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# Globalization, Women's Economic Rights and Forced Labor*

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## REVISED VERSION

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# Globalization, Women's Economic Rights and Forced Labor

ABSTRACT

Globalization critics are concerned that increased trade openness and foreign direct investment exacerbate existing economic disadvantages of women and foster conditions for forced labor. Defenders of globalization argue instead that as countries become more open and competition intensifies, discrimination against any group, including women, becomes more difficult to sustain and is therefore likely to recede. The same is argued with respect to forced labor. This article puts these competing claims to an empirical test. We find that countries that are more open to trade provide better economic rights to women and have a lower incidence of forced labor. This effect holds in a global sample as well as in a developing country sub-sample and holds also when potential feedback effects are controlled via instrumental variable regression. The extent of an economy's 'penetration' by foreign direct investment by and large has no statistically significant impact. Globalization might weaken the general bargaining position of labor such that outcome-related labor standards might suffer. However, being more open toward trade is likely to promote rather than hinder the realization of two labor rights considered as core or fundamental by the International Labour Organization, namely the elimination of economic discrimination and of forced labor.

## 1. INTRODUCTION

Feminists and women's interest groups are concerned that globalization increases the existing economic disadvantage experienced by many women relative to men in most countries of the world (Afshar and Barrientos, 1999; Benería and Feldman, 1992; Çağatay, 1996; Elson and Pearson, 1989; Elson, 1999; Tinker, 1990; Visvanathan et al, 1997). Similarly, groups concerned about sex-slavery and non-governmental organizations with a focus on human rights and equitable development are concerned that the competitive pressures wrought by globalization increases the incidence of forced or compulsory labor (Bales, 1999; United Nations, 2000). What both groups have in common is the concern that globalization is detrimental for what are called core or fundamental labor rights. Others argue that these rights improve with increasing globalization (Bhagwati, 2004; Graham, 2000).

The International Labour Organization (ILO) has declared four labor rights as core or fundamental, despite some dispute over exactly which standards should be included in this category. The 'ILO Declaration on Fundamental Principles and Rights at Work' commits all ILO members, not just parties to the ILO conventions, to promote and to realize

(a) the effective abolition of child labor (ILO Conventions 138 and 182);
(b) freedom of association and the effective recognition of the right to collective bargaining (enshrined in ILO Conventions 87 and 98);
(c) the elimination of discrimination in respect of employment and occupation (ILO Conventions 100 and 111);
(d) the elimination of all forms of forced or compulsory labor (ILO Conventions 29 and 105).

In this article, we address fundamental labor rights that relate to economic discrimination against women and the incidence of forced or compulsory labor. Discrimination against women is of course not the only form of discrimination in respect of employment and occupation, but it is an issue with wide-reaching consequences for development, since empowerment of women is widely seen to be an end and a means to development (Abu-Ghaida and Klasen, 2004). Moreover, the issue may now be addressed systematically since sufficiently well-developed data exist. Equal pay for women for their work of equal value is also the explicit objective of the ILO's *Equal Renumeration Convention* (No. 100) from 1951. The *Discrimination (Employment and Occupation) Convention* (No. 111) from 1958, on the other hand, is more general both in terms of substantive scope reaching beyond wage payments and in terms of groups of people covered. In addition to sex discrimination, this convention also prohibits discrimination based on race, color, political opinion, nationality, or social origin. Elimination of discrimination is also specifically mentioned in voluntary codes for multinational companies, such as the ILO's *Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy* or the United Nations' *Global Compact* project (see Lozano and Boni, 2002).

Compulsory or forced labor comes in many forms. ILO (2001) classifies such labor into eight categories: slavery and abduction, compulsory participation in public works, coercive recruitment practices in agriculture and remote rural areas, bonded domestic work, debt bondage, exaction of forced labor by the military, trafficking for sexual and economic exploitation and, lastly, prison labor. This form of labor exaction can thus be imposed by either a state or by private economic agents for commercial gain. ILO (2005) estimates that there are between 9.8 to 14.8 million forced laborers worldwide that fall into one of these categories.

Compulsory or forced labor had been the subject of one of the earliest ILO conventions, namely the *Forced Labor Convention* (No. 29) from 1930. Its Article 2.1 defines 'forced or compulsory labor' as 'all work or service, which is exacted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily'. The convention calls for the elimination of forced labor, allowing only few exceptions, such as military service, service in times of emergency and minor communal services. The *Abolition of Forced Labor Convention* (No. 105) from 1957 supplements the older convention and is more concerned with the use of forced labor for political objectives and for purposes of suppressing demands from labor groups. The issue of forced labor received great public attention in the late 1990s when the ILO established a Commission of Inquiry into Myanmar's alleged use of forced labor following complaints from workers. In November 2000, the ILO took the extra-ordinary step of asking its member countries, employers and workers' organizations to re-examine and sever relationships with Myanmar due to the country's 'continued, widespread, systematic, egregious use of forced labor' (Bellace, 2001: 277). In 2003, negotiations led to a Joint Plan of Action between the government of Myanmar and the ILO. This plan could not be implemented until early 2005, however, as ILO (2005: 26) laments.

Existing studies on the effect of globalization on gender-related aspects of employment have either focused on the female employment share in the labor force or the wage gap between men and women (see next section). These are not ideal measures of economic discrimination against women. As we will argue below, an increased share of female employment following trade liberalization need not be caused by a decrease in discrimination, need not be entirely beneficial to women, and liberalized trade is likely to increase female employment in some countries and reduce it in others. The so-called gender wage gap is a better and more direct measure of discrimination against women if one can

hold other factors constant that might be responsible for the gap, such as level of education and skill endowments. But there are many forms of discrimination other than unequal pay for work of equal value. Our original contribution is to look at a measure of women's economic rights that includes the pay gap, but also covers other important aspects of gender discrimination, such as the right to work in specific circumstances, discrimination in hiring and promotion practices, freedom of choice of profession etc. (see the description of research design below for details). This is not only a measure that has hitherto not been employed in existing studies, but it is also arguably a better, more comprehensive measure of the elimination of discrimination in respect of employment and occupation against women, as required by ILO Conventions 100 and 111. As concerns our second major focus in this paper, we know of no previous study that has addressed the question of globalization's effects on forced and compulsory labor in a rigorous way. However, it can be interpreted as an extreme form of wage discrimination and many of the arguments that relate to the economic discrimination against women can be applied to forced labor as well.

In short, our findings show that countries that are more open to trade have better economic rights for women and have a lower incidence of forced labor. This holds true in a global and in a sub-sample of developing countries.[1] The result is robust toward tackling potential reverse causality with the help of instrumental variable regression. Our results tentatively suggest that as countries open more toward global markets and trade more relative to their gross domestic product, respect for these two aspects of core, or fundamental labor rights improve. However, a higher penetration of the economy with foreign investment measured as the ratio of accumulated stocks of foreign direct investment (FDI) to gross domestic product (GDP) does not seem to have any impact. These findings complement our

[1] We define developing countries as all countries other than Canada and the United States, Western Europe, Japan, Australia and New Zealand.

existing work, in which we have examined the effect of globalization on the other fundamental labor rights (Neumayer and De Soysa 2005, 2006).

