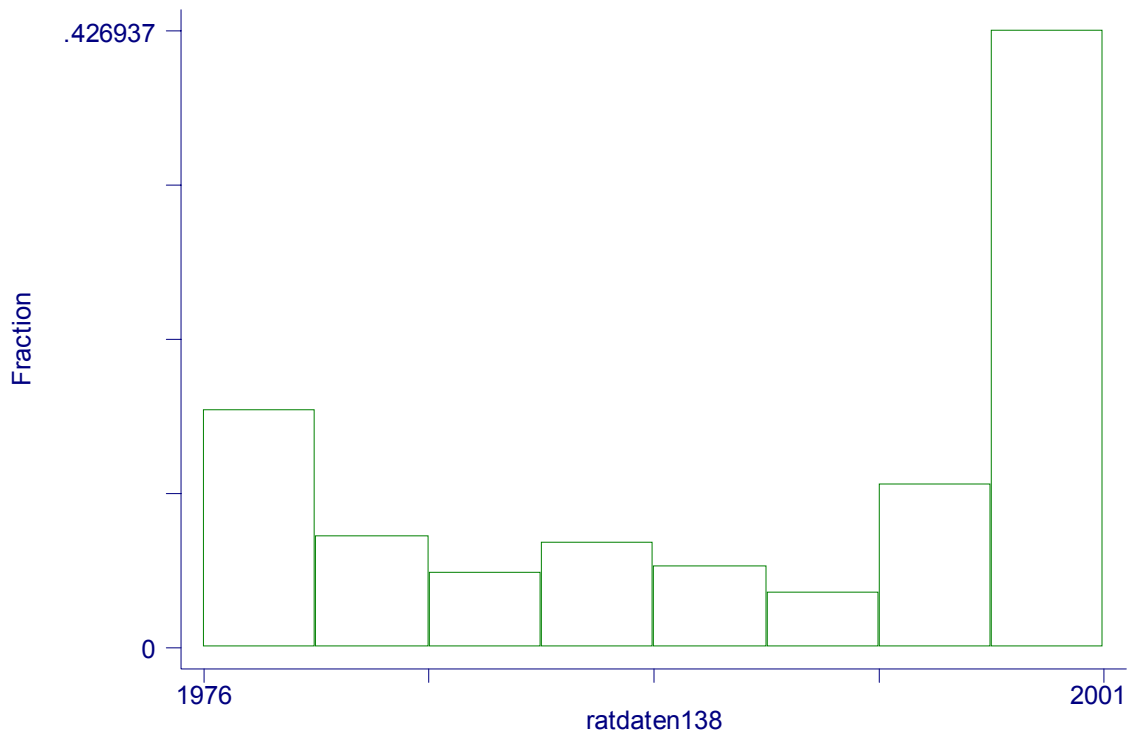
Figure 5. Right to Organize and Collective Bargaining (c98)

