

# **Effect of labor standards and human development on competitive advantage in developing countries.**

Damla Hadimoglu

1658018

Department of Economics  
The University of Akron

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## **Abstract**

This research concentrates on the question of whether or not labor standards can affect comparative advantage in unskilled-labor-intensive goods in developing countries, and thereby influence trade flows. Using a Heckscher – Ohlin framework, the effect of low labor standards improves comparative advantage in unskilled labor intensive goods in developing countries. Wage and human development effects are empirically tested and some empirical findings indicate that there is evidence in the same direction. Forced labor will lead to an increase in the endowment of unskilled labor, and hence improve comparative advantage in unskilled labor intensive good but the opposite occurs with discrimination against females.

## **Introduction**

Labor standards are often defined as an international relations act, which regulates employment conditions or the industrial relations. More specifically, labor standards describe the actual situation with regard to employment and unemployment, the level of wages, fringe benefits and non-pecuniary rewards, employment security, occupational health and safety, the level of skill and competence of the workplace, hours and conditions of work, and so forth. A large body of international labor standards is

minimum standards governing labor relations, labor administration, and the protection of labor. But other important international labor standards, usually referred to as the promotional instruments, cover broader issues of employment, human resources development, and social policies.

International labor standards were the principle means of action constitutionally assigned to the International Labor Organization (ILO) when it was set up in 1919. Since then the ILO's activities have undergone considerable development and the continuing significance of its standard-setting work is widely recognized. The ILO strives to promote social justice and better living and working conditions throughout the world on which universal and lasting peace can be established. Recognition of the need to protect the basic rights of all workers, to build a better society and to avoid all negative forms of international competition was the cornerstone of the creation of the ILO. In recent years the debate over whether labor standards should be enforced in international trade has become a significant issue of the international trade policy agenda in recent years. This issue also gains importance from the humanitarian organizations in terms of the increasing globalization of the world economy (Busse 2002).

When we look at the characteristics of the international labor standards, they are universal and highly flexible. On the other hand it is pretty obvious that they protect basic human rights and reflect a broad universal consensus on how to regulate the minimum protection for workers acceptable in the international community as a whole. They form a coherent system bringing specific technical and social objectives into line. Since Conventions can be ratified one by one and recommendations contain non-binding guidelines, the Member States have the ability to maneuver with respect to the legal undertaking that they each believe they should assume and that they will eventually put into effect.

## **1The Scope of the Labor Standards and Comparative Advantage**

It is quite clear that labor standards vary from country to country, depending on the income level, development and educational level and governmental infrastructure. The set of labor standards used will definitely influence the empirical results. Now it is important to clarify the core labor standards and other labor standards used in this model for the purpose of analyzing the effects on comparative advantage and trade. Core labor standards focus on;

1. Freedom of association and the effective recognition of the right to collective bargaining; (ILO convention no.87 and no.98)
2. The elimination of all forms of forced or compulsory labor; (ILO convention no.29 and no.105)
3. The effective abolition of child labor; (ILO convention no.138 and no.182)
4. The elimination of discrimination in respect of employment and occupation; (ILO convention no.100 and no.111)

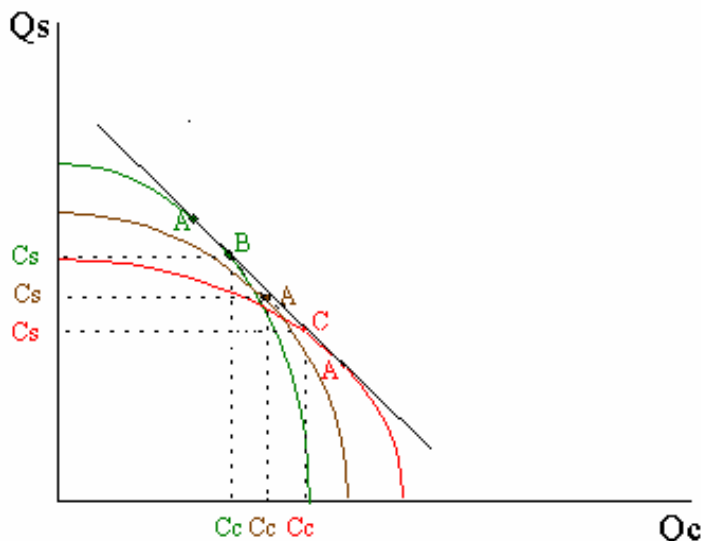
Other labor standards, like minimum wage or safety and health standards in the workplace are related to actual labor market outcomes and working conditions. These conditions are called ‘acceptable conditions of work’ are highly controversial whereas core labor standards have received widespread acceptance.