This article is structured as follows: In the next section, we discuss the various impacts that globalization can have on women's economic rights and the incidence of forced labor. It will become apparent that there are highly plausible arguments for both beneficial and detrimental effects. Which prevails is therefore largely an empirical question. A description of the research design is followed by a presentation of results, the implications of which are discussed in the concluding section.

## 2. GLOBALIZATION, DISCRIMINATION AND FORCED LABOR

An extension to traditional Hecksher-Ohlin type trade theory predicts that trade liberalization will increase female employment in developing countries. Countries will expand the production of goods that are intensive in factors, which are abundantly available. In developing countries this is a large supply of relatively unskilled laborers. Partly because of prior discrimination in education and due to social and cultural restrictions on female employment opportunities, women represent the bulk of unskilled labourers. Traditional Hecksher-Ohlin trade theory takes factor supplies as fixed. Relaxing this assumption, as developing countries expand their production of goods that can be manufactured without highly developed skills and without much training in such sectors as electronics assembly, textiles, apparel, tanning and leather goods, women's participation in the work force is likely to increase. Globalization is certainly not the only factor behind the sharp rise in female employment in developing countries over the last several decades, but most studies agree that

the increased integration of developing countries into the world economy has been an important factor (Fontana, Joekes and Masika, 1998; Tzannatos, 1999).[2]

These effects of globalization on women's economic activity have not been entirely beneficial, however. First, trade theory predicts as well that developed countries will see a contraction of production in corresponding economic sectors, which likely affect women most due to the high share of female employment in these sectors. This is indeed what most empirical studies find, with the exception of Wood (1991) – see Kucera and Milberg (2000). The gains in female employment in developing countries might have come to some extent at the expense of female employment losses in developed countries. Traditional Hecksher-Ohlin trade theory would suggest that women are merely re-allocated to different economic sectors, but if the labor market is distorted and subject to a multitude of restrictions, then this might not happen. Second, in developing country economies that are predominantly agrarian, globalization has often meant a shift toward cash crop production for exports together with increased competition for food crops, a shift that adversely affects women that are predominantly employed in small non-export oriented farms (Çağatay and Ertürk, 2004: 21). Also, a high rate of female participation in agriculture and household work need not go hand in hand with autonomy to choose professions (Morrisson and Jütting, 2005). Third, without a more equal sharing of unpaid domestic work, women's overall work burden is likely to increase as they take up paid employment (Fontana and Wood, 2000). Fourth, some argue that the female employment expansion was only possible because women took up low-paid, insecure, casual jobs with poor working conditions (Standing, 1999; Çağatay and Ertürk, 2004). Thus, more employment of women as a share of total labor in developing countries

[2] Tzannatos (1999, p. 553) reports that the average developing country female participation rate rose from 35.9 per cent in early censuses from the 1950s and 1960s to 47.9 per cent in censuses of the 1980s and 1990s.

may not mean women's status or welfare improved in any meaningful way, either in absolute terms or relative to men (see Elson (1999) for a general review of such arguments).

In as much as women's wages are lower than that of men for work of equal value, this effect will show up in the gender wage gap, to which we turn now.[3] For similar reasons as for the increase in the female employment share, traditional Stolper-Samuelson type trade theory would predict that women's wages would tend to go up in developing countries. This is because an increase in demand for goods intensive in unskilled labor will increase the remuneration to unskilled labor. In developing countries, discrimination against girls and women typically leave them disadvantaged in terms of educational attainment such that they have fewer skills than men.

Modernization theorists (often instructed by neo-liberal economic theories) similarly see greater contact between the rich and poor as beneficial for the poor since forces of modernization lead to the breakdown of traditional values and practices such as patriarchy and discrimination of women, leading to greater emancipation (Lerner, 1958; Inglehart, 1988). Since cultural values may hinder the emancipation of women, the education of girls, and affect fertility rates in particular, some societies are likely to remain trapped in a vicious cycle of poverty, which in turn induces further marginalization because these values hinder the globalization of these economies (Harrison and Huntington, 2000). Thus, modernization requires globalization and vice versa, which certain cultural traits in some societies may prevent, working particularly through the disempowering effects of culture on women's role in society (Donno and Russett, 2004).

[3] However, some argue that the expansion of female employment has had spill-over effects and has led to a more general 'feminization' of jobs and labour conditions with adverse effects on both men and women (Çağatay and Ertürk, 2004).

Critics argue, however, that far from being an emancipatory force, globalization and economic discrimination of women go hand in hand. Dependency and world-systems theorists regard the contact between rich and poor as exploitative, reinforcing dependent patterns of development, both between countries and within. These theorists blame greater trade integration and the activities of MNCs that spread capitalist modes of production in 'peripheral countries' as a source of intensified exploitation of women. Women are subjected to greater subordination, increasing their overall burden with little rewards (Griffin and Gurley, 1985; Mies et al, 1988; Momsen, 1991). Ward (1984: 3), for example, maintains that 'the intrusion of the world-system through foreign investment from and trade dependency on core nations has operated to reduce women's status relative to men's', the reason being that 'men and the TNCs [Trans-national corporations] often define women's proper roles as reproducers and unpaid subsistence laborers within the domestic sphere' (for a similar argument, see Chafetz (1984: 66)). Critics also argue that increased competition due to globalization will diminish the bargaining power of wage labourers. In a desperate attempt to remain competitive in the face of cut-throat competition from many other locations in the global market place, wages need to be kept down, or so the argument goes. This could affect women more if they work mainly in sectors that are heavily affected by foreign competition (Berik, Rodgers and Zveglich, 2004). However, while these effects can change the relative wages paid to women and thereby affect the general gender wage gap, it does not mean that the discrimination-based gender wage gap is affected, as the latter refers to the differential wages that are paid to women relative to men for work of equal value. For example, Artecona and Cunningham (2002) show that the gender wage gap increased in the Mexican manufacturing sector during the trade liberalization period 1987 to 1993, but once skill differentials and general economic changes were taken into account, trade liberalization

actually reduced the discrimination-based gender wage gap, even though the effect is not statistically significant at conventional levels of significance.

Following the path-breaking work of Becker (1957), economists argue that a discrimination-based gender wage gap can exist if (predominantly male) employers have a taste for discrimination. However, since employers either fail to pay female employees their full marginal product or pay men more than their marginal product, satisfying their taste for discrimination will incur some economic cost on them. Becker argues that it becomes more difficult to indulge in tastes for discrimination as competition increases, which punishes all forms of wasteful economic behaviour (capitalists like higher profits). In as much as trade liberalization and the entrance of foreign investors steps up the competitive pressure on firms, one would expect to see a decrease in gender discrimination (as in all other forms of discrimination). Importantly, this should be the case in both developed and developing countries, even though it is expected to be stronger in countries (and within sectors) where globalization has led to sharper increases in competition.