Kaplan-Meier survival estimates, by inc_developing
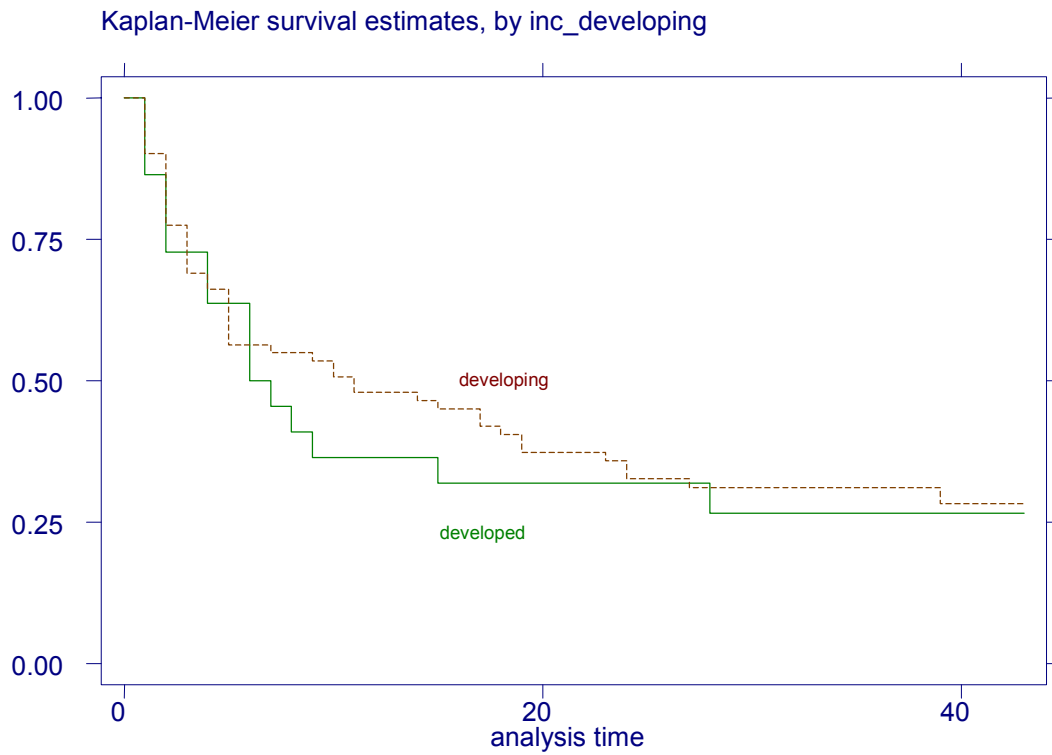
Figure 6. Abolition of Forced Labor (c105)

Kaplan-Meier survival estimates, by inc_developing
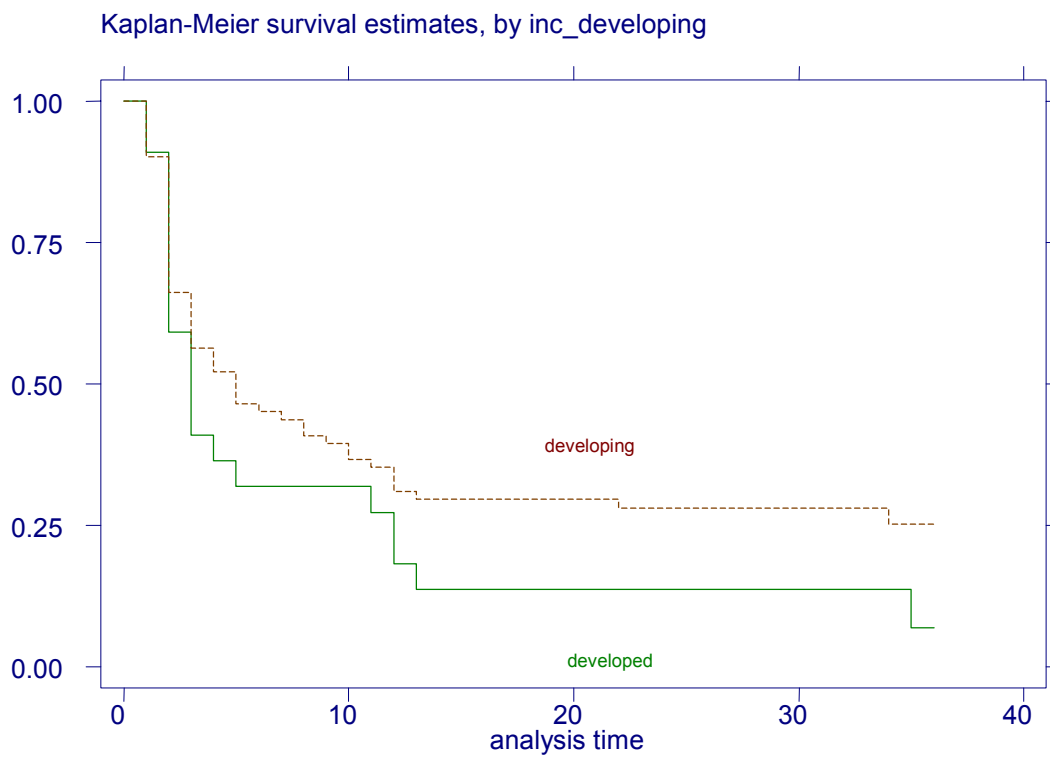
Figure 7. Discrimination (c111)