Flanagal (2002) discusses the relationship between labor standards and trade policy as two points of view; first is the adoption of labor standards proposed by the ILO as an important mechanism for improving the conditions of labor, particularly in developing countries, but he at least implicitly acknowledges that such standards may raise production cost. This condition can result in an unfair international competitive advantage over developing countries that ratify these ILO standards. Flanagal (2002) proposes WTO actions to curb purported advantages. Second, implementation of labor standards could become a form of protectionism by robbing developing countries of their

comparative advantage. Politically, some industrialized countries subscribe to the first position, most developing countries to the second. In the following sections, with the results of the empirical work, we will discuss the findings of the analysis and see the wage effect on unskilled labor intensive goods export. It will show a negative relationship between these variables and these findings confirm the argument about unfair competitive advantage over countries.

Due to a lack of agreement on the definition or a common list of labor standards, the discussion about any effects on trade and comparative advantage has become increasingly confusing (Busse 2002). Some previous empirical findings indicate that even core labor standard measurements have an indirect effect on the labor market and trade flow. Legislation in many developing countries provides for more than the core labor standards of ILO. National laws and regulations must be compatible with those conventions ratified in order to apply them in a real world. Ratification of a particular convention however is not necessarily a good indicator for enforcement of that convention. Because of these reasons, using the ratification of ILO conventions might not be a good indicator for the analysis and direct indicators might be needed.

### Trade and Welfare Effect



The choice of Heckscher-Ohlin (H-O) framework is a suitable model because this work focuses on the effect of core labor standards and human development on comparative advantage of unskilled labor intensive goods.

The Heckscher-Ohlin theorem states that a

country which is capital-abundant will export the capital-intensive good. Likewise, the country which is labor-abundant will export the labor-intensive good. In this model a country's advantage in production arises solely from its relative factor abundance and it exports the products of this relative abundance, either capital or labor.

The H-O model assumes that the two countries (US and France) have identical technologies, meaning they have the same production functions available to produce steel and clothing. The model also assumes that the aggregate preferences are the same across countries. The only difference that exists between the two countries in the model is a difference in resource endowments. We assume that the US has relatively more capital per worker in the aggregate than does France. This means that the US is capital-abundant compared to France. Similarly, France, by implication, has more workers per unit of capital in the aggregate and thus is relatively labor-abundant compared to the US. We also assume that steel production is capital-intensive and clothing production is labor-intensive. The difference in resource endowments is sufficient to generate different PPFs in the two countries such that equilibrium price ratios would differ in autarky. To see why, imagine first that the two countries are identical in every respect. This means they would have the different PPF. Given the assumption about aggregate preferences, that is  $U = C_C C_S$ , the indifference curve,  $I$ , will intersect the country's PPFs at point  $A$ , where the absolute value of the slope of the tangent line (not drawn),  $(P_C/P_S)$ , is equal to the slope of the ray from the origin through point  $A$ . The slope is given by  $C_S/C_C$ . In other words, the autarky price ratio in each country will be given by,  $(P_C / P_S) = (C_S / C_C)$ . This is the Heckscher-Ohlin theorem. Each country exports the good intensive in the country's abundant factor.