Empirical evidence supports the view that discrimination is more widespread the less competition there is (Hellerstein, Neumark and Troske, 2002). Black and Brainerd (2004) find that increased competition through trade liberalization has closed the gender-gap in wages in the US by reducing firm's ability to discriminate against women.[4] Artecona and Cunningham (2002) find the same for Mexico, but the effect is not statistically significant at conventional levels, as already noted above. Fontana and Wood (2000) come to the conclusion that an increase in foreign investment and an increase in manufactured exports is likely to narrow the gender wage gap according to their computable general equilibrium model of Bangladesh. Berik et al. (2004), on the other hand, find that increased competition

[4] The Japanese example is a good instance of where women prefer to work for foreign companies because of barriers in domestic firms for advancement and betterment (see Bhagwati, 2004 for discussion).

from foreign trade in concentrated industries in South Korea and Taiwan is increasing the gender wage gap, thus contradicting Becker's theory. None of these country case studies can capture general trends, however. Oostendorp (2004) looks at the effect of FDI inflows and trade on the gender wage gap in more than 80 countries, disaggregated by 161 occupations. The results suggest that both FDI and trade decrease the gender wage gap in both rich and poor countries for low-skill, but not for high-skill occupations. The gender gap in high-skill occupations in poor countries might even increase with higher FDI inflows.

Compulsory or forced labor, the other fundamental labor right violation addressed in this article, has seemingly little to do with our discussion so far. However, it can be interpreted as an extreme form of wage discrimination: instead of receiving their marginal product, workers subject to forced or compulsory forms of labor receive only minimal wages, if anything at all. A greater degree of competition from higher integration into globalized markets should therefore reduce the incidence of forced labor similar to the reduction in economic discrimination against women.

Yet, at the same time, the logic that critics of globalization apply in terms of the detrimental effects of the pressure to cut costs might also lead to an increase in forced labor. As a report by ILO (2005: 63) has put it: 'It is now clearer that competitive pressures can have an adverse impact on conditions of employment and, at their extreme, can lead to forced labor. With global pressures on suppliers to reduce costs by every available means, retailers and intermediaries can take advantage of the intense competition between suppliers in order to squeeze profits out of them.' Similarly, Bales (1999: 9f.) argues that forced labor can constitute a 'significant part' of a cost-saving strategy of multinational companies. In addition, he suggests that modernization and globalization of the world economy have destroyed family and small-scale subsistence farming, with the consequence that sometimes farmers ended up in forced agricultural labor. The question of whether globalization has a

beneficial or detrimental impact on this aspect of core labor rights is therefore foremost an empirical question, as it is the case with economic discrimination of women.

Beside these more direct effects, globalization might also have an indirect impact on both discrimination and forced labor via institutional and norm convergence. Sachs and Warner (1995) argue that globalization is about more than just market integration and that it induces integrated countries to harmonize institutional and other regulatory arrangements. Given that developed countries dominate the international economic system and on average grant women better economic rights and have a lower incidence of forced labor, one can expect that their higher standards provide the role model to which countries with lower standards are moving towards. Such policy contagion dynamics working via communication, learning, imitation and altered reputation payoffs are well established in the literature on the diffusion of economic policies in globalized markets (Simmons and Elkins, 2004). With respect to reputation effects, for example, export oriented countries with production dominated by foreign investors might find it more difficult to treat women badly or employ forced labor as they are under higher scrutiny by the media, consumers, human rights and other activist non-governmental organizations (NGOs). Since the consumers of the goods produced by foreign investors in many developing countries are located in richer countries, companies are increasingly sensitive to how people perceive their brand name (Fung, O'Rourke, and Sabel, 2001). Bernstein (2001) reports that producers in these countries are starting to subscribe to voluntary codes of conduct of good practice with respect to labor standards. Harrison and Scorse (2005) show how wages increased systematically more in those textiles, footwear and apparel plants in Indonesia in the first half of the 1990s where civil society activists concentrated their campaign efforts than in other plants.

It is of course possible that economic discrimination against women and the existence of forced labor have feedback effects on a country's position in a globalizing world. Foreign

investors could be attracted by forced labor or by very low female wages and poor occupational conditions. The same conditions might give certain, mainly developing, countries an additional comparative advantage, particularly in the export of labor-intensive goods. In fact, critics claim that globalization favors capitalist classes over labor unions. Busse and Spiegelmann (2005) report evidence that a higher gender wage gap promotes the export of labor-intensive goods, whereas the opposite is the case for gender inequality in labor force activity and educational attainment rates. In a country study of South Korea, Seguino (1997) finds that the gender wage gap can explain some of the country's growth in exports. As concerns FDI, both Kucera (2002) and Busse and Spielmann (2003) find no evidence that greater gender inequality attracts foreign investors. Similarly, Busse and Braun (2003) find no evidence that a higher incidence of forced labor attracts FDI flows, but report that forced labor gives developing countries an additional advantage in the export of labor-intensive goods. While not totally conclusive, these studies suggest the need to control for potential feedback effects. In our estimations, we will tackle this problem with the help of instrumental variable regression analysis.

## 3. RESEARCH DESIGN

### *a. Dependent Variables*

Our measure of women's economic rights is taken from Cingranelli and Richards' (2004) Human Rights Database. The measure covers the following rights:

- Equal pay for equal work
- Free choice of profession or employment without the need to obtain a husband or male relative's consent

- The right to gainful employment without the need to obtain a husband or male relative's consent
- Equality in hiring and promotion practices
- Job security (maternity leave, unemployment benefits, no arbitrary firing or layoffs, etc...)
- Non-discrimination by employers
- The right to be free from sexual harassment in the workplace
- The right to work at night
- The right to work in occupations classified as dangerous
- The right to work in the military and the police force

Using the annual United States State Department's *Country Reports on Human Rights Practices*, Cingranelli and Richards code a discrete variable that takes on one of four values based on the following coding scheme (see Cingranelli and Richards (2004) for a detailed description of decision rules for coding this variable):

(0) There are no economic rights for women under law and systematic discrimination based on sex may be built into the law. The government tolerates a high level of discrimination against women.
(1) There are some economic rights for women under law. However, in practice, the government DOES NOT enforce the laws effectively or enforcement of laws is weak. The government tolerates a *moderate level* of discrimination against women.
(2) There are some economic rights for women under law. In practice, the government DOES enforce these laws effectively. However, the government still tolerates a *low level* of discrimination against women.

(3) All or nearly all of women's economic rights are guaranteed by law. In practice, the government fully and vigorously enforces these laws. The government tolerates none or almost no discrimination against women.