Kaplan-Meier survival estimates, by inc_developing
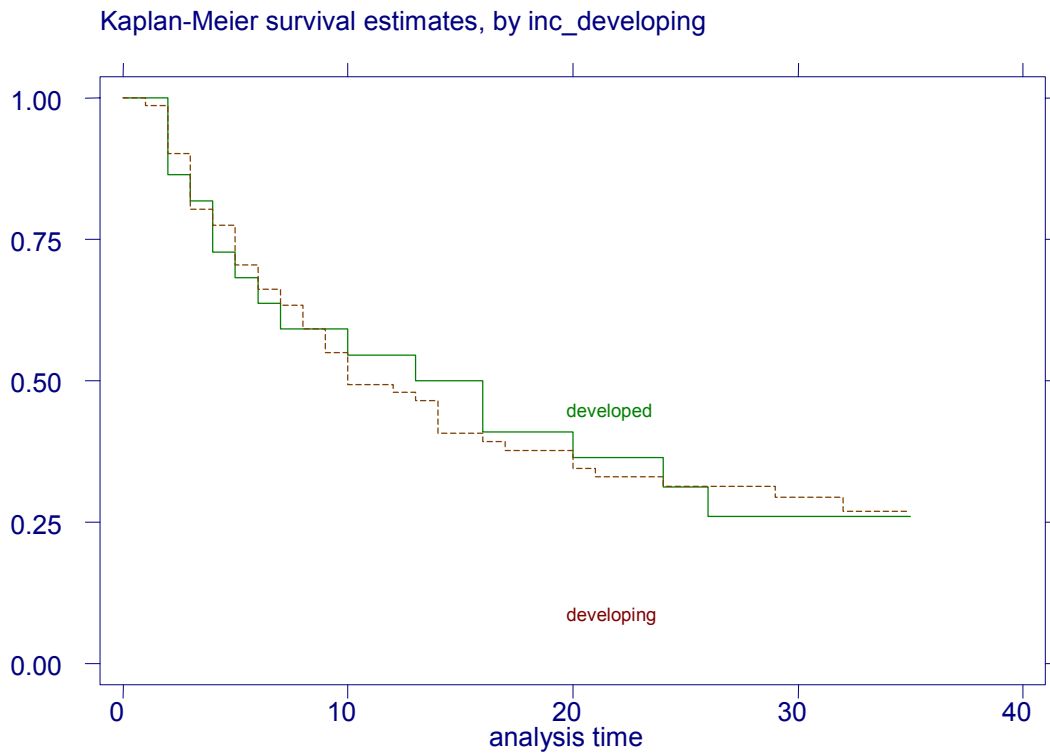
Figure 8. Minimum Age (c138)

Kaplan-Meier survival estimates, by inc_developing

Table 1. Core ILO Conventions and Dates of Entry into Force

Freedom of association and the right to collectively bargain
Freedom of Association and the Protection of the Right to Organize Convention, 1950 (Convention No. 87) Right to Organize and Collective Bargaining Convention, 1951 (Convention No. 98)
The elimination of forced and compulsory labor
Force Labor Convention, 1932 (Convention No. 29) Abolition of Forced Labor Convention, 1959 (Convention No. 105)
The elimination of employment discrimination
Equal Remuneration Convention , 1953 (Convention No. 100) Discrimination (Employment and Occupation) Convention, 1960 (Convention No. 111)
The abolition of child labor
Minimum Age Convention , 1976 (Convention No. 138) Worst Forms of Child Labor Convention, 2000 (Convention No. 182)

