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Technical Annex

Labour Standards as a Justification for Trade Barriers: Consumer Concerns, Protectionism and the Evidence

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This document is the technical annex to the full paper "Labour Standards as a Justification for Trade Barriers: Consumer Concerns, Protectionism and the Evidence" which is available separately.

Appendix A: Theoretical Framework

In the simple version of the Heckscher–Ohlin model, consider two goods (X, Y), where good X is unskilled labour–intensive and good Y is skilled labour–intensive; two factors (skilled and unskilled labour); and two countries (home and foreign, or H and F). First, consider the situation where the countries trade with each other and both have the highest level of labour standards. In figure 1, which shows the production possibility frontier (PPF) of H, country H decides to produce Q_1 (maximum outputs of the two goods produced efficiently by all resources) and consume C_1 (creates the highest utility U_1) at an equilibrium price ratio $P = \frac{P_X}{P_Y}$ (P_X and P_Y are the prices for goods X and Y, respectively). As country H has relatively more unskilled labour, it is expected that this country will export good X and import good Y. In figure 1, country H exports (b–a) units of X and imports (c–d) units of Y. Figure 2 shows the equivalent production (Q_4) and consumption (C_4) points for country F.

Now consider a situation where country H has decided to reduce (or reduce enforcement of) labour standards. As a result, the endowment of unskilled labour in country H increases; wages then decrease and the number of employed workers increases, reflected in an outward shift in the PPF (PPF_2) with a bias toward the unskilled labour–intensive good, X. As a result, the production of X increases relative to the production of Y and it can be concluded that the comparative advantage of country H in the production of X has improved. Additional exports of X will decrease P_X and, hence, alter P–P′ (reflecting a decline in terms of trade for country H). The new equilibrium production and consumption will be at Q_3 and C_3 respectively, with a higher utility level of U_3. If country H is a small, open economy, P will remain unchanged (at world market prices) and, hence, the new equilibrium production and consumption points will be Q_2 and C_2. In figure 1, exports of X have increased to (f–e) and imports of Y have risen to (k–g). On the other hand, country F will only experience a change in relative price level, which allows it to reach a higher level of utility (U_5). At the new equilibrium, the production of X has decreased because of the lower price of the unskilled labour–intensive good (P_X). In other words, at P′ the production of X is less profitable relative to the production of Y, and country F will shift its resources toward the production of Y.
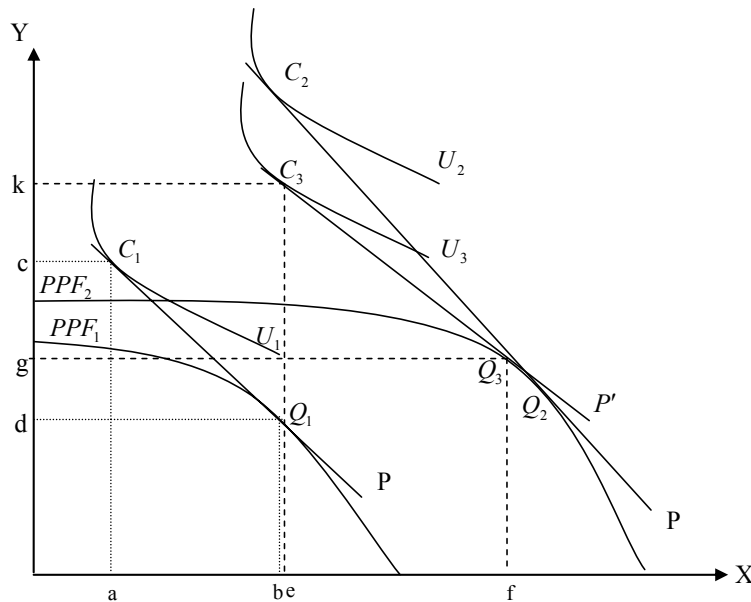
Figure 1 Trade and welfare effects of labour standards, country H.
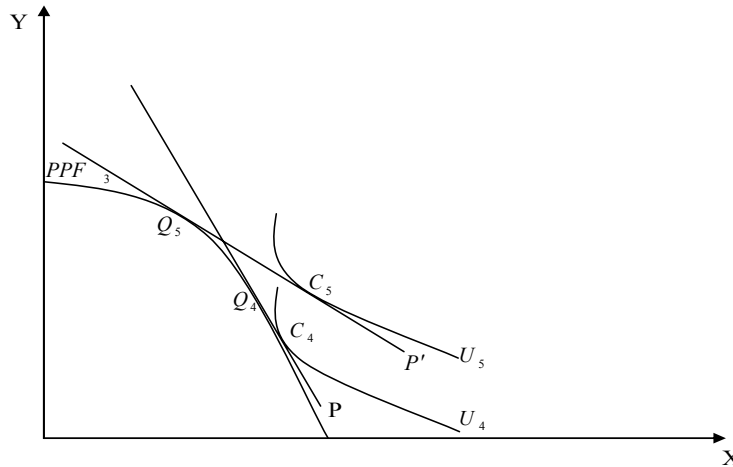
Figure 2 Trade and welfare effects of labour standards, country F.