For forced labor, we have two independent sources. We use both to establish some robustness in the results we obtain. One is taken from Kucera (2001) and is based on various ILO publications and the US State Department's *Country Reports on Human Rights*. Kucera codes a variable that indicates the existence of forced labor in four economic sectors, namely manufacturing, mining, construction and market-oriented agriculture, forestry or fishing, so that the variable runs from 0 (no evidence in any sector) to 4 (evidence of forced labor in all four sectors). To qualify, there must be evidence of forced labor in one or the other form of:

1. Chattel slavery on behalf of private agents
2. Bonded labour or serfdom on behalf of private agents
3. Other or not specified on behalf of private agents
4. In private prisons or state-run prisons on behalf of private agents
5. In state-run prisons other or not specified
6. Resulting from state policy other than prison labour and "grey areas"

The second measure of forced labor is taken from Busse and Braun (2003). Using information from the US State Department reports as well as ILO (2001), Avery (2002) and Anti-Slavery International and ICFTU (2001), they look for evidence for one of eight forms of forced labor identified by ILO (2001), namely slavery and abduction, compulsory participation in public works, coercive recruitment practices in agriculture and remote rural areas, bonded domestic work, debt bondage, exaction of forced labor by the military,

trafficking for sexual and economic exploitation and, lastly, prison labor. Dummy variables for evidence of the existence of each form of forced labor are created. These are then summed up with equal weight to give an overall measure of forced labor. There are two exceptions to this rule. First, for trafficking in persons, Busse and Braun (2003) hold that there is enough information in the sources to allow an intermediate coding of 0.5 in addition to 0 and 1. Second, the bonded labor dummy is counted twice in the summation. Busse and Braun (2003: 7) justify this rule by saying that 'since bonded labor is the most common form of forced labor, a country that has problems with bonded labor is more likely to use forced labor on a large scale than, for instance, a country in which coercive recruitment systems exist'. The aggregate measure of forced labor therefore runs on a scale from 0 (no evidence for forced labor in any form) to 9 (evidence for forced labor in all eight forms with bonded labor counted twice). The two measures of forced labor are correlated at $r = 0.45$. This is clearly statistically significant, but perhaps below what one might expect. The less-than-perfect correlation has to do with different coding rules, different sources used etc. Thus, if we do find similar results using both measures, it will allow us to be somewhat more confident of the robustness of results.

*b. Explanatory Variables*

Our indicator of the extent of trade openness is the ratio of the sum of exports and imports to GDP (*TRADE/GDP*). We use general trade openness rather than openness in specific economic sectors because most of the theoretical arguments relate to general trade openness. As our measure of penetration by foreign direct investment we use the accumulated stock of FDI relative to GDP as this measure reflects the lasting impact of such investment accumulated over time rather than the more volatile short-term inward investment flows (*FDISTOCK/GDP*). Accumulated stock to GDP, rather than flow, also reflects the power of

the MNCs over domestic actors for shaping the political agendas of governments because it measures the relative influence of foreign over domestic economic actors (De Soysa and Oneal, 1999).

Logged per capita income (*lnGDPPC*) is included since more economically developed countries are likely to have lower economic discrimination against women and a lower incidence of forced labor under the reasonable assumption that these rights are what economists call normal goods, i.e. goods for which demand increases with rising income (data taken from Heston, Summers and Aten, 2002). Modernization theory similarly argues that the increase in economic opportunities brought about by higher economic development will make it more difficult for employers to discriminate against women (Forsythe, Korzeniewicz and Durrant, 2000). Boserup (1970) suggests that the relationship might be non-linear with economic development first providing men with preferential access to economic resources, only benefiting women after a threshold level of economic development has been reached and women start entering the paid workforce. Some feminists even suggest that economic development might increase economic discrimination against women (Charlton, 1997). In pre-tests we included a squared income term to account for Boserup's hypothesis of non-linear relationship, but did not find it to be statistically significant. For this reason, income enters the estimations reported below only linearly.

To test whether ratification of the relevant ILO conventions has an impact, we include dummy variables of whether a country had ratified the ILO Conventions 100 and 111 (*CONVRAT100* and *CONVRAT111*) for economic discrimination against women as the dependent variable. Similarly, we include dummies for ratification by 1994 of ILO Conventions 29 and 105 for forced labor as the dependent variable (*CONVRAT29* and *CONVRAT105*). This information is provided by the ILO's Database of International Labor Standards (www.ilo.org/ilolex/english/). Whether ratification of these conventions has any

effect on the actual behavior of ratifying countries is highly contested, however. From a realist international relations perspective, ratification of a convention on paper does not mean anything in actual practice unless there are stringent compliance and enforcement mechanisms in place and powerful countries take an interest in enforcing the rules. Countries with poor rights might even be more likely to ratify under these circumstances in the hope that ratification will deflect criticism without any actual change in the human rights position (Neumayer, 2005). The lack of a strong enforcement and sanctioning mechanism for breach of ILO conventions and the resulting reliance on voluntary compliance is widely noted (Block et al., 2001).

In a fully democratic society, the preferences of the median voter should determine political outcomes. Since women represent a slight majority in most country's electorate, one would expect that in fully democratic countries women enjoy no worse economic rights than men. Of course, this depends on a fully competitive political system and the majority of policy makers are male in most countries, including democracies. However, one would still expect that democracies grant higher economic rights to women relative to authoritarian regimes. As concerns forced labor, since such labor violates human rights and democracies are often regarded as being more protective of human rights (Poe, Tate, and Keith, 1999), one would expect that democracies have a lower incidence of forced labor. Data on political rights from Freedom House (2004) are taken as our measure of *DEMOCRACY*.[5] This index is based on expert judgment on the freeness and competitiveness of the electoral process, political participation and political pluralism.

[5] Note that our democracy measure relies on the political rights measure from Freedom House only, as the complementary civil liberties measure includes equality of opportunity and the absence of economic exploitation as part of the criteria used to construct the measure. The original score on Freedom House's measure has been reversed such that higher values mean more political rights.

Political economy arguments further suggest partisan effects. Left-wing governments traditionally embrace full economic rights for women as part of their political agenda, whereas conservative parties in many countries hold on to a traditional role model of men as the main breadwinner. Even in Communist countries, where we observe massive violations of other forms of fundamental labor rights such as the freedom of association and collective bargaining, women are typically not much discriminated against in economic life. There is less reason to expect a partisan effect on the existence of forced labor. No political party embraces forced labor as part of their political agenda. As information for the political orientation of the ruling government, we use a dummy variable from the World Bank's (2002) Database of Political Institutions indicating whether the chief executive's party was of left-wing political orientation (mainly communist, socialist and social democratic parties).