Table 2. Ratification of ILO Core Conventions

Country	c98 (1951) Right to Organize & Collective Bargaining	c111 (1960) Discrimination	c105 (1959) Abolition of Forced Labor	c138 (1976) Minimum Age	Developing**	Independence*	Legal Origin	Exports***
ALGERIA	1962	1969	1969	1984	X	1962	French	fuel
AUSTRIA	1951	1973	1958	2000		.	German	diversified
BANGLADESH	1972	1972	1972	NR	X	1971	British	diversified
BELGIUM	1953	1977	1961	1988		.	French	diversified
BENIN	1968	1961	1961	1997	X	1960	British	services
BOLIVIA	1973	1977	1990	1993	X	.	French	primary
BOTSWANA	1997	1997	1997	1997	X	1966	French	primary
BRAZIL	1952	1965	1965	NR	X	.	French	diversified
CAMEROON	1962	1988	1962	NR	X	1960	French	diversified
CANADA	NR	1964	1959	NR		.	British	manu.
CENTRAL AFR.R.	1964	1964	1964	1999	X	1960	French	diversified
CHAD	1961	1966	1961	NR	X	1960	French	primary
CHILE	1999	1971	1999	1999	X	.	French	primary
CHINA	NR	NR	NR	1999	X	.	Socialist	manu.
COLOMBIA	1976	1969	1963	2001	X	.	French	diversified
CONGO	1999	1999	1999	1999	X	1960	French	primary
COSTA RICA	1960	1962	1959	1976	X	.	French	diversified
DENMARK	1955	1960	1958	1999		.	Scandinavian	diversified
DOMINICAN REP.	1953	1964	1958	2000	X	.	French	services
ECUADOR	1959	1962	1962	1999	X	.	French	diversified
EGYPT	1954	1960	1958	1999	X	.	French	services
EL SALVADOR	NR	1995	1958	1996	X	.	French	services
ETHIOPIA	1963	1966	1999	1999	X	.	French	primary
FIJI	1974	NR	1974	NR	X	1970	French	services
FINLAND	1951	1970	1960	1976		.	Scandinavian	manu.
FRANCE	1951	1981	1969	1990		.	French	diversified
GABON	1961	1961	1961	NR	X	1960	French	fuel
GAMBIA	2000	2000	NR	NR	X	1965	French	services
GERMANY, WEST	1956	1961	1959	1976		.	German	manu.
GUATEMALA	1952	1960	1959	1990	X	.	French	primary
GUINEA-BISS	1977	1977	1977	NR	X	1973	French	primary
GUYANA	1966	1975	1966	1998	X	1966	French	primary
HONDURAS	1956	1960	1958	1980	X	.	French	primary
INDIA	NR	1960	2000	NR	X	.	British	diversified
IRAN	NR	1964	1959	NR	X	1979	French	fuel
IRELAND	1955	1999	1958	1978		.	British	manu.
ISRAEL	1957	1959	1958	1979		.	British	manu.
ITALY	1958	1963	1968	1981		.	French	manu.
JAMAICA	1962	1975	1962	NR	X	1962	French	services
JAPAN	1953	NR	NR	2000		.	German	manu.
JORDAN	1968	1963	1958	1998	X	.	French	services
KENYA	1964	NR	1964	1979	X	1963	French	diversified
KOREA, REP.	NR	1998	NR	1999	X	.	German	manu.
LESOTHO	1966	1998	NR	NR	X	1966	Socialist	services
MADAGASCAR	1998	1961	NR	2000	X	1960	French	primary
MALAWI	1965	1965	1999	1997	X	1964	French	primary
MALAYSIA	1961	NR	NR	1997	X	1957	British	diversified
MALI	1964	1964	1962	NR	X	1960	British	primary
MAURITANIA	NR	1963	1997	NR	X	1960	French	primary
MAURITIUS	1969	NR	1969	1990	X	1968	French	diversified
MEXICO	NR	1961	1959	NR	X	.	French	diversified
MOROCCO	1957	1963	1966	2000	X	1956	Socialist	diversified
MOZAMBIQUE	1996	1977	1977	NR	X	1975	French	diversified
MYANMAR	NR	NR	NR	NR	X	.	Socialist	primary
NEPAL	1996	1974	NR	1997	X	.	British	services
NETHERLANDS	1993	1973	1959	1976		.	French	diversified
NEW ZEALAND	NR	1983	1968	NR		.	British	primary
NICARAGUA	1967	1967	1967	1981	X	.	French	primary
NIGER	1962	1962	1962	1978	X	1960	French	primary
NIGERIA	1960	NR	1960	NR	X	1960	French	fuel
NORWAY	1955	1959	1958	1980		.	Scandinavian	diversified
PAKISTAN	1952	1961	1960	NR	X	.	British	diversified
PANAMA	1966	1966	1966	2000	X	.	French	services