### **Data Quality**

Data is organized into 72 country files and variables are included from the raw data that were related to labor market and human development indicators. Data availability was the most important determination in this analysis. Some data are available but these are not in the shape that the analyses require. Selecting the data which

is comparable and make it available to the research was also challenging part of the analysis. For some countries only one source was available so by definition that source became the best, regardless of its accuracy. The problem was choosing the best source which may create bias because more developed countries are likely to have better developed sources providing better quality data. As a result, selecting the best source may affect, in a nonrandom way, the number of cells filled in the final data set.

In order to see an accurate picture of the cause-effect relationship, direct measurements are unavoidable. But it is sometimes hard to find numerical, ready-to-use data; and for instance forced labor was not available in a numerical shape which makes the analysis more difficult. In order to avoid the bias of converting the qualitative information into numerical data, some variables are used as a proxy for direct measures.

### **Labor Standards and Changes in factor endowments**

In the previous sections, we considered the Labor Standards and theoretical background of this research. Now the question is how labor standards effect the total factor endowment of unskilled labor. Every application constraining the human rights and lowering the labor standards increase the competitiveness of unskilled labor. Lowering of the minimum age for employment, which is the use of more child labor, will contribute to the unskilled labor inflation but the outcome is ambiguous. The effect of child labor on unskilled labor intensive goods production may require more skills from 10-14 age groups. (Child labor force might contribute to unskilled manufacturing good production.)

Besides the unskilled labor augmenting effect, an increase in use of child labor is detrimental to development, since it is likely that future generations of workers are less skilled and hence less productive. Measuring this effect needs further research that not accounted in this paper.

The effect of education on unskilled labor intensive goods manufacturing is tested together with overall country rankings of human development. On the other hand,

discrimination against females in employment can be expected to reduce the labor endowment. There is evidence that the educational attainment level of females in developing countries is lower than of males. An increase in the discrimination against females will then lead, at least in the short run, to a lower relative endowment of unskilled labor.

### **Empirical Evidence**

After all these theoretical considerations, the relationship between labor standards and human development indicators to comparative advantage is empirically analyzed. Comparative advantage of unskilled labor intensive goods is measured as the ratio of unskilled labor intensive exports to total exports (variable: Exp\_rate). The focus is on manufactured goods only. But what are the unskilled labor intensive manufactured goods? This classification is based on two determinants: technology and labor intensity. Included in the analyses are those commodities that involve both low technology and high labor intensity, i.e., textiles clothing, footwear and toys (see Appendix A for a complete list). This list is based on Matthias Busse (2002) research and he used the same list for a similar purpose.

Comparative advantage is determined by relative factor endowments. Consequently, for relative factor endowments two variables are used: first, total labor force divided by the land area which is expected to be positively associated with Exp\_rate, and second female percentage of labor force. This variable is used to see the degree of discrimination against women in working life and expected to be positively associated with Exp\_rate. As a measure of core labor standards and human development 5 indicators are used:

1. Wage expected to have a strong effect on exp\_rate since the theory indicates that the cheap labor countries increase the unskilled labor intensive good production and competitive advantage. It does not necessarily mean that the overall competitiveness increases with the effect of keeping the wage rates low but it can be interpreted as because developing countries have only a few advantages for

- competition for instance labor force, they maximize their advantage by keeping labor cost lower with lower wages.
2. No\_105 is the number of years since a country ratified Abolition of Forces Labor convention (No. 105). The difficulty of finding numerical data on forced labor for this research resulted in using this variable as a proxy of actual forced Labor data. Therefore this variable is expected to have a correlation with unskilled manufacturing goods export and to be negatively associated with exp\_rate.
  3. Number for the number of ratifications of the seven ILO conventions on core labor standards. (Since it was activated in 1999, Worst Forms of Child Labor Convention No. 182 excluded from the empirical tests.)
  4. Education index and human development index which rank the countries based on the education level and human development level are used as a proxy for the skill level of the labor force and is expected to be negatively related with exp\_rate.
  5. Child as an indicator of prevalence of child labor defined as the percentage of children ages 10-14 who are working.