For women's economic rights only, we entered an additional variable capturing the percentage share of Muslims among the population (*%MUSLIM*), with data taken from La Porta et al. (1999). This is to account for the fact that in many Muslim societies women are not regarded as equal to men in professional life. Morrisson and Jütting (2005) show that there are important regional differences with respect to social institutions reflecting long-standing norms, customs and traditions such as genital mutilation and dress codes, marriage, parenting, inheritance, ownership and movement rights. To account for these differences, we include regional dummy variables following World Bank (2003) classification for Western Europe, Sub-Saharan Africa, Northern Africa and the Middle East, Eastern Europe and Central Asia, South Asia, East Asia and the Pacific, and Northern America in order to capture some crude cultural, historical and other differences. North Africa and the Middle East represent the omitted reference category in the estimations. For forced labor as the dependent variable, we do not include regional dummy variables for two reasons: First, some regions like Northern America do not have any incidence of forced labor according to our two

measures, which creates problems for the maximum-likelihood estimator employed. Second, the regional dummy variables make instrumental variable regression estimation in a pure cross-sectional sample extremely inefficient. For these reasons, we include a dummy for OECD countries instead to account for the difference in forced labor between developed and developing countries not captured by our explanatory variables. Tables 1 and 2 provide summary descriptive variable information and a bivariate correlation matrix of the dependent variables and the main explanatory variables. Variance inflation analysis did not suggest reason for concern with multicollinearity problems.

Women's economic rights are measured over a period of time and explanatory variables are therefore annual contemporaneous observations. For forced labor as the dependent variable, which is only available cross-sectionally, the explanatory variables are averages over the years 1990 to 1994. The average is taken to reduce the impact of single years and increase sample size and the end year is 1994 since the dependent variable derived from Kucera (2001) captures the incidence of forced labor from around the mid-1990s.[6]

< Insert Table 1 about here >

*c. Estimation Technique*

We estimate the model with women's economic rights as the dependent variable with ordered logit analysis to account for the fact that the variable is not cardinal, but ordinal. The count data nature of the forced labor dependent variable provided by Kucera (2001) suggests usage of an estimation technique that is particularly suitable for count data such as the negative

[6] The Busse and Braun (2002) measure refers to 1999, but we keep the explanatory variables the same for both measures. This should not be a problem due to the very high over-time persistence in the incidence of forced labor.

binomial regression. The one provided by Busse and Braun (2003) is not strictly speaking a count measure (due to the weighting of two of its sub-components), but it is very close to it, so we also use the negative binomial. For all estimations we use robust standard errors. For the women's economic rights measure, which varies over time as well, we additionally allow observations to be clustered on countries. That is, observations are assumed to be independent only across countries, but not necessarily within countries over time.

As discussed above, it is possible that trade openness and the extent of a country's penetration by FDI as well as per capita income are endogenous to women's economic rights and the existence of forced labor. For this reason, we also use instrumental variable (IV) regression where we instrument for trade and FDI.[7] For women's economic rights as the dependent variable, this is a random-effects IV estimator to account for the cross-sectional time-series nature of the data (there is, unfortunately, too little over-time variation in the dependent variable to allow fixed-effects IV estimation). Note that the IV regressions are based on a two-stage least squares (2SLS) estimator since there is no easy-to-use routine for IV estimation with either ordered logit or negative binominal regression in STATA, the statistical package used. Our choice of instruments is inspired by the so-called gravity model of international trade and by the literature on the determinants of FDI location. The literature on the determinants of FDI (see Neumayer and Spess 2005) is much less specific and consistent, however, than the gravity model is for trade openness. As instruments we use

[7] Some studies suggest that gender inequality – which is not identical to economic discrimination against women, but correlated with it – has detrimental effects on economic development (Dollar and Gatti, 1999; Klasen, 1999) while others find the opposite (Seguino, 2000), which means that the level of per capita income might be endogenous as well. Results are fairly consistent if per capita income is instrumented for as well, using a country's minimum distance to either New York, Rotterdam or Tokyo and a dummy variable for landlocked countries as additional instruments, as suggested by geographical explanations for variation in per capita income.

population size and size of land area, both in natural logs, a dummy variable, which is set to one if a country shares a common language with one of the countries of the Organisation of Economic Co-operation and Development, and the sum of bilateral investment treaties (BITs) signed by a country. Data are taken from Hall and Jones (1999), World Bank (2003) and UNCTAD (2003).

Instruments need to be redundant, relevant and exogenous. Redundant means that they must be known not to affect the dependent variables directly. There is no reason to presume that any of our instruments have a direct effect on either women's economic rights or the existence of forced labor. Relevant means that the instruments are strongly related to the endogenous variables conditional on the other exogenous variables. Exogenous means that the instruments themselves must not be correlated with the error term. Relevance and exogeneity of our instruments are discussed in the next section.

## 4. RESULTS

We start with women's economic rights, for which Table 3 provides ordered logit estimation results. Results for the full sample are presented in column I without the regional dummy variables, then in column II with these variables included. Column I suggests that countries that are more open to trade provide better economic rights to women. The stock of FDI does not matter, however. The control variables test in line with expectations: Women's economic rights are better in more developed and democratic countries as well as countries in which the chief executive belongs to a left-wing party, whereas rights are lower in countries with a higher share of Muslims. Ratification of the two relevant ILO conventions does not matter. Adding the regional dummy variables in column II does not change results much. The main difference is that ratification of ILO convention 111 (but not 100) is now associated with better rights. Of course, it is not clear whether ratification leads to better rights in its wake or

whether countries with better rights are more likely to ratify.[8] Contingent on the explanatory variables, women enjoy better economic rights in Western Europe and Northern America and worse rights in South Asia than in Northern Africa and the Middle East, the omitted reference category. Repeating the two estimations, but restricting the sample to developing countries only in columns III and IV shows that the results are not much affected and are therefore not driven by the presence of developed countries in the sample.

< Insert Table 3 about here >

In Table 4, the set of estimations from Table 3 is repeated, but employing IV regression analysis. The Cragg-Donald test statistic can tell us whether the instruments are relevant, i.e. whether they are strongly related to the endogenous variables conditional on the other exogenous variables. If instruments are weak, then 2SLS estimation is typically inappropriate. With reference to the critical values for the test reported in Stock and Yogo (2004), the instruments appear to be very strong in columns I and III and marginally strong in columns II and IV (the difference stemming from regional differences in average trade openness and FDI penetration, which lowers the relevance of the instruments). Are the instruments exogenous? They are clearly not affected by the dependent variables, but for the estimation to be identified it must be the case that they affect the dependent variables only through the endogenous variables and not through any other variable, either included or omitted from the estimation. As concerns the latter, we contest that we have not omitted any variable that theory would call for to be included *and* that is correlated with the instruments. As concerns the former, we maintain that there is no reason why population size, land area,

[8] Ideally, one would want to use instruments for ratification of both conventions as well. However, we were unable to find good instruments. We leave this for future research.

language and the number of BITs signed should directly impact either per capita income, democracy, the political orientation of the government or any of the remaining variables (other than through trade and FDI).[9] Since the model is over-identified, i.e. we have more instruments than endogenous variables, one can test exogeneity via an over-identification test. The test results reject the exogeneity assumption for the full sample, but fail to reject it for the developing country only sample. In either case, the test results are only suggestive due to potentially limited power of the test. In the end, exogeneity always needs to be assumed and as mentioned already, we see no reason against exogeneity of our instruments.