Country							Legal origin	Major export***
PAPUA N.GUINEA	1976	2000	1976	2000	X	1975	French	primary
PARAGUAY	1966	1967	1968	NR	X	.	French	primary
PERU	1964	1970	1960	NR	X	.	French	primary
PHILIPPINES	1953	1960	1960	1998	X	.	French	diversified
PORTUGAL	1964	1959	1959	1978		.	French	diversified
QATAR	NR	1976	NR	NR		1971	French	fuel
RWANDA	NR	1981	1962	NR	X	1962	Socialist	primary
SAUDI ARABIA	1988	1978	1978	1995	X	.	British	fuel
SENEGAL	NR	1967	1961	NR	X	1960	British	diversified
SIERRA LEONE	1961	1966	1961	NR	X	1961	French	diversified
SINGAPORE	1965	NR	NR	NR		1965	British	manu.
SOMALIA	NR	1961	1961	NR	X	1960	British	primary
SOUTH AFRICA	1996	1997	1997	2000	X	.	British	diversified
SPAIN	1977	1967	1967	1977		.	French	diversified
SRI LANKA	1972	1998	NR	2000	X	.	British	diversified
SWAZILAND	1978	1981	1979	NR	X	1968	French	primary
SWEDEN	1950	1962	1958	1990		.	Scandinavian	manu.
SWITZERLAND	1999	1961	1958	1999		.	German	manu.
TANZANIA	1962	NR	1962	1998	X	1964	French	primary
THAILAND	NR	NR	1969	NR	X	.	British	diversified
TOGO	1983	1983	1999	1984	X	1960	British	primary
TRINIDAD&TOBAGO	1963	1970	1963	NR	X	1962	British	fuel
TURKEY	1952	1967	1961	1998	X	.	French	diversified
U.K.	1950	1999	1957	2000		.	British	services
U.S.A.	NR	NR	1991	NR		.	British	diversified
UGANDA	1963	NR	1963	NR	X	1962	Socialist	primary
UNITED ARAB E.	NR	NR	1997	NR		1971	British	fuel
URUGUAY	1954	1989	1968	1977	X	.	French	diversified
VENEZUELA	1968	1971	1964	1987	X	.	French	fuel
ZAMBIA	1996	1979	1965	1976	X	1964	Socialist	primary
ZIMBABWE	1998	1999	1998	2000	X	1980	British	primary

*NR: Not ratified as of March 2001.

**Low or middle income countries as defined by the World Bank.

***Major export category: Major exports are those that account for 50 percent or more of total exports of goods and services from one category, in the period 1988-92.
The categories are: nonfuel primary (SITC 0,1,2,4, plus 68), fuels (SITC 3), manufactures (SITC 5 to 9, less 68), and services (factor and nonfactor service receipts plus workers' remittances). If no single category accounts for 50 percent or more of total exports, the economy is classified as diversified.

Source: World Development Report 1995

Table 3: Cox Regression:Right to Organize and Collective Bargaining (c98)

Hazard Ratios	I		II		III	
rgdpch	0.999805	***	0.999761	***	0.999739	***
	(0.000088)		(0.000085)		(0.000088)	
open	0.999030		0.997485		0.999603	
	(0.004447)		(0.004556)		(0.004410)	
educ	1.007877		1.009132	**	1.008863	**
	(0.005040)		(0.004094)		(0.004568)	
polity	1.017024		1.013779		1.014576	
	(0.022817)		(0.022931)		(0.021118)	
urban	1.009698		1.018760	*	1.008839	
	(0.010200)		(0.010862)		(0.010375)	
leg˙french	1.140852		0.993414		0.848690	
	(0.438198)		(0.365642)		(0.307013)	
leg˙socialist	2.520E-15	***	8.220E-16	***	1.700E-16	***
	3.830E-15		1.140E-15		2.330E-16	
leg˙german	0.831957		0.888777		0.678457	
	(0.623241)		(0.631562)		(0.483051)	
leg˙scandinavian	3.050124	***	4.328151	***	2.584229	***
	(1.345746)		(2.033472)		(1.166613)	
cex98	1.139001	***				
	(0.055333)					
cex98sq	0.995461	***				
	(0.001821)					
cdev98			1.084722	***		
			(0.021435)			
cdev98sq			0.999063	***		
			(0.000235)			
creg98					1.269674	***
					(0.069251)	
creg98sq					0.990814	***
					(0.002131)	
time98	1.332484	***	1.517792	***	1.457735	***
	(0.103551)		(0.152002)		(0.065225)	
No. of observations	1323		1323		1323	
No. of ratifications	65		65		65	
Log Likelihood	-248.483		-244.112		-241.024	
Wald chi^2	1133.800		1293.900		1099.850	
Prob > chi^2	0.000		0.000		0.000	