Appendix B: Data Sources

Note 1: Unskilled labour–intensive exports contain manufactured goods characterised by both low technology and high labour intensity. By using the technology-intensity data provided by the Science, Technology and Industry Scoreboard (OECD, 2001) and labour-intensity data based on the value added per worker as applied by Tyers, Phillips and Findlay, (1987), the following manufactured goods have been selected as

unskilled labour–intensive commodities: fabric and textile yarn; glassware, glass and pottery; bedding and furniture; handbags and travel goods; apparel; footwear; games, toys, baby carriages, and sporting goods. The information used to value unskilled labour–intensive exports has been obtained from the International Trade Centre (ITC) website.

As a proxy for a country's exchange rate, we have used the bundle of currencies used to determine the unit value of Special Drawing Rights (SDRs) by the IMF − ESDR. The currency value of the SDR is determined by summing the values in U.S. dollars, based on market exchange rates, of a basket of major currencies (U.S. dollar, Euro, Japanese yen and pound sterling). The information was obtained from the IMF website. Total labour force divided by the land area represents labour endowment, which should positively affect the dependent variable. Data on GDP (in U.S. dollars) and labour endowment were collected from the World Bank website.

Note 2: This index for forced labour is based on Bazillier (2008). He uses two indexes constructed by Busse and Braun (2003): the core forms of forced labour (namely slavery and abduction, coercive recruitment systems, bonded labour and prison-linked forced labour), scaled from 0 (forced labour does not exist) to 5 (forced labour applies in all four forms); and all forms of forced labour (compulsory participation in public works, coercive work in private households, forced labour in the military and related authorities, trafficking in persons as well as the core forms of forced labour), scaled from 0 (forced labour does not exist) to 9 (forced labour occurs in all eight forms). Then, Bazillier proposes the following formula, since it is more crucial to focus here on the core forms of forced labour:

$$FLRaw = Forced_1^2 + Forced_2$$

where $Forced_1$ represents the index of core forms of forced labour and $Forced_2$ shows the index of all forms of forced labour. Then, Bazillier obtains values between 0 and 7.5 and proposes the following classification: FL = 1 for countries with $FL_{Raw} = 0$; FL = 2 for countries with FL_{Raw} between 0.5 and 1; FL = 3 for countries with FL_{Raw} between 1 and 2; FL = 4 for countries with FL_{Raw} between 2.5 and 3.5; and FL = 5 for countries with $FL_{Raw} > 3.5$.

The data for child labour and unemployment rates for female and male have been obtained from World Bank (2005), World Development Indicators, Data on CD-ROM and Key Indicators of the Labour Market (KILM) programme (2007), 5th edition software, respectively.

The 37 evaluation criteria are based on the Freedom of Association and Protection of the Right to Organise (Conv. 87) and the Right to Organise and Collective Bargaining (Conv. 98) and related ILO jurisprudence, as well as violations observed in information sources (International Confederation of Free Trade Unions, Annual Survey of Trade Union Rights for 1996, the U.S. State Department, Country Reports on Human Rights Practices, ILO, Report of the Committee on Freedom of Association). The 37 criteria and the method used to construct the weighted union rights index can be found in Kucera (2004). Kucera's union rights index is based on information sources that provide systematic and detailed information on trade union rights that is consistent both across countries and over time; therefore, this index is more reliable than those constructed by the OECD (2001) and the NGO Freedom House.

The information related to the number of ILO conventions on core labour standards that have been ratified by the country has been obtained from www.ilo.org/ilolex/.