In Table 1, the estimation results for eight regressions are reported based on data for the year 1999. In the first regression the 2 explanatory variables having the expected signs but female variable not significant. In the remaining columns the coefficient for the seven indicators for labor standards are reported. The most significant result is obtained by adding the Wage variable in the regression test. It improves either overall significance of the model and individual variables. Wage is 10% significant and variable female and lab\_surface also become more significant in the model.

Wage and no\_105, have all the expected signs and statistically significant at 10 percent levels but Educ and Human does not have any effect on unskilled labor intensive manufacturing good export. This result might be indicate that either change in human development or education level does not have any effect since competitiveness is mostly based on human capital in developing countries. When we consider this results with wage affect, it strength the idea of keeping wage level low in developing countries make those countries compatible in global platform.

The number of ratifications of the fundamental seven ILO conventions appears not significantly affect comparative advantage in exports of labor-intensive goods.

Number is just above zero and not statistically significant. In addition to that child labor effect is insignificant in the model and this can be explained by constraining the child age group by 10-14 is the reason of the result. But with all these results variable no\_105 indicates that labor standards can still have an impact on comparative advantage in developing countries.

When we look at the results in Table 2, adding the OECD countries in the regression test improves the statistical significance and that indicates the human development, level of education is really important determinant on the competitiveness of unskilled labor intensive manufacturing goods.

Table 1. Comparative Advantage, core labor standards and human development  
(developing countries)<sup>a</sup>

Dependent Variable: exp_rate							
<b>Constant</b>	-0.04377	-0.10493 **	0.04699	-0.08932	0.07525	0.10535	-0.03597
<b>St. Error</b>	0.05684	0.03698	0.07721	0.07328	0.09706	0.12128	0.06407
<b>Lab_surface</b>	0.00018203 *	0.00038399 ***	0.00024223 *	0.00018221 *	0.00015027	0.00018878 *	0.00018288 *
<b>St. Error</b>	0.00009705	0.00006302	0.00010132	0.00009709	0.00009788	0.00009831	0.00009824
<b>female</b>	0.00265 *	0.00406 **	0.00094151	0.0028 *	0.00441 *	0.00342 *	0.00252
<b>St. Error</b>	0.00148	0.00107	0.00176	0.00149	0.00187	0.0016	0.00157
<b>wage</b>		-0.00562 *					
<b>St. Error</b>		0.00291					
<b>no_105</b>			-0.0013 *				
<b>St. Error</b>			0.00076772				
<b>number</b>				0.00688			
<b>St. Error</b>				0.00698			
<b>educ</b>					-0.22078		
<b>St. Error</b>					0.14709		
<b>human</b>						-0.23903	
<b>St. Error</b>						0.16969	
<b>child</b>							-0.00063682
<b>St. Error</b>							0.00231
<b>r-square</b>	0.18	0.79	0.24	0.2	0.23	0.22	0.18
<b>N</b>	43	25	43	43	43	41	43

\*Significant at 10% level

\*\*Significant at 5% level

\*\*\*Significant at 1% level

Table 2. Comparative Advantage, core labor standards and human development  
(All countries) <sup>a</sup>

Dependent Variable: exp_rate							
<b>Constant</b>	-0.02337	-0.0849 *	0.03331	-0.06013	0.07703	0.08629	-0.02643
<b>St. Error</b>	0.04707	0.03158	0.05441	0.05927	0.06657	0.06797	0.04989
<b>Lab_surface</b>	0.00018302 *	0.00035535 ***	0.00020876 *	0.00018292 *	0.00016384 *	0.00019144 *	0.00018366 *
<b>St. Error</b>	0.00008182	0.00005606	0.00008112	0.0000818	0.00008027	0.00008068	0.00008252
<b>female</b>	0.00194	0.00364 ***	0.00114	0.00202 *	0.00346 *	0.00272 *	0.002 *
<b>St. Error</b>	0.00119	0.00088208	0.00123	0.00119	0.00137	0.00124	0.00123
<b>wage</b>		-0.00473 ***					
<b>St. Error</b>		0.00090306					
<b>no_105</b>			-0.00097673 *				
<b>St. Error</b>			0.00049921				
<b>number</b>				0.00562			
<b>St. Error</b>				0.00551			
<b>educ</b>					-0.18235 *		
<b>St. Error</b>					0.08762		
<b>human</b>						-0.17785 *	
<b>St. Error</b>						0.08069	
<b>child</b>							0.00027302
<b>St. Error</b>							0.00138
<b>r-square</b>	0.13	0.67	0.18	0.14	0.18	0.2	0.13
<b>N</b>	66	43	66	66	66	64	66