Turning to the actual estimates, as before countries more open to trade and countries with a left-wing oriented chief executive have higher women's economic rights, whereas the opposite is the case for countries with a higher share of Muslim population. The instrumental variable regression estimation in the developing country only sample with regional dummy variables included is so inefficient as to render all variables statistically insignificant, except the Muslim population share variable. A higher per capita income is associated with better economic rights for women, but only in column I. For this regression only, a higher FDI stock is negatively and marginally significantly associated with women's rights. The effect might just be down to chance, however, as the coefficient is far from statistical significance in the other columns.

< Insert Table 4 about here >

[9] Our argument is slightly problematic with respect to democracy. This is because some like Dahl and Tufte (1974) argue that a small population size facilitates democratic decision-making. We do not find this argument entirely persuasive as some of the largest countries in the world in terms of population size are well functioning democracies. Also, the very small island nations, for which the argument has been advanced most forcefully (Anckar and Anckar 1995), are not in our sample anyway due to lack of data on some of the variables.

In Table 5, we turn to the incidence of forced labor. Negative binomial regression results for the measure taken from Kucera (2001) are presented first for the full sample and then for a developing country sample only (columns I and II). Countries that are more open to trade have a lower incidence of forced labor. The opposite is the case for more democratic countries. This result might be surprising, but it does not uphold for the alternative measure of forced labor (see below). Ratification of ILO Convention 29 is positively correlated with forced labor, but only in column I, whereas ratification of ILO Convention 105 is negatively correlated with forced labor, but only in column II. There is thus no consistent effect. None of the other variables are statistically significant. In columns III and IV the measure taken from Busse and Braun (2003) is taken as the dependent variable. Trade openness remains a predictor of lower forced labor incidence in both samples. OECD countries have a lower forced labor incidence, but the type of political regime no longer matters. Neither do any of the other explanatory variables.

< Insert Table 5 about here >

IV regression results are presented in Table 6. Cragg-Donald test results suggest that the instruments are not particularly strong for these models. For this reason, we use limited information maximum likelihood (LIML) and Fuller's modified LIML estimators instead of 2SLS, as recommended by Stock and Yogo (2004). Fuller's estimators differ by a parameter a, with a = 1 and a = 4 being the most popular ones. To save space and because forced labor is rare in developed countries, we concentrate on the developing country only sample. As with the other set of IV estimations, we see no reason that would speak against the exogeneity of our instruments and the over-identification tests fail to reject the hypothesis of

exogeneity. Turning to the results themselves, trade openness remains with a negative coefficient sign throughout and is statistically significant in the majority of estimations. So is now the FDI stock variable for the Busse and Braun measure of forced labor. The ratification of ILO Convention 29 is now associated with higher forced labor incidence almost throughout. None of the other variables are statistically significant.

< Insert Table 6 about here >

In further sensitivity analysis, we replaced the measures of forced labor with a simple dummy variable that was set to one if there was any evidence for forced labor. The reason is that just because forced labor exists in more economic sectors in country A than in country B does not necessarily imply that the extent of the problem is any worse in country A than in country B. For example, according to the measure provided by Kucera (2001), there is evidence for forced labor in all four sectors in Brazil, Pakistan and India, whereas there is evidence for forced labor for only one sector in Myanmar despite the ILO finding of widespread use of forced labor in this country, as mentioned in the introductory section. Using logit to account for the dichotomous nature of the alternative dependent variables, results are very consistent with the ones using the original count measures of forced labor, implying that the results are not just tainted by the number of sectors in a country.

## 5. CONCLUSION

Does globalization increase the economic discrimination women face in many countries over the world? Does it increase the incidence of forced labor? Existing studies, both qualitative and quantitative, have only addressed some aspect of discrimination and have often done so on a case study basis. No general conclusions about the effect of globalization on the

economic discrimination against women can therefore be drawn from existing scholarship. Furthermore, we know of no existing study that has systematically analyzed the link between globalization and forced or compulsory labor.

Given the inevitable limits of our research design, we can also only offer tentative answers since we can only control for regional, not country fixed effects, in the regressions on women's rights and the sample is purely cross-sectional in the regressions on forced labor. If anything, however, our quantitative analysis of a global sample suggests that women in countries that are more open to trade enjoy better economic rights and there is less incidence of forced labor in countries more integrated into global markets than in countries that are more closed. This effect is robust toward excluding developed countries from the sample and upholds in instrumental variable regression analysis, except that trade openness is not statistically significant for women's economic rights when regional dummy variables are added to instrumental variable regression. It also holds for two independent measures of forced labor incidence with few exceptions.

Contrary to trade openness, we find little evidence that the extent of an economy's penetration with FDI, the second major component of globalization, has an effect on the dependent variables. There may be several explanations for this. One plausible reason is that the FDI stock to GDP measure for poor, but resource-rich, countries are quite high, but these countries may suffer from aspects of the resource curse where government's make little investment in the modernization of the economy. Thus, the type of FDI may matter. Unfortunately, there is no comprehensive data available on dis-aggregated types of FDI. Further, the source of FDI may also matter. Future work might examine whether there exist differences in FDI coming from Western democratic countries as opposed to FDI from other countries, mainly from East and South-East Asia. Unfortunately, this would lead to a much smaller sample due to lack of bilateral FDI data.

Globalization is not only driven by trade openness and FDI. Other features of globalization – for example, easier and cheaper travel and communication possibilities – can increase the incidence of forced labor in the form of sexual and other trafficking of people to developed countries, an aspect that ILO (2001) has termed the 'underside of globalization'. Clearly, these negative aspects are outside the scope of the present paper's analysis.

This third and final paper concludes our analysis of the effects of globalization on core or fundamental labor rights. In Neumayer and De Soysa (2005), we demonstrate that countries that are more open to trade and are more strongly penetrated by FDI have a lower incidence of child labor. In Neumayer and De Soysa (2006), we employ a new measure of free association and collective bargaining rights and find that countries that are more open to trade have fewer violations of labor rights than more closed ones, whereas FDI has no statistically significant impact. It is entirely possible of course, perhaps even likely, that globalization boosts the bargaining power of capital at the expense of labor, which would put downward pressure on outcome-related labor standards such as wages, working times and other employment conditions. These have not been the subjects of our analyses. When it comes to core or fundamental labor rights, however, globalization seems to have beneficial rather than harmful effects.

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Table 1. Descriptive variable information and correlation matrix for women's economic rights estimations.