Robust standard errors (Lin and Wei, 1989) in parenthesis.

Table 4: Cox Regression: Abolition of Forced Labor (c105)

Hazard Ratios	I	II	III
rgdpch	1.000053	0.999986	1.000014
	(0.000065)	(0.000080)	(0.000056)
open	1.002509	1.001143	1.002562
	(0.003961)	(0.004259)	(0.004358)
educ	0.995340	1.001578	0.999879
	(0.005620)	(0.003863)	(0.004823)
polity	0.991591	0.992517	1.000496
	(0.021423)	(0.020705)	(0.020488)
urban	1.014142	1.014423	1.004497
	(0.009627)	(0.009197)	(0.009362)
leg˙french	1.169846	0.969721	0.893537
	(0.379833)	(0.322358)	(0.296517)
leg˙socialist	3.790E-15 ***	1.490E-15 ***	5.440E-16 ***
	5.680E-15	2.160E-15	7.340E-16
leg˙german	0.869469	0.579092	0.541137
	(0.646604)	(0.474966)	(0.390753)
leg˙scandinavian	2.544601 ***	2.971606 ***	1.761693 **
	(0.793382)	(1.014184)	(0.475612)
cex105	1.107186 *		
	(0.060443)		
cex105sq	0.997944		
	(0.001898)		
cdev105		1.080976 ***	
		(0.023346)	
cdev105sq		0.998986 ***	
		(0.000287)	
creg105			1.235882 ***
			(0.079700)
creg105sq			0.991132 ***
			(0.002923)
time105	1.179074 ***	1.113979 ***	1.104457 ***
	(0.033674)	(0.077178)	(0.019977)
No. of observations	930	930	930
No. of ratifications	72	72	72
Log Likelihood	-276.569	-273.906	-273.456
Wald chi^2	1115.070	1171.550	1067.590
Prob > chi^2	0.000	0.000	0.000

Robust standard errors (Lin and Wei, 1989) in parenthesis.

Table 5: Cox Regression: Discrimination (c111)

Full Sample

Hazard Ratios	I	II	III
rgdpch	1.000048	1.000041	1.000023
	(0.000059)	(0.000066)	(0.000058)
open	0.996141	0.995635	0.996800
	(0.004319)	(0.004237)	(0.004075)
educ	0.999006	1.001147	1.002047
	(0.006499)	(0.006458)	(0.006415)
polity	0.999968	1.000805	0.998167
	(0.022531)	(0.022760)	(0.022151)
urban	0.995891	0.997884	0.992012
	(0.010126)	(0.009847)	(0.010168)
leg˙french	2.874382 ***	2.837655 ***	2.687574 ***
	(1.100526)	(1.101769)	-1.017041
leg˙socialist	1.830E-18 ***	1.480E-14 ***	3.480E-16 ***
	1.750E-18	1.430E-14	3.600E-16
leg˙german	2.211451	2.350498	2.116248
	(1.366444)	(1.565572)	(1.311469)
leg˙scandinavian	5.539186 ***	7.266973 ***	5.698458 ***
	(2.885846)	(3.883530)	(3.170555)
cex111	1.006371		
	(0.073564)		
cex111sq	1.000457		
	(0.002520)		
cdev111		1.043943	
		(0.027676)	
cdev111sq		0.999517	
		(0.000333)	
creg111			1.030511
			(0.037574)
creg111sq			0.999028
			(0.000832)
time111	1.103181 **	1.773914 ***	2.321572 ***
	(0.048924)	(0.110068)	(0.160169)
No. of observations	1315	1315	1315
No. of ratifications	66	66	66
Log Likelihood	-252.821	-251.616	-251.940
Wald chi^2	2336.170	2774.260	2348.200
Prob > chi^2	0.000	0.000	0.000

Robust standard errors (Lin and Wei, 1989) in parenthesis.