Appendix C: List of Countries, Testing for Endogeneity and Estimation Results

Note 1: Argentina, Bahamas, Bangladesh, Barbados, Bolivia, Botswana, Brazil, Chile, China, Colombia, Costa Rica, Cyprus, Ecuador, Egypt, Ethiopia, Fiji, Guatemala, Honduras, Hong Kong, India, Indonesia, Iran, Israel, Jamaica, Jordan, Kenya, Kuwait, Malaysia, Malta, Mauritius, Morocco, Niger, Pakistan, Panama, Papua New Guinea, Peru, Philippines, Singapore, South Africa, Sri Lanka, Swaziland, Syria, Tanzania, Thailand, Uruguay, Venezuela, Zambia, Zimbabwe.

Note 2: Clearly, other labour standards like working conditions (e.g., wages, working hours) are generally determined endogenously. It is likely that the same is true for core labour standards. Although legislation and enforcement of core labour standards are more easily set by national governments, they could still be determined endogenously.

The problem of endogeneity can create a bias in the estimation and has to be considered in the econometric methodology. This problem can be solved by using the Two-Stage Least Square (TSLS) method if we have appropriate instruments for labour standards. The literature has suggested some polity variables as instruments, including democracy, competitiveness of executive recruitment and operational independence of chief executive (Carothers, 1994; Staerkle, Clemence and Doise, 1999;[1] ILO, 1998;[2] Bazillier, 2008).

    We employed Institutionalised Democracy, Openness of Executive Recruitment, and Executive Constraints (Decision Rules) (Gleditsch, 2007[3]) as instruments for labour standard variables in the base model (model 7). After estimating the base model by the TSLS method, the Hausman test suggests that the null hypothesis of the OLS estimator is consistent and efficient and thus cannot be rejected. Therefore, we can rely on the results of the OLS estimator instead of TSLS with polity variables as instruments. This implies that although the model might suffer from endogeneity, the TSLS estimator with available instruments could not provide more consistent results than the OLS estimator.

Table A1 Comparative Advantage and Core Labour Standards

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Dependent Variable: Ln (Unskilled labour–intensive exports)								
Ln (exchange rate)	-0.145	-0.112	-0.135	-0.145	-0.121	-0.163	-0.126	-0.084
	(-1.61)	(-1.32)	(-1.53)	(-1.62)	(-1.38)	(-1.73)	(-1.48)	(-1.06)
Ln (GDP)	1.099**	0.927**	1.127**	1.100**	0.957**	0.931**	0.592**	0.821**
	(6.39)	(5.08)	(5.80)	(6.29)	(5.86)	(4.73)	(2.72)	(4.75)
Ln (total labour force/total land area)	0.525**	0.412**	0.544**	0.525**	0.653**	0.504**	0.495**	0.505**
	(3.48)	(2.52)	(3.38)	(3.45)	(4.82)	(3.30)	(2.87)	(3.63)
Forced labour practised		0.435**					0.417**	0.369**
		(2.88)					(2.43)	(2.63)
Child labour practised			0.042				-0.044	
			(0.45)				(-0.48)	
Female discrimination exists				-0.0009			-0.007	
				(-0.05)			(-0.45)	
Union rights exist					-0.060**		-0.057**	-0.051**
					(-4.10)		(-4.31)	(-3.82)
ILO conventions ratified						-0.480	-0.531	
						(-1.66)	(-1.86)	
Constant	-16.610**	-12.829**	-17.524**	-16.651**	-13.304**	-9.389	-1.217	-9.717*
	(-3.93)	(-2.83)	(-3.43)	(-3.83)	(-3.26)	(-1.56)	(-0.18)	(-2.26)
Prob-F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.62	0.65	0.62	0.62	0.67	0.64	0.72	0.70
Number of observations	48	48	48	48	48	48	48	48

t-statistics are in parentheses. * Significant at 5% level. ** Significant at 1% level.
Because of suspicion of heteroskedasticity, the robust estimation results have been reported.

In model 1, only the economic variables (exchange rate, GDP and labour endowment) have been included, while in models 2–6 each measure of the labour standards has been added separately to our explanatory variables. In model 7 (the base model) all explanatory variables have been included. Finally, model 8 reports the results of the model after insignificant variables have been omitted.

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Endnotes

1. Staerkle, Clemence and Doise (1999) argue that the citizens of nondemocratic countries are viewed as accepting more human rights violations than citizens of democratic countries because of the pervasive impact of information on political judgments of the population.
2. ILO (1998) observes that "the expansion of democracy and of the free market economy has generally improved the context in which freedom of association principles are applied."
3. All data have been obtained from Gleditsch (2007).