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| WOMEN'S ECONOMIC RIGHTS | 2234 | 1.35 | 0.63 | 0 | 3 |
| TRADE/GDP | 2234 | 68.73 | 37.53 | 6.32 | 282.40 |
| FDISTOCK/GDP | 2234 | 16.17 | 19.39 | 0 | 271.57 |
| ln GDPPC | 2234 | 8.33 | 1.10 | 6.05 | 10.69 |
| DEMOCRACY | 2234 | 4.57 | 2.13 | 1 | 7 |
| GOVLEFT | 2234 | 0.31 | 0.46 | 0 | 1 |
| %MUSLIM | 2234 | 19.88 | 32.77 | 0 | 99.50 |
| CONV100RAT | 2234 | 0.78 | 0.42 | 0 | 1 |
| CONV111RAT | 2234 | 0.75 | 0.43 | 0 | 1 |

| | I | II | III | IV | V | VI | VII | VIII |
|---|---|---|---|---|---|---|---|---|
| I: WOMEN'S ECONOMIC RIGHTS | | | | | | | | |
| II: TRADE/GDP | 0.18 | | | | | | | |
| III: FDISTOCK/GDP | 0.05 | 0.45 | | | | | | |
| IV: ln GDPPC | 0.55 | 0.20 | 0.06 | | | | | |
| V: DEMOCRACY | 0.49 | 0.15 | 0.07 | 0.70 | | | | |
| VI: GOVLEFT | 0.11 | -0.01 | 0.06 | -0.02 | -0.07 | | | |
| VII: %MUSLIM | -0.33 | -0.05 | -0.02 | -0.34 | 0.45 | -0.07 | | |
| VIII: CONV100RAT | 0.16 | -0.12 | -0.06 | 0.16 | -0.10 | 0.04 | -0.02 | |
| IX: CONV111RAT | 0.09 | -0.21 | -0.11 | 0.03 | -0.05 | 0.11 | 0.15 | 0.64 |

Table 2. Descriptive variable information and correlation matrix for forced labor estimations:

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| FORCED LABOR (Kucera) | 135 | 0.33 | 0.78 | 0 | 4 |
| FORCED LABOR (Busse & Braun) | 128 | 0.54 | 0.79 | 0 | 3.50 |
| TRADE/GDP | 135 | 73.29 | 44.61 | 16.28 | 359.76 |
| FDISTOCK/GDP | 135 | 14.39 | 15.77 | 0.20 | 90.92 |
| ln GDPPC | 135 | 8.31 | 1.09 | 6.11 | 10.29 |
| DEMOCRACY | 135 | 4.60 | 1.97 | 1 | 7 |
| GOVLEFT | 135 | 0.29 | 0.38 | 0 | 1 |
| CONV29RAT | 135 | 0.79 | 0.39 | 0 | 1 |
| CONV105RAT | 135 | 0.67 | 0.47 | 0 | 1 |

| | I | II | III | IV | V | VI | VII | VIII |
|---|---|---|---|---|---|---|---|---|
| I: FORCED LABOR (Kucera) | | | | | | | | |
| II: FORCED LABOR (Busse & Braun) | 0.45 | | | | | | | |
| III: TRADE/GDP | -0.23 | -0.25 | | | | | | |
| IV: FDISTOCK/GDP | -0.15 | -0.21 | 0.55 | | | | | |
| V: ln GDPPC | -0.19 | -0.38 | 0.24 | 0.10 | | | | |
| VI: DEMOCRACY | -0.06 | -0.32 | 0.11 | 0.06 | 0.70 | | | |
| VII: GOVLEFT | 0.08 | 0.06 | -0.04 | 0.05 | -0.13 | 0.02 | | |
| VIII: CONV29RAT | 0.08 | 0.03 | 0.04 | 0.15 | 0.06 | 0.02 | -0.01 | |
| IX: CONV105RAT | -0.06 | -0.15 | -0.13 | 0.09 | 0.17 | 0.24 | -0.04 | 0.37 |

Table 3. Ordered logit results for women's economic rights.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| TRADE/GDP | 0.010 | 0.009 | 0.012 | 0.010 |
| | (2.94)*** | (2.85)*** | (2.94)*** | (2.48)** |
| FDISTOCK/GDP | -0.002 | -0.002 | -0.004 | -0.004 |
| | (0.26) | (0.17) | (0.35) | (0.34) |
| ln GDPPC | 0.947 | 0.464 | 0.522 | 0.345 |
| | (5.02)*** | (2.37)** | (2.48)** | (1.63)* |
| DEMOCRACY | 0.162 | 0.176 | 0.127 | 0.167 |
| | (2.10)** | (2.26)** | (1.69)* | (2.15)** |
| GOVLEFT | 0.585 | 0.566 | 0.544 | 0.610 |
| | (2.62)*** | (2.65)*** | (2.23)** | (2.47)** |
| %MUSLIM | -0.013 | -0.014 | -0.013 | -0.010 |
| | (2.33)** | (2.33)** | (2.28)** | (1.81)* |
| CONV100RAT | 0.394 | 0.075 | 0.268 | 0.006 |
| | (0.99) | (0.21) | (0.57) | (0.02) |
| CONV111RAT | 0.435 | 0.779 | 0.497 | 0.797 |
| | (1.18) | (2.31)** | (1.10) | (1.92)* |
| East Asia & Pacific | | 0.310 | | 0.802 |
| | | (0.47) | | (1.03) |
| Eastern Europe & Central Asia | | -0.011 | | 0.625 |
| | | (0.02) | | (0.84) |
| Sub-Saharan Africa | | -0.412 | | -0.025 |
| | | (0.62) | | (0.04) |
| South Asia | | -1.726 | | -1.409 |
| | | (2.34)** | | (1.72)* |
| Latin America & Caribbean | | -0.373 | | 0.262 |
| | | (0.58) | | (0.35) |
| North America | | 2.431 | | |
| | | (3.67)*** | | |
| Western Europe | | 1.604 | | |
| | | (2.31)** | | |
| Sample | all | all | developing | developing |
| Countries | 143 | 143 | 120 | 120 |
| Observations | 2234 | 2234 | 1776 | 1776 |
| Pseudo R-squared | 0.25 | 0.28 | 0.13 | 0.15 |

Notes: Absolute *z*-values in parentheses. Year-specific time dummies included, but not reported. Standard errors adjusted for clustering on country.

* significant at .1 level ** at .05 level *** at .01 level.