Table 6: Cox Regression:Minimum Age Convention (c138)

Hazard Ratios	I	II	III
rgdpch	1.000115 *	1.000010	1.000103
	(0.000065)	(0.000100)	(0.000065)
open	1.003750	1.001554	1.003493
	(0.003635)	(0.004193)	(0.003456)
educ	1.001357	1.000652	1.001235
	(0.008243)	(0.008583)	(0.008307)
polity	1.032394	1.017429	1.021559
	(0.036460)	(0.036474)	(0.033576)
urban	0.996745	1.002256	0.998631
	(0.016400)	(0.017245)	(0.016310)
leg˙french	4.550206 **	3.776774 **	3.343452 ***
	(3.235685)	(2.553433)	(2.383641)
leg˙socialist	2.310E-14 ***	1.110E-17 ***	4.940E-17 ***
	2.810E-14	1.310E-17	5.930E-17
leg˙german	1.180980	0.913889	0.878491
	(1.536536)	(1.101271)	(1.161667)
leg˙scandinavian	4.301139 *	3.420229 *	2.900743
	(3.419872)	(2.544211)	(2.467271)
cex138	1.143655		
	(0.266864)		
cex138sq	0.980741		
	(0.020406)		
cdev138		0.654979	
		(0.234070)	
cdev138sq		1.008501	
		(0.009538)	
creg138			1.244767
			(0.278420)
creg138sq			0.986094
			(0.018086)
time138	1.939607 ***	3.750306	1.925397 ***
	(0.108859)	(0.808554)	(0.105518)
No. of observations	1306	1306	1306
No. of ratifications	24	24	24
Log Likelihood	-96.509	-96.255	-96.551
Wald chi^2	2893.130	2530.120	2992.000
Prob > chi^2	0.000	0.000	0.000

Robust standard errors (Lin and Wei, 1989) in parenthesis.

Table 7: Cox Regression:Right to Organize and Collective Bargaining (c98)

Hazard Ratios	I	II	III
rgdpch	0.999782 **	0.999669 ***	0.999701 ***
	(0.000098)	(0.000103)	(0.000103)
open	0.999124	0.995877	0.999583
	(0.004339)	(0.004097)	(0.004611)
educ	1.007711	1.009364 **	1.009153 **
	(0.005080)	(0.004094)	(0.004704)
polity	1.017129	1.021325	1.016798
	(0.023128)	(0.025160)	(0.021557)
urban	1.008288	1.016210 *	1.006627
	(0.010033)	(0.009703)	(0.010501)
leg˙french	1.158489	1.090064	0.858109
	(0.446729)	(0.403301)	(0.314329)
leg˙socialist	2.810E-19 ***	4.250E-16 ***	1.580E-17 ***
	4.240E-19	6.570E-16	2.330E-17
leg˙german	0.794829	0.740385	0.591997
	(0.568594)	(0.509425)	(0.419968)
leg˙scandinavian	2.715532 ***	4.421451 ***	2.261950 *
	(1.219512)	(2.482845)	(1.068172)
inc˙developing	0.745824	0.802274	0.612702
	(0.291105)	(0.582806)	(0.370194)
cex98	1.142112 ***	0.973542	1.026685
	(0.056395)	(0.056427)	(0.053631)
cex98sq	0.995371 ***	0.999499	0.998680
	(0.001845)	(0.001892)	(0.001824)
devcdev105		1.098928 ***	
		(0.025645)	
devcdev105sq		0.999081 ***	
		(0.000266)	
ndevcdev98		1.248424	
		(0.175533)	
ndevcdev98sq		0.9962253	
		(0.006165)	
devcreg98			1.266716 ***
			(0.079658)
devcreg98sq			0.991073 ***
			(0.002378)
ndevcreg98			1.191071
			(0.205721)
ndevcreg98sq			0.995728
			(0.012086)
time98	1.451454 ***	1.782031 ***	1.534007 ***
	(0.153000)	(0.094271)	(0.040721)
No. of observations	1323	1323	1323
No. of ratifications	65	65	65
Log Likelihood	-248.290	-241.324	-240.40134
Wald chi^2	1459.270	1754.940	2234.74
Prob > chi^2	0.000	0.000	0.000

Robust standard errors (Lin and Wei, 1989) in parenthesis.