\*Significant at 10% level

\*\*Significant at 5% level

\*\*\*Significant at 1% level

## Conclusion

The main argument of this paper has been that the observance of core labor standards and human development indicators can affect comparative advantage of unskilled labor intensive goods. This analysis has been shown that once all commodity categories of unskilled labor intensive goods and adequate control variables included in the analysis, a negative statistical significant relationship between comparative advantage and the level of core labor standards and human development can be found for the

countries included in the analysis but the result of number of ratification and child labor is still ambiguous.

### **Appendix A. Low Technology and Labor Intensive Goods**

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- Fabric and Textile Yarn.
  - Glassware, glass and pottery.
  - Bedding and Furniture.
  - Handbags and travel goods.
  - Apparel.
  - Footwear.
  - Games, toys baby carriages and sporting goods.
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### **Appendix B. Data Sources and Definitions of Variables**

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**Exp\_rate** : Exports of unskilled-labor-intensive manufactured goods divided by total exports of goods. (1999). Source: International Trade Statistics (<http://www.intracen.org/tradstat/>)

**Lab\_surface** : Total labor force divided by land area. (1999)  
Source: World Development Report 2000/2001

**Wage** : Hourly wage in US \$. (1999)  
Source: (<http://ia.ita.doc.gov/>)

**Female** : Female percentage of labor force. (1999) Source: World Development Report 2000/2001

**No\_105** : Number of years since Country ratified Abolition of Forced Labor Convention (No. 105) as a proxy of actual Forced Labor index.

<b>Number</b>	: Number of ratification of the seven fundamental ILO conventions. Source: ILO
<b>Educ</b>	: Education index (1999) Source: Human Development Report website.
<b>Human</b>	: Human development index (1999) Source: Human Development Report website.
<b>Child</b>	: Percentage of child labor force of 10-14 age groups. Source: World development report 2000/2001

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### Appendix C. Countries Included in the Regression Analysis<sup>a</sup>

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ALBANIA, ALGERIA, ARGENTINA, ARMENIA, AUSTRALIA, BARBADOS, BELGIUM, BELIZE, BOLIVIA, BRAZIL, BULGARIA, CANADA, CHILE, CHINA, COLOMBIA, COSTA RICA, CROATIA, CYPRUS, CZECH REP., DENMARK, ECUADOR, EGYPT, EL SALVADOR, ESTONIA, FINLAND, FRANCE GERMANY GREECE GUATEMALA HONDURAS HUNGARY ICELAND INDIA INDONESIA, IRELAND, ISRAEL, ITALY, JAMAICA, JAPAN, KAZAKSTAN, LATVIA, LITHUANIA, MADAGASCAR, MALAYSIA, MAURITIUS, MEXICO, NETHERLANDS, NEW ZEALAND, NICARAGUA, NORWAY, OMAN, PANAMA, PARAGUAY, PERU, PHILIPPINES, POLAND, PORTUGAL, ROMANIA, RUSSIAN FED, SAUDI ARABIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, SWITZ.LIECHT, THAILAND, TRINIDAD TBG, TUNISIA, TURKEY, UNTD KINGDOM, URUGUAY, VENEZUELA.

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<sup>a</sup> The countries in italic underlined are the OECD countries that have not been included in the first set of regression, which focuses on developing countries.

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