Table 4. Random-effects IV estimation results for women's economic rights.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| TRADE/GDP | 0.009 | 0.009 | 0.007 | 0.002 |
| | (3.41)*** | (1.70)* | (2.83)*** | (0.36) |
| FDISTOCK/GDP | -0.017 | -0.012 | -0.005 | 0.012 |
| | (1.83)* | (0.70) | (0.64) | (0.63) |
| ln GDPPC | 0.104 | 0.011 | -0.009 | -0.033 |
| | (2.40)** | (0.22) | (0.17) | (0.38) |
| DEMOCRACY | 0.017 | 0.010 | 0.009 | -0.008 |
| | (1.39) | (0.61) | (0.81) | (0.40) |
| GOVLEFT | 0.137 | 0.132 | 0.146 | 0.082 |
| | (3.57)*** | (2.46)** | (3.08)*** | (0.94) |
| %MUSLIM | -0.004 | -0.003 | -0.003 | -0.003 |
| | (3.21)*** | (2.23)** | (2.90)*** | (1.96)** |
| CONV100RAT | 0.048 | 0.036 | 0.042 | -0.009 |
| | (0.73) | (0.51) | (0.65) | (0.11) |
| CONV111RAT | 0.017 | 0.031 | 0.014 | -0.012 |
| | (0.25) | (0.48) | (0.20) | (0.16) |
| East Asia & Pacific | | 0.053 | | -0.043 |
| | | (0.26) | | (0.17) |
| Eastern Europe & Central Asia | | -0.211 | | 0.274 |
| | | (0.70) | | (0.79) |
| Sub-Saharan Africa | | -0.207 | | -0.217 |
| | | (1.19) | | (1.04) |
| South Asia | | -0.268 | | -0.064 |
| | | (1.05) | | (0.20) |
| Latin America & Caribbean | | 0.050 | | 0.088 |
| | | (0.26) | | (0.37) |
| North America | | 0.888 | | |
| | | (2.47)** | | |
| Western Europe | | 0.463 | | |
| | | (2.31)** | | |
| Sample | all | all | developing | developing |
| Countries | 143 | 143 | 120 | 120 |
| Observations | 2234 | 2234 | 1776 | 1776 |
| R-squared (overall) | 0.19 | 0.29 | 0.11 | 0.08 |
| Cragg-Donald test of weak instr. | 30.63 | 8.65 | 28.97 | 7.12 |
| Hansen J statistic over-ident. test | 13.03 | 15.560 | 0.354 | 1.042 |
| | (0.0015) | (0.0004) | (0.8376) | (0.5940) |

Notes: Absolute *z*-values in parentheses. Year-specific time dummies included, but not reported. * significant at .1 level ** at .05 level *** at .01 level.

Cragg-Donald test of weak instruments need to be compared to critical values contained in Stock and Yogo (2004). Hansen J statistic over-identification test is asymptotically chi-sq distributed under the null of exogeneity, with *p*-values reported in brackets.

Table 5. Negative binomial estimation results for forced labor incidence.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Kucera | Kucera | Busse & Braun | Busse & Braun |
| TRADE/GDP | -0.026 | -0.030 | -0.012 | -0.012 |
| | (3.20)*** | (3.27)*** | (2.38)** | (2.25)** |
| FDISTOCK/GDP | 0.009 | 0.013 | -0.010 | -0.010 |
| | (0.61) | (0.87) | (0.85) | (0.84) |
| ln GDPPC | -0.291 | -0.278 | -0.133 | -0.128 |
| | (1.26) | (1.18) | (0.89) | (0.86) |
| DEMOCRACY | 0.204 | 0.206 | -0.060 | -0.062 |
| | (1.90)* | (1.90)* | (0.67) | (0.70) |
| GOVLEFT | 0.398 | 0.418 | 0.195 | 0.216 |
| | (0.97) | (1.00) | (0.71) | (0.76) |
| CONV29RAT | 0.722 | 0.689 | 0.428 | 0.406 |
| | (1.70)* | (1.56) | (1.46) | (1.38) |
| CONV105RAT | -0.623 | -0.706 | -0.346 | -0.314 |
| | (1.52) | (1.65)* | (1.36) | (1.22) |
| OECD | -1.027 | | -1.825 | |
| | (1.29) | | (2.48)** | |
| Constant | 3.213 | 3.321 | 1.050 | 0.964 |
| | (1.51) | (1.52) | (0.69) | (0.64) |
| Sample | all | developing | all | developing |
| Observations | 135 | 112 | 128 | 105 |
| Pseudo R-squared | 0.11 | 0.11 | 0.15 | 0.09 |

Notes: Absolute *z*-values in parentheses. Standard errors robust towards arbitrary heteroscedasticity. * significant at .1 level ** at .05 level *** at .01 level.

Table 6. IV estimation results for forced labor incidence (developing countries only).

| | (2) | (1) | (2) | (4) | (3) | (3) |
|---|---|---|---|---|---|---|
| Dependent variable: | Kucera | Kucera | Kucera | Busse & Braun | Busse & Braun | Busse & Braun |
| Estimator: | LIML | Fuller a = 1 | Fuller a = 4 | LIML | Fuller a = 1 | Fuller a = 4 |
| TRADE/GDP | -0.010 | -0.010 | -0.009 | -0.007 | -0.007 | -0.007 |
| | (1.54) | (1.60) | (1.74)* | (1.71)* | (1.79)* | (1.98)** |
| FDISTOCK/GDP | -0.020 | -0.019 | -0.016 | -0.030 | -0.028 | -0.024 |
| | (1.11) | (1.11) | (1.10) | (1.65)* | (1.66)* | (1.66)* |
| ln GDPPC | 0.027 | 0.025 | 0.016 | 0.027 | 0.022 | 0.011 |
| | (0.17) | (0.15) | (0.10) | (0.17) | (0.14) | (0.07) |
| DEMOCRACY | 0.059 | 0.060 | 0.061 | -0.044 | -0.043 | -0.042 |
| | (1.11) | (1.14) | (1.22) | (0.62) | (0.62) | (0.63) |
| GOVLEFT | 0.371 | 0.365 | 0.348 | 0.259 | 0.252 | 0.234 |
| | (1.61) | (1.61) | (1.59) | (1.18) | (1.17) | (1.14) |
| CONV29RAT | 0.378 | 0.377 | 0.375 | 0.477 | 0.467 | 0.441 |
| | (1.63) | (1.66)* | (1.71)* | (2.16)** | (2.15)** | (2.12)** |
| CONV105RAT | -0.368 | -0.368 | -0.365 | -0.274 | -0.276 | -0.278 |
| | (1.55) | (1.57) | (1.60) | (1.31) | (1.34) | (1.42) |
| Constant | 0.750 | 0.755 | 0.774 | 1.292 | 1.312 | 1.367 |
| | (0.71) | (0.73) | (0.78) | (1.25) | (1.29) | (1.41) |
| Observations | 112 | 112 | 112 | 105 | 105 | 105 |
| Uncentered R-squared | -0.00 | 0.02 | 0.07 | 0.27 | 0.30 | 0.34 |
| Cragg-Donald test of weak instr. | 5.06 | 5.06 | 5.06 | 4.56 | 4.56 | 4.56 |
| Hansen J statistic over-identification test | 2.19 | 2.19 | 2.19 | 2.39 | 2.39 | 2.39 |
| | (0.34) | (0.34) | (0.34) | (0.30) | (0.30) | (0.30) |

Notes: LIML is limited information likelihood estimation. Fuller is Fuller's modified LIML estimator. Absolute *z*-values in parentheses. Standard errors robust towards arbitrary heteroscedasticity. * significant at .1 level ** at .05 level *** at .01 level.

Cragg-Donald test of weak instruments need to be compared to critical values contained in Stock and Yogo (2004). Hansen J statistic over-identification test is asymptotically chi-sq distributed under the null of exogeneity, with *p*-values reported in brackets.