Table 8: Cox Regression:Abolition of Forced Labor (c105)

Hazard Ratios	I	II	III
rgdpch	1.000043	0.999962	0.999989
	(0.000069)	(0.000101)	(0.000058)
open	1.002570	1.002236	1.002967
	(0.003944)	(0.004321)	(0.004059)
educ	0.995229	0.999802	0.997480
	(0.005703)	(0.004379)	(0.005526)
polity	0.991830	0.991124	0.989092
	(0.021481)	(0.022036)	(0.021267)
urban	1.013501	1.014299	1.011646
	(0.009727)	(0.009399)	(0.010092)
leg˙french	1.177116	1.008091	0.917129
	(0.378602)	(0.328389)	(0.313320)
leg˙socialist	3.630E-15 ***	2.770E-13 ***	1.370E-15 ***
	5.420E-15	4.69E-13	2.09E-15
leg˙german	0.837971	0.720785	0.777968
	(0.618865)	(0.553160)	(0.566224)
leg˙scandinavian	2.401866 ***	2.635517 ***	2.198110 ***
	(0.840632)	(1.079634)	0.850140
inc˙developing	0.869839	0.652846	0.814786
	(0.303241)	(0.365545)	(0.394684)
cex105	1.107561 **	0.973157	1.047169
	(0.060200)	(0.081948)	(0.073591)
cex105sq	0.997933	1.001928	1.000020
	(0.001892)	(0.002628)	(0.002404)
devcdev105		1.095750 ***	
		(0.037660)	
devcdev105sq		0.998732 ***	
		(0.000424)	
ndevcdev105		1.177152	
		(0.135850)	
ndevcdev105sq		0.9943977	
		(0.005262)	
devcreg105			1.199455 ***
			(0.108106)
devcreg105sq			0.991621 ***
			(0.003831)
ndevcreg105			1.138974
			(0.221296)
ndevcreg105sq			0.996441
			(0.012603)
time105	1.748721 ***	1.795862 ***	1.287702 ***
	(0.292842)	(0.219649)	(0.127264)
No. of observations	930	930	930
No. of ratifications	72	72	72
Log Likelihood	-276.524	-272.351	-270.943
Wald chi^2	1143.940	1376.870	1178.490
Prob > chi^2	0.000	0.000	0.000

Robust standard errors (Lin and Wei, 1989) in parenthesis.

Table 9: Cox Regression: Rights to Organize and Collective Bargaining (c98)

Hazard Ratios	I	
rgdpch	0.999824	
	(0.000114)	
open	0.997598	
	(0.004768)	
educ	1.010067	**
	(0.005192)	
polity	1.027694	
	(0.022082)	
urban	1.014768	
	(0.010592)	
leg˙french	1.088870	
	(0.445914)	
leg˙socialist	3.660E-14	**
	6.150E-14	
leg˙german	1.303191	
	(0.973683)	
leg˙scandinavian	5.233868	***
	(2.668160)	
cex98	1.119705	**
	(0.059184)	
cex98sq	0.995877	**
	(0.001824)	
endum	0.325568	***
	(0.136712)	
en1cdev98	1.707917	***
	(0.153322)	
en1cdev98sq	0.990582	***
	(0.069830)	
en2cdev98	1.087003	***
	(0.028303)	
en2cdev98sq	0.999063	***
	(0.000358)	
en3cdev98	1.046723	
	(0.032957)	
en3cdev98sq	0.999395	
	(0.000447)	
en4cdev98	1.029698	
	(0.069830)	
en4cdev98sq	1.000004	
	(0.000988)	
time98	1.522216	***
	(0.140584)	
No. of observations	1323	
No. of ratifications	65	
Log Likelihood	-239.467	
Wald chi^2	845.650	
Prob > chi^2	0.000	

Robust standard errors (Lin and Wei, 1989) in parenthesis.